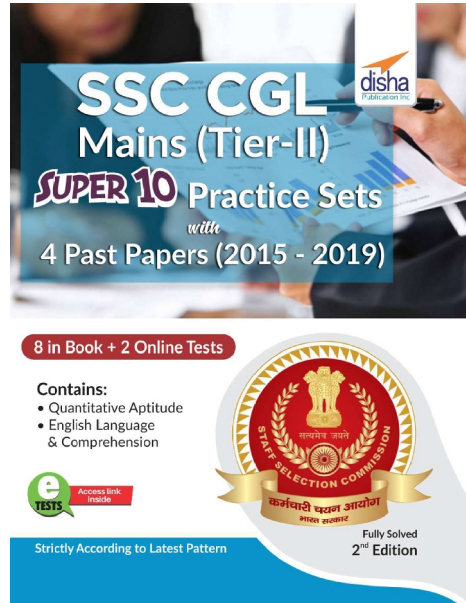


SSC Combined Graduate Level (Tier-II) Exam-2018

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SSC

Held on 11-09-2019

Combined Graduate Level (Tier-II) Exam-2018

Time : 4 Hours

Max. Marks : 400

ENGLISH LANGUAGE & COMPREHENSION

- Select the word which means the same as the group of words given.
Causing great damage or suffering
(a) Catastrophic (b) Spasmodic
(c) Catatonic (d) Chasm
- Given below are four jumbled sentences. Pick the option that gives their correct order.
A. They also believe that one must not hold on to things if one doesn't use them and love them anymore.
B. Finally, it's a very good idea to give the things to someone who can and will use them.
C. They further advise that one can begin the process of decluttering by first checking if the things one wishes to give away are still usable and valuable.
D. Minimalists believe that clutter causes a lot of stress and wastes precious space.
(a) DCBA (b) ABDC
(c) DACB (d) CADB
- Identify the segment in the sentence, which contains the grammatical error.
Why should always we have to wait for her to join us?
(a) for her to join her
(b) Why should
(c) always we
(d) have to wait
- Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
The priest said to me, "You have committed a cardinal sin."
(a) The priest told me that I had committed a cardinal sin.
(b) The priest is saying I have committed a cardinal sin.
(c) The priest said if I will be committing a cardinal sin.
(d) The priest told me I am committing a cardinal sin.
- Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
Two children were shot dead by a psychopath during the California music festival.
(a) Two children were being shot dead by a psychopath during the California music festival.
(b) Two children are shot dead by a psychopath during the California music festival.
(c) A psychopath during the California music festival was shooting dead two children.
(d) A psychopath shot dead two children during the California music festival.
- Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
Her mother said, "We must have a party to celebrate your promotion."
(a) Her mother said that they must have a party to celebrate her promotion.
(b) Her mother said she had been planning a party for celebrating her promotion.
(c) Her mother says that they should plan a party to celebrate her promotion.
(d) Her mother told that they would be having a party to celebrate her promotion.
- Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
Somebody feeds the stray dog daily.
(a) Daily somebody has fed the stray dog.
(b) The stray dog was fed daily.
(c) The stray dog is fed daily by somebody.
(d) The stray dog will be fed daily.

8. Given below are four jumbled sentences. Pick the option that gives their correct order.
- A. As soon as she was given the slippers, she broke into a dance strutting around in her first ever pair of slippers.
- B. This story may seem strange but it is a fact that, in many villages of India, people don't have anything to put on their feet.
- C. Goonj, a leading NGO of India, runs a Cloth for Work Scheme and gives clothes and useful items in exchange for work done.
- D. Recently, as part of the scheme, an old lady in a Madhya Pradesh village was given a pair of slippers.
- (a) DACB (b) CABD
(c) CDAB (d) DBAC
9. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'. She is a very good sprinter. I can't run as fast as she does.
- (a) no improvement
(b) like she is doing
(c) as she doing
(d) as she do
10. Given below are four jumbled sentences. Pick the option that gives their correct order.
- A. The home then was a bungalow, single storied and bounded by walls.
- B. He states that in the early 1950's houses in most cities relied on the bungalow model.
- C. According to Gautam Bhatia, a leading architect we need to bring about a radical change in our model of housing.
- D. Sadly, nearly 70 years later after a 100-fold increase in city population, density and land value we still persist on the same outmoded model
- (a) CBAD (b) CDAB
(c) DBAC (d) CDBA
11. Given below are four jumbled sentences. Pick the option that gives their correct order.
- A. But today adults as well as a growing number of young parents are cutting down on intake of sugar.
- B. Until about two decades ago, becoming careful about sugar was only for diabetics.
- C. Thus going zero on sugar is fast becoming a popular trend for all.
- D. Before joining this trend doctors advise that we all need to find out whether all sugars are harmful.
- (a) BACD (b) CDAB
(c) ABDC (d) DBAC
12. Given below are four jumbled sentences. Pick the option that gives their correct order.
- A. Unfortunately this resulted in his going to jail.
- B. As a child he always landed in trouble.
- C. Louis Armstrong was a famous jazz musician.
- D. Once he found a pistol and fired it in the street.
- (a) CBAD (b) CBDA
(c) BCAD (d) DABC
13. Select the most appropriate option to fill in the blank.
The car cleaner expressed his inability to continue cleaning my car from 1st July due to his _____.
- (a) ill feeling (b) ill health
(c) disease (d) disorder
14. Select the word which means the same as the group of words given.
A strong feeling of dislike towards someone or something.
- (a) sympathy (b) telepathy
(c) antipathy (d) empathy
15. Identify the segment in the sentence, which contains the grammatical error.
She is a great cook, has her own blog on YouTube and was followed by one lakh viewers.
- (a) She is (b) a great cook
(c) has her own blog (d) was followed
16. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
My uncle said, "Just my luck! I've missed the bus again."
- (a) My uncle exclaimed that he was unlucky as he had missed the bus again.
(b) My uncle said he was lucky as he had missed the bus again.
(c) My uncle exclaimed that he is once again lucky to miss the bus.
(d) My uncle says that he is unlucky as he has missed the bus again.

17. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
Kiran said, "I will reach Patna tomorrow morning."
(a) Kiran said that she will reach Patna tomorrow morning.
(b) Kiran says that she will reach Patna tomorrow morning.
(c) Kiran said that I will reach Patna the next morning.
(d) Kiran said that she would reach Patna the next morning.
18. Identify the segment in the sentence, which contains the grammatical error.
The Prime Minister holding is the important meeting to review the security and safety of doctors working in government hospitals.
(a) of doctors (b) working in
(c) to review (d) holding is the
19. Select the most appropriate idiom (in the context) to fill in the sentence.
Making the final paper was a really difficult task but by the end of the week, I was able to _____.
(a) bark up the wrong tree
(b) wrap my head around it
(c) cry my eyes out
(d) run out of steam
20. Given below are four jumbled sentences. Pick the option that gives their correct order.
A. His death was a cause of great speculation.
B. Edgar Allan Poe was a famous American author.
C. Within a few days of being found, he died mysteriously on Oct 7, 1849.
D. He had gone missing on October 3, 1849 and was found a few days later.
(a) CDBA (b) BADC
(c) BCDA (d) DBCA
21. Select the word which means the same as the group of words given.
To express in an unclear way
(a) eloquent (b) garbled
(c) lucid (d) Intelligible
22. Select the most appropriate option to fill in the blank.
The sky is quite overcast. We're _____ to have rain today.
(a) likely (b) mostly
(c) surely (d) probably
23. Select the most appropriate option to fill in the blank.
When my friend suggested going to the mall for lunch, I agreed _____.
(a) at once (b) at large
(c) at most (d) at ease
24. Given below are four jumbled sentences. Pick the option that gives their correct order.
A. This record of migration is one of the greatest natural events on earth.
B. Each Autumn, millions of Monarch butterflies leave their breeding grounds in US and Canada.
C. The migration of the Monarch butterfly is an amazing phenomenon.
D. They travel over 3000 miles to reach their winter habitat in Mexico.
(a) ADBC (b) CBDA
(c) DCBA (d) ABDC
25. Given below are four jumbled sentences. Pick the option that gives their correct order.
A. Next, step by step from the shallow waters you are gradually guided to dive in safe areas.
B. This 'dry' lesson is followed by wearing the gear and then entering shallow waters to practice basic scuba diving skills.
C. The Discover Scuba Diving tour starts with a 30 minute lesson on teaching basic skills outside water.
D. Finally, what is most reassuring about the whole tour is that your instructor is always by your side to monitor you till the end of the session.
(a) CABD (b) ABDC
(c) ABCD (d) CBAD
26. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
The airline official said, "We are extremely sorry that the flight has been delayed due to heavy floods."
(a) The airline official announced the airline is extremely sorry that the flight will be delayed due to heavy floods.
(b) The airline official announces they are extremely sorry that the flight has been delayed due to heavy floods.
(c) The airline official announced that they were extremely sorry that the flight had been delayed due to heavy floods.
(d) The airline official announced that we are extremely sorry that the flight has been delayed due to heavy floods.

27. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'. If you wishes to participating at the National level games you'll have to start getting coaching immediately.
- (a) wish to participating
(b) wished for participating
(c) wish to participate
(d) no improvement
28. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
Popular monuments will be kept open till 9 p.m.
- (a) They had kept popular monuments open till 9 p.m.
(b) They are keeping popular monuments open till 9 p.m.
(c) They will keep popular monuments open till 9 p.m.
(d) They will be keeping popular monuments open till 9 p.m.
29. Identify the segment in the sentence, which contains the grammatical error.
Last evening my friend tells me the funny joke that I have ever heard.
- (a) that I have
(b) ever heard
(c) tells me the funny joke
(d) Last evening my friend
30. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
You have been so unwell! How you feeling now?
- (a) you is feeling (b) you are feeling
(c) No improvement (d) are you feeling
31. Select the word which means the same as the group of words given.
something happening by chance in a happy and beneficial way
- (a) serenity (b) serendipity
(c) misadventure (d) fortitude
32. Given below are four jumbled sentences. Pick the option that gives their correct order.
- A. Despite this, he was very good at delegating work.
B. No wonder his films were universally acclaimed.
C. A Satyajit Ray film was solely his film.
D. Even after delegation, he was involved in every aspect of the film.
- (a) DACB (b) CDDB
(c) CADB (d) ABDC
33. Select the word which means the same as the group of words given
lacking in variety and interest
- (a) monotonous (b) fresh
(c) exclamatory (d) vibrant
34. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
I am going to see a play tomorrow evening.
- (a) seeing
(b) no improvement
(c) to saw
(d) to seeing
35. Pick a word opposite in meaning to optimistic.
- (a) energetic (b) pessimistic
(c) idealistic (d) realistic
36. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
Rita said, "I'm not feeling well."
- (a) Rita said that she was not feeling well.
(b) Rita said she will not be feeling well.
(c) Rita said she is not feeling well.
(d) Rita says that I'm not feeling well.
37. Select the most appropriate idiom (in the context) to fill in the sentence.
Suman really has _____. She moved to a new house just a month back but already has a lovely garden.
- (a) a heart of gold (b) a bad hair day
(c) a foot in the door (d) green fingers
-
- DIRECTIONS (Qs. 38-42):** Read the following passage and fill in each blank with words chosen from options given.
-
- As he started his speech, Harsh was aware that people were listening to him quite (1) _____. Things seemed to be going quite well. (2) _____, halfway through the talk, he saw his friend, Ravi look (3) _____ his pal Sunil, roll his eyes and whisper in his ear. Harsh (4) _____ understood that Ravi, who had been upset ever since his promotion, was now (5) _____ disturbance intentionally.
38. Select the most appropriate option to fill in blank No. 1.
- (a) intently (b) smoothly
(c) evenly (d) clearly
39. Select the most appropriate option to fill in blank No. 2.

- (a) Wherever (b) Whenever
(c) Moreover (d) However
40. Select the most appropriate option to fill in blank No. 3.
(a) at (b) opposite (c) through (d) in
41. Select the most appropriate option to fill in blank No. 4.
(a) immediately (b) keenly
(c) urgently (d) cleverly
42. Select the most appropriate option to fill in blank No. 5.
(a) created (b) create
(c) creates (d) creating
43. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
When I was a child I do not like going out to play in the park.
(a) did not like (b) don't likes
(c) no improvement (d) did not liked
44. Select the word which means the same as the group of words given.
Something causing shock or dismay
(a) frivolous (b) appalling
(c) mischievous (d) remarkable
45. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
My guests doesn't wanted to eat anything since they weren't hungry after the party.
(a) didn't want to eat
(b) didn't wanted to eat
(c) don't wants to eat
(d) no improvement
46. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
Please switch on all the lights in the room as it's getting very dark now.
(a) as it were getting
(b) no improvement
(c) as it was getting
(d) when it will get
47. Given below are four jumbled sentences. Pick the option that gives their correct order.
A. One of the crocodiles was four feet long and almost six years old.
B. Post this announcement a video of a crocodile attacking a dog has gone viral causing people to panic further.
C. The authorities have announced that more crocodiles would be sighted once the waters recede.
- D. After the monsoon deluge the Forest Department of Vadodara has so far rescued three crocodiles which had swum into residential areas.
(a) BDAC (b) ADBC
(c) DACB (d) DCAB
48. Identify the word that is misspelt.
(a) Immediate (b) iliterate
(c) implement (d) illogical
49. Select the most appropriate idiom (in the context) to fill in the sentence.
Pallavi worked really hard for the examination and _____ to gain success.
(a) struck a sour note
(b) hit the bull's eye
(c) beat about the bush
(d) left no stone unturned
50. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
By how many people were you helped in your time of difficulty?
(a) How many people helped you in your time of difficulty?
(b) How many people were you helping in time of difficulty?
(c) How many people are you helped by in your time of difficulty?
(d) In your time of difficulty how many people were you helped by?
51. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
Nobody told me Vanita was unwell.
(a) I wasn't being told by anybody that Vanita was unwell.
(b) I wasn't told by anybody that Vanita was unwell.
(c) Nobody told me Vanita was being unwell.
(d) Nobody tells me that Vanita was unwell.
52. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
When Veena returned to India she had to get use driving on the left.
(a) to get used to drives
(b) to get used to driving
(c) No improvement
(d) to getting use to

53. Identify the segment in the sentence, which contains the grammatical error.
The birth of a girl bring great joy to Neha's family.
(a) The birth (b) of a girl
(c) to Neha's family (d) bring great joy
54. Identify the word that is misspelt.
(a) aesthetic (b) equivocal
(c) catastrophe (d) ingenious
55. Select the most appropriate idiom (in the context) to fill in the sentence.
Listen, you need to prioritize. You can't have your _____!
(a) Achilles' heel
(b) heebie-jeebies
(c) paint the town red
(d) finger in every pie
56. Identify the segment in the sentence, which contains the grammatical error.
This summer, I've met down a lot of interesting people.
(a) interesting people (b) I've met down
(c) a lot of (d) This summer
57. Select the most appropriate option to fill in the blank.
The business prospect seemed quite _____ so I convinced my friend to partner with me to start the venture.
(a) lucrative (b) dubious
(c) flourishing (d) prosperous
58. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
Do not take the coastal road during monsoons.
(a) You are not taking the coastal road during monsoons.
(b) You will not take the coastal road during monsoons.
(c) Coastal road is not being taken during monsoons.
(d) Coastal roads should not be taken during monsoons.
59. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
The team manager is examining the documents of all the players.
(a) Examination of the documents of all the players was done by the team manager.
(b) The documents of all the players are being examined by the team manager.
(c) The documents of all the players the team manager is examining.
(d) The team manager has been examining the documents of all the players.
60. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
He asked me if I would like to take that apartment on rent from the next day.
(a) "Would you had taken this apartment on rent from tomorrow?" he said to me.
(b) "Would you have taken this apartment on rent from the next day?" he said to me.
(c) "Would you like to take this apartment on rent from tomorrow?" he said to me.
(d) "Would you be liking to take this apartment on rent from tomorrow?" he said to me.
61. Select the most appropriate idiom (in the context) to fill in the sentence.
Initially I thought I could participate in the international Scholars Contest but when I saw the preparatory material I _____.
(a) missed the boat
(b) hit the bull's eye
(c) got cold feet
(d) made a scene
62. Select the most appropriate option to fill in the blank.
The company gave in to the demands of the employees as it found them _____.
(a) illegal (b) irrational
(c) legitimate (d) formidable
63. Select the word which means the same as the group of words given.
continuing for a very long time
(a) laconic (b) interim
(c) concise (d) interminable
64. Identify the segment in the sentence, which contains the grammatical error.
I won't be here next week as I'm going to Mumbai to a conference.
(a) I won't (b) be here
(c) to a conference (d) as I'm going
65. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
My daughter fell asleep while she been reading.
(a) while she is reading
(b) no improvement
(c) while she was reading
(d) whenever she has reading

66. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
Teenagers don't like being told what to do.
(a) Being told what to do was not being liked by teenagers.
(b) Teenagers should not be told what to do.
(c) Being told what to do is not liked by teenagers.
(d) Teenagers are not liking being told what to do.
67. Given below are four jumbled sentences. Pick the option that gives their correct order.
A. Its chief feature is that the reader is given the opportunity to play along and engage in the process of deduction.
B. A whodunit is a kind of detective story made famous by Agatha Christie.
C. Thus, along with the protagonist the reader is also involved in solving the case.
D. As the reader goes along he/she takes note of the clues, deduces and tries to identify the criminal before the climax.
(a) ABCD (b) BDAC
(c) DABC (d) BADC
68. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
The metro service is so good that one doesn't have to wait since a few minutes.
(a) beyond a few minutes
(b) No improvement
(c) for some few minutes
(d) up to a few minutes
69. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
Have you any idea where is Anya?
(a) where Anya were?
(b) No improvement
(c) where was Anya?
(d) where Anya is?
70. Identify the segment in the sentence, which contains the grammatical error.
I am really bored of this movie! When was it end?
(a) it end?
(b) I am really bored
(c) of this movie
(d) When was
71. Identify the segment in the sentence, which contains the grammatical error.
I'm going to the airport to receives my friend.
(a) my friend (b) to the airport
(c) to receives (d) I'm going
72. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
People are reading the articles on using plastic waste innovatively with interest.
(a) The articles on innovative use of plastic waste are read with interest.
(b) The articles on using plastic waste innovatively are being read with interest.
(c) People have been reading the articles on using plastic waste innovatively with interest.
(d) People were reading the articles on using plastic waste innovatively with interest.
73. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
"You speak such good English!" said Mary.
(a) Mary exclaimed that I speak so much good English.
(b) Mary told me I was speaking much good English.
(c) Mary exclaimed that I spoke very good English.
(d) Mary exclaimed that I was speaking very good English.

DIRECTIONS (Qs. 74-83): Read the following passage and answer the questions that follow.

The four-year tiger census report, Status of Tigers in India, 2018, released by Prime Minister Narendra Modi shows numbers of the cat have increased across all landscapes.

The Global Tiger Forum, an international collaboration of tiger-bearing countries, has set a goal of doubling the count of wild tigers by 2022. More than 80% of the world's wild tigers are in India, and it's crucial to keep track of their numbers.

The total count in 2018 has risen to 2,967 from 2,226 in 2014 — an increase of 741 individuals an increase of 33%, in four years.

This is by far the biggest increase in terms of both numbers and percentage since the four-yearly census using camera traps and the capture-mark-recapture method began in 2006. The 2018 figure has a great degree of credibility because, according to the report, as many as 2,461 individual tigers (83% of the total) have actually been photographed by trap cameras. In 2014, only 1,540 individuals (69%) were photographed. The tiger census is needed because the tiger sits at the peak of the food chain, and its conservation is important to ensure the well-being of the forest

ecosystem. The tiger estimation exercise includes habitat assessment and prey estimation. The numbers reflect the success or failure of conservation efforts. This is an especially important indicator in a fast-growing economy like India where the pressures of development often run counter to the demands of conservation.

Where has the tiger population increased the most? The biggest increase has been in Madhya Pradesh — a massive 218 individuals (71%) from 308 in 2014 to 526. However, since tigers keep moving between states, conservationists prefer to talk about tiger numbers in terms of landscapes.

So, why have the numbers gone up?

The success owes a lot to increased vigilance and conservation efforts by the Forest Department. From 28 in 2006, the number of tiger reserves went up to 50 in 2018, extending protection to larger numbers of tigers over the years. Healthy increases in core area populations eventually lead to migrations to areas outside the core; this is why the 2018 census has found tigers in newer areas. Over the years, there has been increased focus on tigers even in the areas under the territorial and commercial forestry arms of Forest Departments.

The other important reason is increased vigilance, and the fact that organized poaching rackets have been all but crushed. According to Nitin Desai of Wildlife Protection Society of India, there has been no organized poaching by traditional gangs in Central Indian landscapes since 2013.

The increased protection has encouraged the tiger to breed. Tigers are fast breeders when conditions are conducive.

The rehabilitation of villages outside core areas in many parts of the country has led to the availability of more inviolate space for tigers.

Also, because estimation exercises have become increasingly more accurate over the years, it is possible that many tigers that eluded enumerators in earlier exercises were counted this time.

74. The Global Tiger Forum comprises
 (a) countries which have tigers.
 (b) National Geographic and World Wildlife Fund.
 (c) all countries of the United Nations.
 (d) America and the European Union.
75. The biggest increase in tiger population has been between the years
 (a) 2014-2018 (b) 2002-2006
 (c) 2006-2010 (d) 2010-2014
76. The year 2022 marks the target date for
 (a) tripling the world tiger population.

- (b) tripling India's tiger population.
 (c) doubling the count of world tiger population.
 (d) doubling the count of India's tiger population.
77. 2018 census on the big cat has been the most reliable because-
 (a) it photographed 1540 tigers.
 (b) it photographed 83% of the tigers.
 (c) it photographed all living tigers of India.
 (d) it only uses the capture-mark-recapture method.
78. The survival of the tiger is vital today because-
 (a) it is no longer a threat to the villagers' safety.
 (b) it is central to the food chain and the eco-system.
 (c) it promotes tourism in India and increases revenue.
 (d) it is now on the verge of extinction.
79. Researchers refer to places where tigers are found not by states but by the term-
 (a) green belts (b) deep forests
 (c) landscapes (d) ecosystems
80. What is the tiger population of Madhya Pradesh?
 (a) 28 (b) 741 (c) 50 (d) 526
81. Which of the following statements is not true as per the passage?
 (a) There are more reliable ways of data collection
 (b) Forest departments have become more watchful
 (c) The tiger reserves have increased to 100 in 2018
 (d) Poaching gangs have been reduced drastically
82. What has been the impact of providing inviolate spaces for tigers?
 (a) The poachers have been caught in these spaces very easily.
 (b) The number of villagers killed by man eater tigers has increased.
 (c) Tiger numbers have increased due to safe breeding places.
 (d) Tigers have moved from Uttar Pradesh to Madhya Pradesh.
83. Pick out a word that is similar in meaning to: CONDUCTIVE
 (a) reclusive (b) helpful
 (c) unfavorable (d) hindering
84. Identify the segment in the sentence, which contains the grammatical error.
 Does an English examination begin at 10 o'clock?
 (a) 10 o'clock?
 (b) English examination
 (c) begin at
 (d) Does an

85. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
Please give me some more time to complete the assignments.
- You may please give me some more time to complete the assignments.
 - I am requesting you to give me some more time to complete the assignments.
 - Some more time will be given to me to complete the assignments.
 - I may please be given some more time to complete the assignments.
86. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
Rohan smiled and said that he thought Jojo liked him.
- Rohan smiled and said he thought, "Jojo likes me!"
 - Rohan smiled and said, "I think Jojo likes me!"
 - Rohan smiled and said, "They think Jojo likes me!"
 - Rohan smiled and asked, "Do you think Jojo likes me?"
87. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
The Inspector stopped the boy and asked where he went.
- he had going
 - No improvement
 - he has gone
 - he was going
88. Identify the segment in the sentence, which contains the grammatical error.
I use to going for a morning walk when I was living in Dehradun.
- living in Dehradun
 - for a morning walk
 - when I was
 - use to going
89. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
The commander ordered his battalion to march on.
- The commander says to his battalion, "Please march on."
 - "March on!" the commander said to his battalion.
 - The commander says to his battalion, "March on!"
 - The commander gives his battalion order, "March on!"
90. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
The lawyer says, "My client is innocent."
- The lawyer said that his client is innocent.
 - The lawyer says that his client is innocent.
 - The lawyer says my client was innocent.
 - The lawyer said that my client is innocent.
-
- DIRECTIONS (Qs. 91-100) :** Read the following passage and fill in each blank with words chosen from options given-
-
- I was friends with the artist Bhupen Khakar. He was one of the (1) _____ human beings I have ever met. I learnt (2) _____ from him. When we were in Baroda we (3) _____ meals together all the time. I _____ (4) _____ remember how his caretaker (5) _____ family to him and he would often (6) _____ his children to school and taught _____ (7) _____ mathematics. His studio was in the (8) _____ of the house and (9) _____ for anyone to come in (10) _____ at his work.
91. Select the most appropriate option to fill in blank No. 1
- Finer
 - finest
 - few
 - fine
92. Select the most appropriate option to fill in blank No. 2.
- a lot
 - the more
 - a lots
 - the less
93. Select the most appropriate option to fill in blank No. 3.
- would had
 - having had
 - has had
 - would have
94. Select the most appropriate option to fill in blank No. 4.
- still
 - until
 - never
 - alone
95. Select the most appropriate option to fill in blank No. 5.
- is
 - was
 - be
 - were
96. Select the most appropriate option to fill in blank No. 6.
- to drop
 - dropping
 - dropped
 - drop
97. Select the most appropriate option to fill in blank No. 7.
- those
 - their
 - they
 - them
98. Select the most appropriate option to fill in blank No. 8.
- centering
 - centralized
 - centre
 - central

99. Select the most appropriate option to fill in blank No. 9.
- (a) open (b) was opening
(c) opens (d) opening
100. Select the most appropriate option to fill in blank No. 10.
- (a) to look (b) to watch
(c) looking upon (d) for looking
101. Identify the segment in the sentence, which contains the grammatical error.
What shall we do on ourselves this evening?
- (a) this evening (b) on ourselves
(c) What shall (d) we do
102. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
“Let’s go out for dinner. I’ve been home this whole week,” said Anna.
- (a) Anna said to me that we must go out for dinner as she has been home that whole week.
(b) Anna told me she was wanting to go out for dinner and had been home this whole week.
(c) Anna told me she is at home the whole week and would like to go out for dinner.
(d) Anna suggested we go out for dinner as she had been home that whole week.
103. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
They sealed all unauthorized farms on the highway.
- (a) All unauthorized farms on the highway were sealed.
(b) They are sealing all unauthorized farms on the highway.
(c) All unauthorized farms on the highway have sealed the authorities.
(d) The authorities were sealing all unauthorized farms on the highway.
104. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
Do you think that the government will accept our demands?
- (a) Do you think we will accept the government demands?
(b) Do you think that our demands will be accepted by the government?
(c) Do you think that the government is going to accept our demands?
(d) Do you think that our demands have been accepted by the government?
105. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
How many languages are spoken in India?
- (a) How many languages did the Indians speak?
(b) How many languages are Indians speaking?
(c) How many languages do people in India speak?
(d) People have been speaking how many languages in India?
106. Select the most appropriate idiom (in the context) to fill in the sentence.
In my parents’ time, we mostly ate at home and family outings happened _____.
- (a) once in a blue moon
(b) behind the back
(c) in fine feather
(d) shoulder to shoulder
107. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
“Go on, apply for the job,” said my best friend.
- (a) My best friend says I should go off and apply for the job.
(b) My best friend had said to me to go on and apply for the job.
(c) My best friend encouraged me to apply for the job.
(d) You should apply for the job my best friend said.
108. Given below are four jumbled sentences. Pick the option that gives their correct order.
A. These tribes believe that they can communicate with dead ancestors only through this language.
B. Today, linguists call such a language an “isolated” language.
C. Zuni is a language spoken only by the Zuni tribes.
D. It is remarkable that these tribes have been able to preserve their language.
- (a) BCDA (b) ADCB
(c) CADB (d) DABC
109. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.

- High interest rates are alarming automobile dealers.
- (a) Automobile dealers is being alarmed by high interest rates.
(b) High interest rates has been alarmed by automobile dealers.
(c) High interest rates have alarmed automobile dealers.
(d) Automobile dealers are being alarmed by high interest rates.
- 110.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
“You should lock your car as there have been some instances of theft,” said Anil.
(a) There have been instances of theft so I should lock my car was told to me by Anil.
(b) Anil advised me that I should lock my car as there had been some instances of theft.
(c) There have been some instances of theft so I should have locked my car said Anil.
(d) Anil said he must lock his car because there were some instances of theft.
- 111.** Identify the segment in the sentence, which contains the grammatical error.
Instead of studying in home I went to my friend’s house.
(a) in home
(b) I went
(c) Instead of studying
(d) to my friend’s house.
- 112.** Select the word which means the same as the group of words given
Impossible to satisfy
(a) palatable (b) insatiable
(c) insane (d) magnanimous
- 113.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
“I’m so sorry! I totally forgot about the meeting,” he said.
(a) He is being sorry for having totally forgotten about the meeting.
(b) He apologized and said he had totally forgotten about the meeting.
(c) He was so sorry that he had forgot totally about the meeting.
(d) Having forgotten totally about the meeting he is very sorry.
- 114.** Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select ‘no improvement’.
- I couldn’t visit my aunt as there were the traffic jam due to an accident.
(a) no improvement
(b) are a traffic jam
(c) were a traffic jam
(d) was a traffic jam
- 115.** Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
We have written all the library rules on the notice-board.
(a) All the library rules have been written on the notice-board.
(b) All the library rules were written on the notice-board.
(c) All the library rules are being written on the notice-board.
(d) We are writing all the library rules on the notice-board.
- 116.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
The Queen said to the ministers, “Cut off the prisoner’s head!”
(a) The Queen ordered the ministers to cut off the prisoner’s head.
(b) Screaming at the ministers the Queen is ordering to cut off the prisoner’s head.
(c) The prisoner’s head would be cut off screamed the queen to the ministers.
(d) The Queen told the ministers that to cut off the prisoner’s head.
- 117.** Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select ‘no improvement’.
We waited till 10 pm for our guests but they never turned up.
(a) was waiting
(b) no improvement
(c) have been waited
(d) are waiting
- 118.** Select the most appropriate idiom (in the context) to fill in the sentence.
That student of yours has such sound values. She’s indeed a _____.
(a) rare bird
(b) barrel of laughs
(c) pain in the neck
(d) pot calling the kettle black

- 119.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
 Mother said, "Sonam, don't throw tantrums."
 (a) Mother warns Sonam not to throw tantrums.
 (b) Mother said that Sonam is not to throw tantrums.
 (c) Mother told Sonam not to throw tantrums.
 (d) Mother says to Sonam not to throw tantrums.
- 120.** Given below are four jumbled sentences. Pick the option that gives their correct order.
 A. The most helpful thing you can do is to hold someone's hand when they most need it.
 B. Also, jotting down notes for your seniors on ward rounds is probably not the most important thing.
 C. My first year as a doctor in U.K. is over and this is what I have learnt.
 D. No matter what anyone tells you, writing that urgent discharge summary is not the most important thing you will do today.
 (a) DBAC (b) CDBA
 (c) ABDC (d) CBAD
- 121.** Identify the segment in the sentence, which contains the grammatical error.
 He likes to put all the garbage into a black small bag.
 (a) into a (b) all the garbage
 (c) He like to put (d) black small bag

DIRECTIONS (Qs. 122-131) : Read the following passage and fill in each blank with words chosen from options given

One can soon feast (1) _____ eyes on Humayun's Tomb (2) _____ Safdarjung Tomb at night, with the government deciding to keep 10 heritage (3) _____ open to the (4) _____ from sunrise (5) _____ 9 p.m. The announcement was made (6) _____ morning by the Union Minister for Culture and (7) _____. Currently, most monuments (8) _____ for visitors at 6pm. The change in timings (9) _____ effective for a period (10) _____ 3 years.

- 122.** Select the most appropriate option to fill in blank No.1
 (a) her's (b) ours
 (c) one's (d) theirs
- 123.** Select the most appropriate option to fill in blank No. 2.
 (a) therefore (b) both
 (c) by (d) and

- 124.** Select the most appropriate option to fill in blank No. 3.
 (a) building (b) monument
 (c) apartments (d) monuments
- 125.** Select the most appropriate option to fill in blank No. 4.
 (a) peoples (b) mob
 (c) public (d) residents
- 126.** Select the most appropriate option to fill in blank No. 5.
 (a) in (b) by
 (c) for (d) till
- 127.** Select the most appropriate option to fill in blank No. 6.
 (a) this (b) then (c) those (d) that
- 128.** Select the most appropriate option to fill in blank No. 7.
 (a) Tour (b) Tourist (c) Tourists (d) Tourism
- 129.** Select the most appropriate option to fill in blank No. 8.
 (a) close
 (b) was closed
 (c) having closed
 (d) was being closed
- 130.** Select the most appropriate option to fill in blank No. 9.
 (a) will be
 (b) has been
 (c) will have been
 (d) would have been
- 131.** Select the most appropriate option to fill in blank No. 10.
 (a) about (b) into (c) through (d) of

DIRECTIONS (Qs. 132-136): Read the following passage and answer the questions that follow.

A few years ago it seemed as if the moment for stand-up comedy had arrived. By the end of 2017, stand-up comedians were on the cover of a magazine, signaling the coming of age of the industry.

The stand-up game attracted investors in the right places: on platforms like Netflix and Amazon Prime, apart from increasing open mic schedules in venues across cities. Two major companies Comedy Store and Canvas Laugh Club arrived on the scene and were game changers.

But despite a heady start, the comic landscape has changed drastically today with stand-up comedians feeling the brunt of faltering payments and cancelled shows. Despite a good start, the Indian stand-up industry is still unorganized and uncertain for comics.

If you ask viral comic Kunal Kamra about the scene, he says that the audience isn't really 'invested' in the art form at the moment and that only ten or twenty tickets would sell if comics weren't on the internet promoting themselves. And this is despite the surge in open mics and more stand-ups coming in.

Last year, new-age Indian comedy's reputation came under strain when allegations under the #MeToo movement exposed a darker side of the circuit. Since then, the big three comedy groups: All India Bakchod, SNG Comedy and East India Comedy, have either disbanded or had founding members quit.

Jeeya Sethi, a leading comedian says, "It's a good thing that these -collectives have died because they mostly had men with no women being showcased." Sethi adds saying that it isn't as easy as it sounds. "In a fledgling industry, a viral YouTube video isn't a sign that you've made it". Craft takes time. Every comic who does two open mics calls himself a comedian. In my opinion, you have to do comedy for more than 20 years to be a comic. It takes at least five years to find your voice."

132. By saying 'the audience has not invested in the stand-up comedy art form' the author means that-

- (a) the audience prefers to watch only women comedians.
- (b) it is a new art form and it will take time to build an audience.
- (c) the audience don't wish to develop a sense of humour.
- (d) there are faltering payments and cancelled shows.

133. The stand-up comedy show had a wonderful start because

1. Open mic shows were held in venues across cities.
2. Leading companies came forward to support artists.
3. Payments to artists were prompt and good.
4. Some Bollywood directors offered them roles.
5. Comedians were given good media coverage.

- (a) 3, 4 & 5
- (b) 1, 2 & 5
- (c) 2, 4 & 5
- (d) 2, 3 & 4

134. Select the word which means the same as 'fledgling' in the given context

- (a) a nervous person who frets a lot
- (b) a fairly new company or industry
- (c) a mature person who performs well
- (d) a successful and established venture

135. How has the situation been reversed from the early success of stand-up comedy?

- (a) SNG Comedy and East India Comedy support the comedians.
- (b) Comedians are being offered double the price asked by them.
- (c) Comedy Store and Canvas Laugh Club are offering bigger platforms to comedians.
- (d) Comedy groups are packing up and founders are resigning.

136. Sethi believes that-

- (a) The road to success is only through YouTube.
 - (b) A viral YouTube video is a sign of success.
 - (c) Comedy is an art form and takes hard work and patience.
 - (d) The true comic artist takes years to find one's voice.
- (a) 1 & 3
 - (b) 2 & 4
 - (c) 1 & 2
 - (d) 3 & 4

137. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'. Ravi can't come to the meeting as he was not well.

- (a) couldn't came
- (b) could come
- (c) couldn't come
- (d) no improvement

138. Find a word that is the synonym of Philanthropist.

- (a) humanitarian
- (b) philosopher
- (c) humanist
- (d) misanthropist

139. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'. These houses which were built 20 years ago are now in need of repairs.

- (a) which can built
- (b) no improvement
- (c) which was build
- (d) who was built

140. Select the word which means the same as the group of words given.

Splendid and expensive-looking

- (a) sumptuous
- (b) peculiar
- (c) curious
- (d) malicious

- 141.** Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'. Don't stay in school after 2 p.m. All the teachers have been leaving by then.
- are leave
 - will have left
 - must left
 - No improvement
- 142.** Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'. I have an invite from a friend to visit the Canada and United States next month.
- no improvement
 - to Canada or the united states
 - to the Canada and United States
 - Canada and the United States
- 143.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence. Reena said, "What a lovely scene! I wish I could stay here forever!"
- Reena said with happiness that was a lovely scene. She wishes to stay there forever.
 - Reena exclaimed that it was a lovely scene. She further wished that she could stay there forever.
 - Reena says this is a lovely scene. I wish I could stay there forever.
 - Reena said what a lovely scene! She wished she could stay here forever.
- 144.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence. My grandfather wished that God should give me success in my new venture. He further said that his prayers would always be with me.
- My grandfather says to me, "God might give you success in your new venture! My prayers are always going to be with you."
 - My grandfather said to me, "Maybe God will give you success in your new venture! My prayers would always be with you."
 - My grandfather wished to me, "May God give to you success in your new venture! My prayers are always with you."
 - My grandfather said to me, "May God give you success in your new venture! My prayers will always be with you."
- 145.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence. The salesman said to me, "All the gift items are new. We received this consignment yesterday."
- The salesman informed me that all the gift items were new. He further said they had received that consignment the day before.
 - The salesman informed to me about all the gift items that they were new. They received that consignment the day before.
 - The salesman told me that all the gift items are new. He further said we received this consignment yesterday.
 - The salesman said to me that all the gift items are new. We received that consignment yesterday.
- 146.** Select the word which means the same as the group of words given. Seeming reasonable
- plausible
 - permeable
 - versatile
 - volatile
- 147.** Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'. Whenever we go out we spend a lot money on food.
- much of
 - most of
 - a lot of
 - no improvement
- 148.** Given below are four jumbled sentences. Pick the option that gives their correct order.
- In those allotted minutes the directors have the freedom to interpret the segments in their own unique way.
 - The play has been divided into segments of 10 minutes each by the directors.
 - Eight young directors, over 50 actors and one landmark play-Hayavadana.
 - This unique collaboration is a tribute to the playwright Girish Karnad.
- BACD
 - CDBA
 - ADBC
 - CABD
- 149.** Choose the most appropriate option to change the voice (active/passive) form of the given sentence. An apple carries about 100 million useful bacteria.
- About 100 million useful bacteria are being carried by an apple.
 - An apple will carry about 100 million useful bacteria.

- (c) The useful bacteria to be carried in an apple is about 100 million.
- (d) About 100 million useful bacteria are carried by an apple.
- 150.** Identify the segment in the sentence, which contains the grammatical error.
High level security arrangements were made for the forthcoming visit to a Japanese Prime Minister.
- (a) security arrangements
(b) were made
(c) for the forthcoming
(d) visit to a
- 151.** Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
Preparations are being made for our Annual fest.
- (a) We are making preparations for our Annual fest.
(b) We have made preparations for our Annual fest.
(c) Preparations were being made for our Annual fest.
(d) Our Annual fest preparations are made.
- 152.** Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
My student, a doctor by profession, preferring to walk to the hospital everyday.
- (a) preferring walking
(b) no improvement
(c) prefers to walk
(d) prefer to walking
- 153.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
The teacher said to Rana, "Have you completed the project?"
- (a) The teacher asked Rana that if Rana has completed the project.
(b) The teacher asks Rana have you completed the project.
(c) The teacher asked Rana whether he had completed the project.
(d) The teacher asks Rana will you complete the project.
- 154.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
Sonia says, "I love the monsoons."

- (a) Sonia said that she loved the monsoons.
(b) Sonia says that she loves the monsoons.
(c) Sonia says that she is loving the monsoons.
(d) Sonia said that she was loving the monsoons.

DIRECTIONS (Qs. 155-164) : Read the following passage and answer the questions that follow.

According to a new American study headed by Dr. Willis, it has been found that people who exercise in the morning seem to lose more weight than people completing the same workouts later in the day.

These findings help shed light on the vexing issue of why some people shed considerable weight with exercise and others almost none. The study adds to the growing body of science suggesting that the timing of various activities, including exercise, could affect how those activities affect us.

The relationship between exercise and body weight is somewhat befuddling. Multiple past studies show that a majority of people who take up exercise to lose weight drop fewer pounds than would be expected, given how many calories they are burning during their workouts. Some gain weight. But a few respond quite well, shedding pound after pound with the same exercise regimen that prompts others to add inches. The Midwest Trial 2, was conducted in the University of Kansas, U.S. on how regular, supervised exercise influences body weight.

The trial involved 100 overweight, previously inactive young men and women who were made to work out five times a week at a physiology lab, jogging or otherwise sweating until they had burned up to 600 calories per session.

After 10 months of this regimen, almost everyone had dropped pounds. But the extent of their losses fluctuated wildly, even though everyone was doing the same, supervised workout. A team of researchers started brainstorming what could be responsible for the enormous variability in the weight loss.

They hit upon activity timing. They decided to do a Follow-up study of the Mid West Trial 2 In this new study, the Mid West Trial 2 Follow up study the researchers now studied a team of participants who could visit the gym whenever they wished between 7 a.m. and 7 p.m. They also tracked everyone's calorie intakes and daily movement habits throughout the 10 months. They knew, too, whether and by how much people's weights had changed.

Now, they checked weight change against exercise schedules and quickly noticed a consistent pattern.

Those people who usually worked out before noon had lost more weight, on average, than the men and women who typically exercised after 3 p.m.

The researchers uncovered a few other, possibly relevant differences between the morning and late-day exercisers. The early-exercise group tended to be slightly more active throughout the day, taking more steps in total than those who worked out later. They also ate less. These factors may cumulatively have contributed to the striking differences in how many pounds people lost, Dr. Willis says.

Thus it seems that people who worked out before noon lost more weight, on average, than those who typically exercised after 3 p.m.

But Dr. Willis also points out that most of those who worked out later in the day did lose weight, even if not as much as the larkish exercisers, and almost certainly became healthier. "I would not want anyone to think that it's not worth exercising if you can't do it first thing in the morning," he says. "Any exercise, at any time of day, is going to be better than none."

155. The Mid West Trail 2 was a
- A European study on 100 participants who exercised 7 times a week and burnt 800 calories.
 - Canadian study on 500 participants who exercised 6 times a week and burnt 600 calories.
 - U.S based study on 100 participants who exercised 5 times a week and burnt 600 calories
 - U.S based study on 100 participants who exercised 3 times a week and burnt 300 calories.
156. The Mid West Trial 2 duration was
- 12 months
 - 6 months
 - 18 months
 - 10 months
157. Select the option that is not true as per the passage.
Several studies show that as a result of the workout-
- the majority lost a little weight.
 - a few had the desired weight loss.
 - some gained some weight.
 - most gained a lot of weight.
158. What was the difference between the Mid West Trial 2 study and the Mid West Trial 2 Follow-up study that was taken up later?
- The duration of the follow up study was longer.
 - The calorie intake and the time of exercise were examined.

- Participants of the study stayed in the premises.
 - Face to face interviews were conducted.
159. The finding of the Mid West Trial 2 Follow-up study was that the best time for exercise was-
- noon to 3 p.m.
 - between 3-7 p.m.
 - before noon.
 - 7 p.m. onwards.
160. Select the option which is not true.
The successful weight losers in the Mid West Trial 2 Follow-up study _____
- remained active.
 - slept more.
 - walked more.
 - ate less.
161. Select the correct option.
By 'larkish exercisers' the writer refers to people who-
- love to see the lark in the morning.
 - like to exercise late with the larks.
 - like to sing in the morning.
 - exercise in the morning.
162. Find one word which means the same as the following.
a set of rules about food and diet that someone follows
- catalogue
 - regiment
 - regimen
 - fundamental
163. Find one word in the passage which means the same as 'confusing'.
- brainstorming
 - vexing
 - befuddling
 - striking
164. What would Dr. Willis say to someone who has given up exercising because they cannot do so in the morning?
- Exercise is good only in the morning.
 - Exercise only with a trainer.
 - Any exercise is better than none.
 - Evening is the worst time to exercise.
165. Select the most appropriate idiom (in the context) to fill in the sentence.
Colleges cannot _____ to ragging because of the Anti Ragging Act.
- turn a blind eye
 - add fuel to the fire
 - look forward
 - look someone in the eye
166. Identify the segment in the sentence, which contains the grammatical error.
I had a hard time paying the driver as I had only hundreds rupee note.

- (a) paying the driver
(b) only hundreds rupee note
(c) I had a hard time
(d) as I had
- 167.** Identify the word that is misspelt.
(a) Miscellaneous
(b) Umbilical
(c) Prophecy
(d) Accomodation
- 168.** Select the most appropriate idiom (in the context) to fill in the sentence.
During the staff meeting there was a lot of ruckus since many didn't _____ with the authorities.
(a) see eye to eye
(b) put their best foot forward
(c) put their foot down
(d) move up in the world
- 169.** Pick a word opposite in meaning to Predecessor
(a) processor (b) lessor
(c) oppressor (d) successor
- 170.** Given below are four jumbled sentences. Pick the option that gives their correct order.
A. Furthermore, make sure that you give some vivid details of the city making it as real as you can.
B. For example, if it begins in a city, give details about the city.
C. First of all make it as specific as possible.
D. While writing a story or a novel the setting is very important.
(a) DCBA (b) CABD
(c) ACBD (d) DABC
- 171.** Select the most appropriate idiom (in the context) to fill in the sentence.
I could make out that the conversation was leading to a fight so I _____.
(a) nipped it in the bud
(b) cut corners
(c) killed two birds with a stone
(d) made a song and a dance
- 172.** Given below are four jumbled sentences. Pick the option that gives their correct order.
A. Therefore, I firmly believe that this curriculum be extended to all schools.
B. I believe that India as a country needs the happiness curriculum.
C. They are a dejected lot and will definitely benefit from this curriculum.
D. It is really needed for the younger generation.
(a) ABDC (b) BCAD
(c) BDCA (d) CDAB
- 173.** Identify the segment in the sentence, which contains the grammatical error.
I had to go to the doctor because I was not bear the pain in my tooth.
(a) had to go (b) in my tooth
(c) to the doctor (d) was not bear
- 174.** Select the word which means the same as the group of words given.
The fear of water
(a) claustrophobia (b) autophobia
(c) hydrophobia (d) pyrophobia
- 175.** Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
My boss said, "Do you think you can complete the report within five days?"
(a) My boss said to me do you think I can complete the report within five days?
(b) My boss asked me whether I thought I could complete the report within five days.
(c) My boss said to me if I think I can complete the report within five days.
(d) My boss says do you think you can complete the report within five days?
- 176.** Identify the segment in the sentence, which contains the grammatical error.
To write a poem I need a pen, a diary and also the quiet place.
(a) a diary (b) To write
(c) and also the (d) I need
- 177.** Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'.
I think that capitalism is not a better economic system for our country.
(a) was not the good (b) is not better
(c) no improvement (d) is not a good
- 178.** Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
The play on environment issues was performed with great professionalism by our students.
(a) Our students performed the play on environment issues with great professionalism.
(b) Our students were to perform with great professionalism the play on environment issue.
(c) Our students have been performing the play on environment issues with great professionalism.
(d) The play on environment issues was being performed with great professionalism by our students.

179. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
 “Don’t overspeed at night,” I said to Irina.
 (a) I warned Irina not to overspeed at night.
 (b) Over speeding at night is not good, I said to Irina.
 (c) I warn to Irina not to overspeed at night.
 (d) I had been warning Irina not to overspeed at night.
180. Given below are four jumbled sentences. Pick the option that gives their correct order.
 A. Therefore an advanced ambulance needs to reach the patient immediately.
 B. A cardiac arrest, as is well known, needs revival within 4 minutes.
 C. A question often asked by us in India is whether we will get timely health care in an emergency.
 D. But even in Delhi, the capital city, a patient does not get emergency care.
 (a) ABDC (b) BCAD
 (c) CDAB (d) CBAD
181. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
 My friend told me I could stay at his place in Dehradun whenever I wished.
 (a) My friend said, “You will be coming to stay at my place in Dehradun whenever you wish.”
 (b) My friend said, “If you are wishing to come to Dehradun come and stay in my place.”
 (c) My friend said, “You can stay at my place in Dehradun whenever you wish.”
 (d) My friend said, “You will come and be staying in my place in Dehradun whenever you wish.”
182. Find a word that is the synonym of impoverished.
 (a) spendthrift (b) generous
 (c) wealthy (d) penniless
183. Identify the segment in the sentence, which contains the grammatical error.
 I don’t like movies who has an unhappy ending.
 (a) who has
 (b) I don’t
 (c) like movies
 (d) an unhappy ending
184. Find a word that is the synonym of Stoical.
 (a) ruffled (b) apathe tic
 (c) panicky (d) equivocal
185. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.
 Our home was built in 1990 by my father.
 (a) Our home was being built in 1990 by my father.
 (b) My father had built our home in 1990.
 (c) My father was building our home in 1990.
 (d) My father built our home in 1990.
186. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
 Mary said, “I have to be there by 10 a.m. tomorrow.”
 (a) Mary says to me that she has to be there by 10 a.m.
 (b) Mary tells me she has to be there by 10 a.m. tomorrow.
 (c) Mary told me that she had to be there by 10 a.m. the next day.
 (d) Mary is telling me that she has to be there by 10 a.m. tomorrow.
187. Given below are four jumbled sentences. Pick the option that gives their correct order.
 A. But a sprig was taken and planted in one of the hills of Sri Lanka.
 B. The original tree is no longer there.
 C. That sprig grew into a tree and is called Maha Bodhi tree.
 D. Gautam Buddha attained enlightenment under a peepal tree in Bodhgaya in Bihar.
 (a) CABD (b) BCAD
 (c) ACBD (d) DBAC
188. Identify the segment in the sentence, which contains the grammatical error.
 It takes me one hour to get to work in the morning in week day.
 (a) in week day (b) in the morning
 (c) takes me (d) to get to work
189. Given below are four jumbled sentences. Pick the option that gives their correct order.
 A. Some of the Vitamin A rich sources of foods are carrots, broccoli, spinach, fish and meat.
 B. An American research study has found that Vitamin A intake can lower risk of skin cancer.
 C. It suggests that we should consume a diet with fruits and vegetables.
 D. This study has been published in JAMA Dermatology.
 (a) ABDC (b) BDCA
 (c) BADC (d) CABD

190. Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no improvement'. It has been two years that I have seen Meena.

- (a) since I have seen
- (b) No improvement
- (c) since I didn't saw
- (d) that I saw

191. Given below are four jumbled sentences. Pick the option that gives their correct order.

- A. This lovable big cat is all ready to charm kids in a film version.
 - B. 'The Tiger who Came to Tea' is Judith Kerr's bestselling book, having sold 5 million copies.
 - C. He ends up making a delightful nuisance of himself.
 - D. The story is about a tiger who pops by for tea.
- (a) BCAD
 - (b) BDCA
 - (c) CDBA
 - (d) ACDB

192. Choose the most appropriate option to change the voice (active/passive) form of the given sentence.

I am writing a story after a long time.

- (a) A story after a long time was written by me.
- (b) A story is being written by me after a long time.
- (c) I have written a story after a long time.
- (d) A story had been written by me after a long time.

193. Select the word which means the same as the group of words given.

A distinguished conductor or performer of classical music

- (a) maestro
- (b) layman
- (c) amateur
- (d) novice

DIRECTIONS (Qs. 194-198) : Read the following passage and answer the questions that follow.

The United Kingdom's Social Mobility Commission study reports that disadvantaged children in England are being priced out of a cultural hinterland. Children aged 10-15 from low-income families are three times less likely than wealthier peers to engage in out-of-school musical activities, such as learning an instrument etc.

There were also differences according to race – 4% of British Pakistani children took part in music classes, compared with 28% of Indian children and 20% of white children – and regional divides: 9% of children

in north-east England played a musical instrument, compared with 22% in the south-east.

Disadvantaged children are also more likely to miss out on extracurricular sports (football, boxing, cricket) and drama, dance and art. The commission set out recommendations, including bursaries, better funding and support for schools – let's hope they're taken on board. As well as the activities themselves, children are missing out on other crucial gains including confidence-building, team spirit and social skill, and are less likely to go on to higher education.

Extracurricular activities tend to cost money, but there are also problems with a lack of availability and access, such as schools being unable to afford to run after-school clubs or stay open during holidays. Another barrier is the kids' "fear of not fitting in". In this sense, certain children are self-excluding from, say, learning an instrument, singing in a choir, playing cricket or acting. They decide by themselves that they're "undeserving" of music, sport, art and drama. Unbelievably, in 2019, children as young as 10 are already hard-wired with the self-limiting poverty notion of "not for the likes of us".

This is heartbreaking. It's hardly news that life is tougher for poorer children, but it's an outrage if all sense of curiosity, artistry and playfulness is knocked out of them so early. Something is wrong if better-off children feel entitled to explore and participate in areas that interest and excite them, while the disadvantaged are cast from the start as cultural wallflowers – doomed to sit out every dance.

This isn't about every child learning the piano or violin (but why not?), it's about sowing the seeds for a cultural hinterland that will sustain and enrich them for life. It's about people exploring their passions and refusing to have their horizons artificially limited. Regardless of circumstances, all children should know that their faces "fit" – automatically and forever. Culture belongs to everyone.

194. The probability of a child in United Kingdom getting opportunities to engage in cultural and sports activities depends on-

- (a) parental economic background
- (b) whether one parent is British
- (c) whether parents have a university education
- (d) kind of school and funding available

Of the above points which are correct

- (a) 1 & 4
- (b) 2 & 4
- (c) 1 & 2
- (d) 3 & 4

195. According to the passage which of the following is not the correct reason-
Exposure to cultural activities and sports at a young age is very important for children because it-
- brings about differences among children.
 - leads children to explore their talents.
 - builds team spirit and social skills.
 - helps in confidence building.
196. Pick out a phrase or a word which means the same as-
a group of people considered to be superior to others because of their social standing or wealth
- disadvantaged
 - cultural wallflowers
 - hard-wired
 - elitist
197. How will a wholesome education including arts and sports not benefit the disadvantaged?
- Children will get exposure to arts and sports.
 - Children will no longer have the fear of not fitting in.
 - Children will have feelings of low self-esteem and self-exclusion.
 - Children will explore play and learning outside of class.
198. According to the author, what is truly heart-breaking and damaging for the kids is that
- parents don't have money to pay for any additional classes for their children.
 - teachers are told not to offer these opportunities as they are not tested.
 - schools wish to offer activities but don't have funds.
 - children themselves feel that the activities are not fit for the likes of them.
199. Choose the most appropriate option to change the narration (direct/indirect) of the given sentence.
Sumit said, "I will be leaving for London this summer so I can meet you only when I return."
- Sumit said he will be leaving for London this summer and he could meet him only when he returned.
 - Sumit said he will go to London this summer and he would meet me only when he will be returning.
 - Sumit said that he would be leaving for London that summer and he could meet me

only when he returned.

- Sumit said he will have gone to London that summer and could meet me only when he returned.

200. Pick a word opposite in meaning to

Lackadaisical.

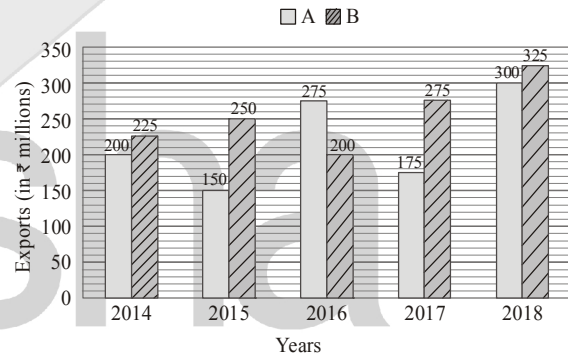
- indifferent
- jocular
- enthusiastic
- lukewarm

MATHEMATICS

1. The value of $\frac{7+8 \times 8 \div 8 \text{ of } 8+8 \div 8 \times 4 \text{ of } 4}{4 \div 4 \text{ of } 4+4 \times 4 \div 4-4 \div 4 \text{ of } 2}$ is:

- 7.8
- 4.6
- 8.7
- 6.4

2. The bar graph shows the exports of Cars of Type A and B (in ₹ millions).



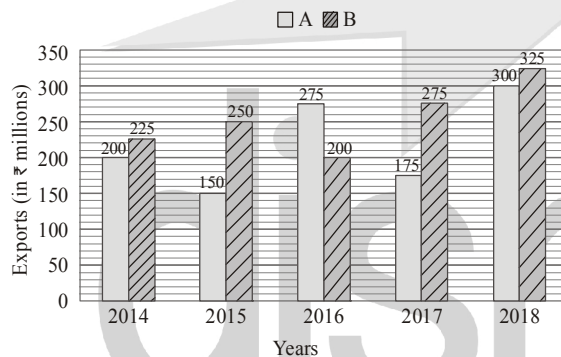
In which year, the exports of cars of type A was 10% more than the average exports (per year) of cars of type A over the five years?

- 2015
 - 2017
 - 2014
 - 2016
3. If $\sin \theta = \sqrt{3} \cos \theta$, $0^\circ < \theta < 90^\circ$, then the value of $2 \sin^2 \theta + \sec^2 \theta + \sin \theta \sec \theta + \operatorname{cosec} \theta$ is:
- $\frac{33+10\sqrt{3}}{6}$
 - $\frac{19+10\sqrt{3}}{6}$
 - $\frac{33+10\sqrt{3}}{3}$
 - $\frac{19+10\sqrt{3}}{3}$

4. To do a certain work, the ratio of efficiency of A to that of B is 3 : 7. Working together, they can complete the work in $10\frac{1}{2}$ days. They work together for 8 days. 60% of the remaining work will be completed by A alone in:

- (a) $5\frac{1}{2}$ days (b) 5 days
(c) $6\frac{1}{2}$ days (d) 4 days

5. The average of thirteen numbers is 47. The average of the first three numbers is 39 and that of next seven numbers is 49. The 11th number is two times the 12th number and 12th number is 3 less than the 13th number. What is the average of 11th and 13th numbers?
(a) 54.5 (b) 57
(c) 56 (d) 55.5
6. The bar graph shows the exports of Cars of Type A and B (in ₹ millions).



What is the ratio of the total exports of cars of type A in 2014 and 2018 to the total exports of cars of type B in 2015 and 2016?

- (a) 11 : 10 (b) 10 : 9
(c) 5 : 4 (d) 3 : 2
7. If $x^8 - 1442x^4 + 1 = 0$, then a possible value of $x - \frac{1}{x}$ is:
(a) 5 (b) 8
(c) 4 (d) 6
8. The graphs of the equations $3x + y - 5 = 0$ and $2x - y - 5 = 0$ intersect at the point $P(\alpha, \beta)$. What is the value of $(3\alpha + \beta)$?
(a) 4 (b) -4
(c) 3 (d) 5
9. If $\sqrt{86 - 60\sqrt{2}} = a - b\sqrt{2}$, then what will be the value of $\sqrt{a^2 + b^2}$, correct to one decimal place?
(a) 8.4 (b) 8.2
(c) 7.8 (d) 7.2

10. The sides AB and AC of $\triangle ABC$ are produced to P and Q respectively. The bisectors of $\angle CBP$ and $\angle BCQ$ meet at R. If the measure of $\angle A$ is 44° , then what is the measure of $\frac{1}{2}\angle BOC$?

- (a) 33° (b) 38°
(c) 34° (d) 32°
11. In $\triangle ABC$, D is a point on side BC such that $\angle ADC = \angle BAC$. If $CA = 12$ cm, $CB = 8$ cm, then CD is equal to:

- (a) 12 cm (b) 15 cm
(c) 18 cm (d) 16 cm
12. A person marks his goods $x\%$ above the cost price and allows a discount of 30% on the marked price. If his profit is 5%, then the value of x will be:

- (a) 50 (b) 60
(c) 45 (d) 35

13. If $a^2 + b^2 + c^2 + 96 = 8(a + b - 2c)$, then $\sqrt{ab - bc + ca}$ is equal to:

- (a) 6 (b) $2\sqrt{2}$
(c) 4 (d) $2\sqrt{3}$

14. A right circular cylinder of maximum volume is cut out from a solid wooden cube. The material left is what percent of the volume (nearest to an integer) of the original cube?

- (a) 19 (b) 28
(c) 23 (d) 21
15. The ratio of the volumes of two cylinders is $x : y$ and the ratio of their diameters is $a : b$. What is the ratio of their heights?

- (a) $xb : ya$ (b) $xa : yb$
(c) $xb^2 : ya^2$ (d) $xa^2 : yb^2$

16. The value of the expression $(\cos^6\theta + \sin^6\theta - 1)(\tan^2\theta + \cot^2\theta + 2)$ is:

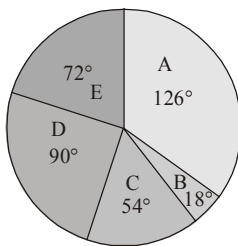
- (a) 0 (b) -1 (c) -3 (d) 1
17. If A is 28% more than B and C is 25% less than the sum of A and B, then by what percent will C be more than A (correct to one decimal place)?

- (a) 32.2% (b) 28%
(c) 43% (d) 33.6%

18. A shopkeeper bought 120 quintals of wheat. 20% of it was sold at 25% loss. At what percent gain should he sell the rest to gain 25% on the whole transaction?

- (a) $36\frac{1}{2}$ (b) 40
(c) $37\frac{1}{2}$ (d) 35

19. The value of $22.\overline{4} + 11.5\overline{67} - 33.\overline{59}$ is:
 (a) $0.\overline{32}$ (b) $0.4\overline{12}$
 (c) $0.3\overline{1}$ (d) $0.4\overline{16}$
20. Anu sold an article for ₹480 at some profit. Had she sold it for ₹400, then there would have been a loss equal to one-third of the initial profit. What was the cost price of the article?
 (a) ₹450 (b) ₹430 (c) ₹425 (d) ₹420
21. In a school, $\frac{4}{9}$ of the number of students are girls and the rest are boys. $\frac{3}{5}$ of the number of boys are below 12 years of age and $\frac{5}{12}$ of the number of girls are 12 years or above 12 years of age. If the number of students below 12 years of age is 480, then $\frac{5}{18}$ of the total number of students in the school will be equal to:
 (a) 270 (b) 315
 (c) 225 (d) 240
22. $\frac{(2 \sin A)(1 + \sin A)}{1 + \sin A + \cos A}$ is equal to:
 (a) $1 + \sin A - \cos A$ (b) $1 - \sin A \cos A$
 (c) $1 + \cos A - \sin A$ (d) $1 + \sin A \cos A$
23. A and B can do a piece of work in 6 days and 8 days, respectively. With the help of C, they completed the work in 3 days and earned ₹1,848. What was the share of C?
 (a) ₹231 (b) ₹924
 (c) ₹462 (d) ₹693
24. If $x + y + z = 11$, $x^2 + y^2 + z^2 = 133$ and $x^3 + y^3 + z^3 = 881$, then the value of $\sqrt[3]{xyz}$ is:
 (a) -6 (b) 6 (c) -8 (d) 8
25. The given pie chart shows the breakup of total number of the employees of a company working in different offices (A, B, C, D and E).
 Total no. of employees = 2400



- What is the number of offices in which the number of employees of the company is between 350 and 650?
 (a) 1 (b) 4 (c) 2 (d) 3
26. Pipes A, B and C can fill a tank in 30 h, 40 h and 60 h respectively. Pipes A, B and C are opened at 7 a.m., 8 a.m., and 10 a.m. respectively on the same day. When will the tank be full?
 (a) 10.00 p.m. (b) 10.20 p.m.
 (c) 9.20 p.m. (d) 9.40 p.m.
27. If the radius of a right circular cylinder is decreased by 20% while its height is increased by 40%, then the percentage change in its volume will be:
 (a) 04% increase
 (b) 10.4% decrease
 (c) No increase or decrease
 (d) 10.4% increase
28. The number of students in a class is 75, out of which $33\frac{1}{3}\%$ are boys and the rest are girls. The average score in mathematics of the boys is $66\frac{2}{3}\%$ more than that of the girls. If the average score of all the students is 66, then the average score of the girls is:
 (a) 52 (b) 55 (c) 54 (d) 58
29. A shopkeeper allows 28% discount on the marked price of an article and still makes a profit of 20%. If he gains ₹30.80 on the sale of one article, then what will be the cost price of the article?
 (a) ₹164 (b) ₹145
 (c) ₹160 (d) ₹154
30. In $\triangle ABC$, $\angle A = 52^\circ$ and O is the orthocentre of the triangle (BO and CO meet AC and AB at E and F respectively when produced). If the bisectors of $\angle OBC$ and $\angle OCB$ meet at P , then the measure of $\angle BPC$ is:
 (a) 124° (b) 132°
 (c) 138° (d) 154°
31. Let a , b and c be the fractions such that $a < b < c$. If c is divided by a , the result is $\frac{5}{2}$, which exceeds b by $\frac{7}{4}$. If $a + b + c = 1\frac{11}{12}$, then $(c - a)$ will be equal to:
 (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{6}$ (d) $\frac{1}{2}$

32. The value of $\frac{(253)^3 + (247)^3}{25.3 \times 25.3 - 624.91 + 24.7 \times 24.7}$ is 50×10^k , where the value of k is:
 (a) 3 (b) 4
 (c) 2 (d) -3
33. Travelling at 60 km/h, a person reaches his destination in a certain time. He covers 60% of his journey in $\frac{2}{5}$ th of the time. At what speed (in km/h) should he travel to cover the remaining journey so that he reaches the destination right on time?
 (a) 40 (b) 48
 (c) 42 (d) 36
34. Study the graph and answer the question that follows.



What is the ratio of the total number of workers whose daily wages are less than ₹500 to the total number of workers whose daily wages are ₹600 and above?

- (a) 5 : 6 (b) 6 : 7
 (c) 3 : 4 (d) 15 : 11
35. The value of $\frac{(\cos 9^\circ + \sin 81^\circ)(\sec 9^\circ + \operatorname{cosec} 81^\circ)}{\sin 56^\circ \sec 34^\circ + \cos 25^\circ \operatorname{cosec} 65^\circ}$
 (a) 4 (b) $\frac{1}{2}$ (c) 2 (d) $\frac{1}{2}$
36. If $(\sqrt{2} + \sqrt{5} - \sqrt{3}) \times k = -12$, then what will be the value of k ?
 (a) $\sqrt{2} + \sqrt{5} + \sqrt{3}$
 (b) $(\sqrt{2} + \sqrt{5} + \sqrt{3})(2 - \sqrt{10})$
 (c) $(\sqrt{2} + \sqrt{5} - \sqrt{3})(2 + \sqrt{5})$
 (d) $(\sqrt{2} + \sqrt{5} + \sqrt{3})(2 - \sqrt{5})$

37. If θ lies in the first quadrant and $\cos^2 \theta - \sin^2 \theta = \frac{1}{2}$, then the value of $\tan^2 2\theta + \sin^2 3\theta$ is:
 (a) $\frac{7}{2}$ (b) 3 (c) 4 (d) $\frac{4}{3}$
38. A sum of ₹ 18,000 is lent at 10% p.a. compound interest, compounded annually. What is the difference between the compound interest for 3rd year and 4th year?
 (a) ₹ 220.60 (b) ₹ 217.80
 (c) ₹ 221.80 (d) ₹ 215.40
39. What is the value of $\operatorname{cosec}(65^\circ + \theta) - \sec(25^\circ - \theta) + \tan^2 20^\circ - \operatorname{cosec}^2 70^\circ$?
 (a) 0 (b) 1
 (c) 2 (d) -1
40. The ratio of the income of A to that of B is 5 : 7. A and B save ₹4,000 and ₹5,000 respectively. If the expenditure of A is equal to $66\frac{2}{3}\%$ of the expenditure of B, then the total income of A and B is:
 (a) ₹ 25,200 (b) ₹ 24,000
 (c) ₹ 26,400 (d) ₹ 28,800
41. In ΔABC , $AB = 6$ cm, $AC = 8$ cm, and $BC = 9$ cm. The length of median AD is:
 (a) $\frac{\sqrt{317}}{2}$ cm (b) $\frac{\sqrt{119}}{2}$ cm
 (c) $\frac{\sqrt{313}}{2}$ cm (d) $\frac{\sqrt{115}}{2}$ cm
42. If a nine-digit number $389x6378y$ is divisible by 72, then the value of $\sqrt{6x+7y}$ will be:
 (a) 6 (b) $\sqrt{13}$ (c) $\sqrt{46}$ (d) 8
43. $\frac{(1 + \cos \theta)^2 + \sin^2 \theta}{(\operatorname{cosec}^2 \theta - 1) \sin^2 \theta} =$
 (a) $\cos \theta(1 + \sin \theta)$
 (b) $2 \cos \theta(1 + \sec \theta)$
 (c) $\sec \theta(1 + \sin \theta)$
 (d) $2 \sec \theta(1 + \sec \theta)$
44. When 12, 16, 18, 20 and 25 divide the least number x , the remainder in each case is 4 but x is divisible by 7. What is the digit at the thousands' place in x ?
 (a) 5 (b) 8 (c) 4 (d) 3

45. If $(a + b) : (b + c) : (c + a) = 7 : 6 : 5$ and $a + b + c = 27$, then what will be the value of $\frac{1}{a} : \frac{1}{b} : \frac{1}{c}$?
- (a) 3 : 6 : 4 (b) 3 : 2 : 4
(c) 4 : 3 : 6 (d) 3 : 4 : 2
46. PQRS is a cyclic quadrilateral in which $PQ = 14.4$ cm, $QR = 12.8$ cm and $SR = 9.6$ cm. If PR bisects QS, what is the length of PS?
- (a) 15.8 cm (b) 16.4 cm
(c) 13.6 cm (d) 19.2 cm
47. In what ratio, sugar costing ₹60 per kg be mixed with sugar costing ₹42 per kg such that by selling the mixture at ₹56 per kg there is a gain of 12%?
- (a) 5 : 6 (b) 8 : 9 (c) 4 : 5 (d) 5 : 7
48. When an article is sold for ₹355, there is a loss of 29%. To gain 21%, it should be sold for ₹:
- (a) 629.20 (b) 580.80
(c) 605 (d) 635
49. $\left(\frac{1 - \tan \theta}{1 - \cot \theta}\right)^2 + 1 =$
- (a) $\operatorname{cosec}^2 \theta$ (b) $\sec^2 \theta$
(c) $\sin^2 \theta$ (d) $\cos^2 \theta$
50. $\sqrt{\frac{\cot \theta + \cos \theta}{\cot \theta - \cos \theta}}$ is equal to:
- (a) $\sec \theta + \tan \theta$ (b) $1 + \sec \theta \tan \theta$
(c) $1 - \sec \theta \tan \theta$ (d) $\sec \theta - \tan \theta$
51. If $5 \sin \theta - 4 \cos \theta = 0$, $0^\circ < \theta < 90^\circ$, then the value of $\frac{5 \sin \theta - 2 \cos \theta}{5 \sin \theta + 3 \cos \theta}$ is:
- (a) $\frac{3}{8}$ (b) $\frac{3}{7}$
(c) $\frac{2}{7}$ (d) $\frac{5}{8}$
52. If the radius of the base of a cone is doubled, and the volume of the new cone is three times the volume of the original cone, then what will be the ratio of the height of the original cone to that of the new cone?
- (a) 1 : 3 (b) 4 : 3
(c) 2 : 9 (d) 9 : 4
53. Abhi rows upstream a distance of 28 km in 4 h and rows downstream a distance of 50 km in 2 h. To row a distance of 44.8 km in still water, he will take:
- (a) 2.8 h (b) 3.2 h
(c) 2.4 h (d) 2.2 h
54. A sum of ₹8,400 amounts to ₹11,046 at 8.75% p.a. simple interest in certain time. What is the simple interest on the sum of ₹9,600 at the same rate for the same time?
- (a) ₹2,990 (b) ₹3,012
(c) ₹2,686 (d) ₹3,024
55. If the diameter of the base of a cone is 42 cm and its curved surface area is 2310 cm^2 , then what will be its volume (in cm^3)?
- (a) 25872 (b) 19404
(c) 12936 (d) 38808
56. If a cuboid of dimensions $32 \text{ cm} \times 12 \text{ cm} \times 9 \text{ cm}$ is cut into two cubes of same size, what will be the ratio of the surface area of the cuboid to the total surface area of the two cubes?
- (a) 65 : 72 (b) 37 : 48
(c) 24 : 35 (d) 32 : 39
57. When x is added to each of 2, 3, 30 and 35, then the numbers obtained in this order, are in proportion. What is the mean proportional between $(x + 7)$ and $(x - 2)$?
- (a) 7 (b) 4
(c) 6 (d) 5
58. The ratio of investment by A to that by B in a business is 14 : 15 and the ratio of their respective profits at the end of a year is 2 : 5. If A invested the money for 3 months, then for how much time (in months) B invested his money?
- (a) 7 (b) 6
(c) 5 (d) 9
59. In $\triangle ABC$, $AB = 7$ cm, $BC = 10$ cm and $AC = 8$ cm. If AD is the angle bisector of $\angle BAC$, where D is a point on BC, then BD is equal to:
- (a) $\frac{16}{3}$ cm (b) $\frac{15}{4}$ cm
(c) $\frac{14}{3}$ cm (d) $\frac{17}{4}$ cm
60. The base of right prism is a trapezium whose parallel sides are 11 cm and 15 cm and the distance between them is 9 cm. If the volume of the prism is 1731.6 cm^3 , then the height (in cm) of the prism will be:
- (a) 15.6 (b) 15.2 (c) 14.8 (d) 14.2
61. Raghav spends 80% of his income. If his income increases by 12% and the savings decrease by 10%, then what will be the percentage increase in his expenditure?
- (a) 20.5 (b) 16
(c) 17.5 (d) 22

62. The lateral surface area of a cylinder is 352 cm^2 . If its height is 7 cm, then its volume (in cm^3) is:

$$\left(\text{Take } \pi = \frac{22}{7} \right)$$

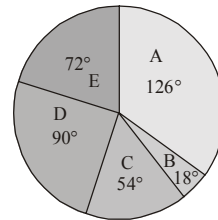
- (a) 1408 (b) 1078
(c) 1243 (d) 891
63. What will be the compound interest on a sum of ₹31,250 for 2 years at 12% p.a., if the interest is compounded 8-monthly?
(a) ₹8,106 (b) ₹8,116
(c) ₹8,016 (d) ₹8,156
64. When 7897, 8110 and 8536 are divided by the greatest number x , then the remainder in each case is the same. The sum of the digits of x is:
(a) 14 (b) 5 (c) 9 (d) 6
65. The ratios of copper to zinc in alloys A and B are 3 : 4 and 5 : 9, respectively. A and B are taken in the ratio 2 : 3 and melted to form a new alloy C. What is the ratio of copper to zinc in C?
(a) 8 : 13 (b) 3 : 5
(c) 9 : 11 (d) 27 : 43
66. In $\triangle ABC$, D and E are the points on sides AB and BC respectively such that $DE \parallel AC$. If $AD : DB = 5 : 3$, then what is the ratio of the area of $\triangle BDE$ to that of the trapezium ACED?
(a) 4 : 25 (b) 9 : 55
(c) 9 : 64 (d) 1 : 6
67. One year ago, the ratio of the age (in years) of A to that of B was 4 : 3. The ratio of their respective ages, 3 years from now, will be 6 : 5. What will be the ratio of respective ages of A and B, 9 years from now?
(a) 7 : 6 (b) 10 : 9
(c) 9 : 8 (d) 8 : 7
68. The sides of a triangle are 11 cm, 60 cm and 61 cm. What is the radius of the circle circumscribing the triangle?
(a) 31.5 cm (b) 31 cm
(c) 30 cm (d) 30.5 cm
69. A sum of ₹5,000 is divided into two parts such that the simple interest on the first part for $4\frac{1}{5}$ years at $6\frac{2}{3}\%$ p.a is double the simple interest on the second part for $2\frac{3}{4}$ years at 4% p.a. What is the difference between the two parts?

- (a) ₹680 (b) ₹600
(c) ₹560 (d) ₹620

70. If $x = \sqrt{1 + \frac{\sqrt{3}}{2}} - \sqrt{1 - \frac{\sqrt{3}}{2}}$, then the value of

$$\frac{\sqrt{2} - x}{\sqrt{2} + x}$$
 will be closest to:

- (a) 0.17 (b) 0.12
(c) 1.4 (d) 1.2
71. The given pie chart shows the breakup of total number of the employees of a company working in different offices (A, B, C, D and E).
Total no. of employees = 2400



If the percentage of male employees in office C is 20% and that of female employees in E is 40%, then what is the ratio of the number of female employees in C to that of female employees in E?

- (a) 3 : 2 (b) 5 : 4
(c) 2 : 3 (d) 3 : 8
72. In a trapezium ABCD. $DC \parallel AB$, $AB = 12 \text{ cm}$ and $DC = 7.2 \text{ cm}$. What is the length of the line segment joining the mid-points of its diagonals?
(a) 2.6 cm (b) 4.5 cm
(c) 2.4 cm (d) 3.6 cm
73. A number is first increased by 16% and then increased by 14%. The number, so obtained, is now decreased by 30%. What is the net increase or decrease percent in the original number (nearest to an integer)?
(a) 6% increase
(b) 7% decrease
(c) No increase or decrease
(d) 9% decrease
74. Radha marks her goods 25% above the cost price. She sells 35% of goods at the marked price, 40% at 15% discount and the remaining at 20% discount. What is her overall percentage gain?
(a) 11.25 (b) 10
(c) 11.75 (d) 12.75

75. Chord AB of a circle is produced to a point P, and C is a point on the circle such that PC is a tangent to the circle. If $PC = 18$ cm, and $BP = 15$ cm. then AB is equal to:
 (a) 5.8 cm (b) 6.2 cm
 (c) 6.6 cm (d) 8.5 cm
76. One of the factors of $(8^{2k} + 5^{2k})$, where k is an odd number, is:
 (a) 86 (b) 88
 (c) 84 (d) 89
77. The internal and external radii of a hollow hemispherical vessel are 6 cm and 7 cm respectively. What is the total surface area (in cm^2) of the vessel?
 (a) 183π (b) 189π
 (c) 177π (d) 174π
78. When the price of an item was reduced by 25%, then its sale was increased by $x\%$. If there is an increase of 20% in the receipt of the revenue, then the value of x will be:
 (a) 50 (b) 60
 (c) 45 (d) 75
79. In a constituency, 55% of the total number of voters are males and the rest are females. If 40% of the males are illiterate and 40% of the females are literate, then by what percent is the number of literate males more than that of illiterate females?
 (a) $22\frac{8}{11}$ (b) $18\frac{2}{9}$
 (c) $22\frac{2}{9}$ (d) $18\frac{2}{11}$
80. From the top of a tower, the angles of depression of two objects on the ground on the same side of it, are observed to be 60° and 30° respectively and the distance between the objects is $400\sqrt{3}$ m. The height (in m) of the tower is:
 (a) 800 (b) $800\sqrt{3}$
 (c) 600 (d) $600\sqrt{3}$
81. A train travelling at the speed of x km/h crossed a 200 m long platform in 30 seconds and overtook a man walking in the same direction at the speed of 6 km/h in 20 seconds. What is the value of x ?
 (a) 50 (b) 54
 (c) 56 (d) 60
82. Let $x = (633)^{24} - (277)^{38} + (266)^{54}$. What is the units digit of x ?
 (a) 7 (b) 6 (c) 4 (d) 8
83. Three solid metallic spheres whose radii are 1 cm, x cm and 8 cm, are melted and recast into a single solid sphere of diameter 18 cm. The surface area (in cm^2) of the sphere with radius x cm is:
 (a) 144π (b) 72π
 (c) 64π (d) 100π
84. The value of $\left(2\frac{6}{7} \text{ of } 4\frac{1}{5} \div \frac{2}{3}\right) \times 1\frac{1}{9} \div \left(\frac{3}{4} \times 2\frac{2}{3} \text{ of } \frac{1}{2} \div \frac{1}{4}\right)$ is:
 (a) 5 (b) 8
 (c) $\frac{1}{8}$ (d) $\frac{1}{5}$
85. An article is sold at a certain price. If it is sold at $33\frac{1}{3}\%$ of this price, there is a loss of $33\frac{1}{3}\%$. What is the percentage profit when it is sold at 60% of the original selling price?
 (a) 20 (b) 30
 (c) $33\frac{1}{3}$ (d) $17\frac{1}{3}$
86. If $a^3 + b^3 = 218$ and $a + b = 2$, then the value of ab is:
 (a) 34 (b) -35
 (c) -31 (d) 32
87. In $\triangle ABC$, $\angle A = 58^\circ$. If I is the incentre of the triangle, then the measure of $\angle BIC$ is:
 (a) 109° (b) 123°
 (c) 112° (d) 119°
88. If $2\sqrt{2}x^3 - 3\sqrt{3}y^3 = (\sqrt{2}x - \sqrt{3}y)(Ax^2 + By^2 + Cxy)$, then the value of $A^2 + B^2 - C^2$ is:
 (a) 11 (b) 7
 (c) 19 (d) 10
89. A circle is inscribed in $\triangle ABC$ touching AB, BC and AC at the points P, Q and R respectively. If $AB - BC = 4$ cm, $AB - AC = 2$ cm and the perimeter of $\triangle ABC = 32$ cm, then $PB + AR$ is equal to:
 (a) 12 cm (b) 13 cm
 (c) $\frac{33}{5}$ cm (d) $\frac{38}{3}$ cm
90. If each interior angle of a regular polygon is $\left(128\frac{4}{7}\right)^\circ$, then what is the sum of the number of its diagonals and the number of its sides?
 (a) 15 (b) 19
 (c) 17 (d) 21

91. If the radius of a sphere is increased by 4 cm, its surface area is increased by $464\pi\text{ cm}^2$. What is the volume (in cm^3) of the original sphere?

- (a) $\frac{15625}{6}\pi$ (b) $\frac{35937}{8}\pi$
(c) $\frac{11979}{2}\pi$ (d) $\frac{15625}{8}\pi$

92. The sum of the digits of a two-digit number is $\frac{1}{7}$

of the number. The units digit is 4 less than the tens digit. If the number obtained on reversing its digits is divided by 7, the remainder will be:

- (a) 4 (b) 5
(c) 1 (d) 6

93. The graph of the equation $x - 7y = -42$, intersects the y -axis at $P(\alpha, \beta)$ and the graph of $6x + y - 15 = 0$, intersects the x -axis at $Q(\gamma, \delta)$. What is the value of $\alpha + \beta + \gamma + \delta$?

- (a) $\frac{17}{2}$ (b) 6
(c) $\frac{9}{2}$ (d) 3

94. In quadrilateral ABCD, the bisectors of $\angle A$ and $\angle B$ meet at O and $\angle AOB = 64^\circ$. $\angle C + \angle D$ is equal to:

- (a) 136° (b) 128°
(c) 116° (d) 148°

95. 'A' started a business with a capital of ₹54,000 and admitted 'B' and 'C' after 4 months and 6 months, respectively. At the end of the year; the profit was divided in the ratio 1 : 4 : 5. What is the difference between the capitals invested by 'B' and 'C'?

- (a) ₹1,08,000 (b) ₹1,62,000
(c) ₹2,16,000 (d) ₹3,24,000

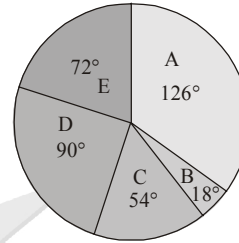
96. A and B started their journeys from X to Y and Y to X, respectively. After crossing each other, A and B completed the remaining parts of their

journeys in $6\frac{1}{8}$ h and 8 h respectively. If the speed of B is 28 km/h, then the speed (in km/h) of A is:

- (a) 40 (b) 42
(c) 32 (d) 36

97. The given pie chart shows the breakup of total number of the employees of a company working in different offices (A, B, C, D and E).

Total No. of employees = 2400



If 40% of the number of employees in office A are shifted equally to office B and E, then what is the difference between the number of employees in B and that in C?

- (a) 72 (b) 120
(c) 82 (d) 130

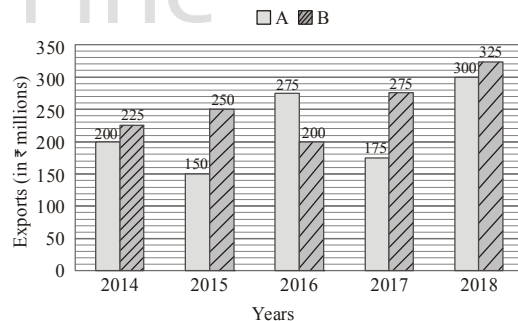
98. The volume of a right pyramid is $45\sqrt{3}\text{ cm}^3$ and its base is an equilateral triangle with side 6 cm. What is the height (in cm) of the pyramid?

- (a) 15 (b) 18
(c) 12 (d) 20

99. A certain number of persons can complete a work in 34 days working 9 h a day. If the number of persons is decreased by 40%, then how many hours a day should the remaining persons work to complete the work in 51 days?

- (a) 19 (b) 8
(c) 12 (d) 10

100. The bar graph shows the exports of Cars of Type A and B (in ₹ millions).



The total exports of cars of type A in 2014 to 2017 is approximately what percentage less than the total exports of cars of type B in 2015 to 2018?

- (a) 31.3 (b) 30.4
(c) 14.3 (d) 23.8

Hints & Explanations

ANSWER KEY ENGLISH LANGUAGE & COMPREHENSION

1	(a)	24	(b)	47	(c)	70	(d)	93	(d)	116	(a)	139	(b)	162	(c)	185	(d)
2	(c)	25	(d)	48	(b)	71	(c)	94	(a)	117	(b)	140	(a)	163	(c)	186	(c)
3	(c)	26	(c)	49	(d)	72	(b)	95	(b)	118	(a)	141	(b)	164	(c)	187	(d)
4	(a)	27	(c)	50	(a)	73	(c)	96	(d)	119	(c)	142	(d)	165	(a)	188	(a)
5	(d)	28	(c)	51	(b)	74	(a)	97	(d)	120	(b)	143	(b)	166	(b)	189	(b)
6	(a)	29	(c)	52	(b)	75	(a)	98	(c)	121	(d)	144	(d)	167	(d)	190	(a)
7	(c, d)	30	(d)	53	(d)	76	(c)	99	(a)	122	(c)	145	(a)	168	(a)	191	(b)
8	(c)	31	(b)	54	(c)	77	(b)	100	(a)	123	(d)	146	(a)	169	(d)	192	(b)
9	(a)	32	(c)	55	(d)	78	(b)	101	(b)	124	(d)	147	(c)	170	(a)	193	(a)
10	(a)	33	(a)	56	(b)	79	(c)	102	(d)	125	(c)	148	(b)	171	(a)	194	(a)
11	(a)	34	(b)	57	(a)	80	(d)	103	(a)	126	(d)	149	(d)	172	(c)	195	(a)
12	(b)	35	(b)	58	(d)	81	(c)	104	(b)	127	(a)	150	(d)	173	(d)	196	(d)
13	(b)	36	(a)	59	(b)	82	(c)	105	(c)	128	(d)	151	(a)	174	(c)	197	(c)
14	(c)	37	(d)	60	(c)	83	(b)	106	(a)	129	(a)	152	(c)	175	(b)	198	(d)
15	(d)	38	(a)	61	(c)	84	(d)	107	(c)	130	(a)	153	(c)	176	(c)	199	(c)
16	(a)	39	(d)	62	(c)	85	(d)	108	(c)	131	(d)	154	(b)	177	(d)	200	(c)
17	(d)	40	(a)	63	(d)	86	(b)	109	(d)	132	(b)	155	(c)	178	(a)		
18	(d)	41	(a)	64	(c)	87	(d)	110	(b)	133	(b)	156	(d)	179	(a)		
19	(b)	42	(d)	65	(c)	88	(d)	111	(a)	134	(b)	157	(d)	180	(d)		
20	(b)	43	(a)	66	(c)	89	(b)	112	(b)	135	(d)	158	(b)	181	(c)		
21	(b)	44	(b)	67	(d)	90	(b)	113	(b)	136	(d)	159	(c)	182	(d)		
22	(a)	45	(a)	68	(a)	91	(b)	114	(d)	137	(c)	160	(b)	183	(a)		
23	(a)	46	(b)	69	(d)	92	(a)	115	(a)	138	(a)	161	(d)	184	(b)		

ANSWER KEY MATHEMATICS

1	(d)	14	(d)	27	(b)	40	(b)	53	(a)	66	(b)	79	(c)	92	(d)
2	(c)	15	(c)	28	(c)	41	(b)	54	(d)	67	(c)	80	(c)	93	(a)
3	(a)	16	(c)	29	(d)	42	(d)	55	(c)	68	(d)	81	(d)	94	(b)
4	(b)	17	(d)	30	(d)	43	(d)	56	(a)	69	(b)	82	(d)	95	(c)
5	(b)	18	(c)	31	(d)	44	(b)	57	(c)	70	(a)	83	(a)	96	(c)
6	(b)	19	(d)	32	(a)	45	(c)	58	(a)	71	(a)	84	(a)	97	(a)
7	(d)	20	(d)	33	(a)	46	(d)	59	(c)	72	(c)	85	(a)	98	(a)
8	(d)	21	(c)	34	(a)	47	(c)	60	(c)	73	(b)	86	(b)	99	(d)
9	(c)	22	(a)	35	(c)	48	(c)	61	(c)	74	(a)	87	(d)	100	(d)
10	(c)	23	(a)	36	(b)	49	(b)	62	(a)	75	(c)	88	(b)		
11	(c)	24	(a)	37	(c)	50	(a)	63	(b)	76	(d)	89	(d)		
12	(a)	25	(d)	38	(b)	51	(c)	64	(d)	77	(a)	90	(d)		
13	(c)	26	(c)	39	(d)	52	(b)	65	(d)	78	(b)	91	(a)		

ENGLISH LANGUAGE & COMPREHENSION

1. (a) Spasmodic (happening suddenly for brief periods of time but not regular), Catatonic (characterized by catatonia), chasm (a deep hole in the ground),
2. (c) DACB the first belief of minimalists about cluttering is shown in (d), the second belief of minimalists is shown in, third sentence is the advice of minimalists which shown in (c) and the last sentence is (b) says cluttering is a good idea. Hence, the coherent order is DACB.
3. (c) Replace 'always we' with 'we always'
4. (a) the direct speech is in assertive sentence, changes are
Said to > told
Conjunction > that
You have committed > I had committed
Hence, correct answer is option (a)
5. (d) The given sentence is in passive voice.
Active structure
S(A psychopath)+V(shot dead)+ O(two children)+O.W.(during the California music festival)
Hence, the correct option is (d).
6. (a) the direct speech is in assertive sentence, changes are
Said > said
Conjunction > that
We must have, your promotion > they must have, her promotion
Hence, correct answer is option (a)
7. (C,D) The given sentence is in active voice.
Active structure
(S+ V1 + O + O.W)
Passive structure is (O+ is/are+V3 +O.W +by + s)
Answer (c) the stray dogs were fed daily by somebody
8. (c) Introduction of an Indian NGO, (GOONJ) which is shown in option (c), is the 1st sentence, second sentence will be slippers received by an old lady of MP shown in (d), third sentence is how she reacted , shown in (a) and the last sentence is revealing truth of many poor villages in India.
Hence, the coherent sequence is CDAB.
9. (a) The given underlined part is correct. So, there is no improvement required.
10. (a) The first should be the view of Gautama Bhatia regarding Change in model of housing shown in (c), second sentence should be option (b) shows the view of houses during 1950's. Also, this sentence is beginning with 'He' which pronoun used for Gautama Bhatia, what he says about houses of that time is shown in (a) is the third sentence. And (d) is the concluding sentence. Hence, the coherent sequence is CBAD.
11. (a) (b) should be the first sentence as it shows past view of sugar intake by people, sentence (a) is showing contrast beginning with (But) is the second sentence, what is the effect of action taken in (a) 'cutting down sugar intake' is shown in (c) is the third sentence and (d) is the concluding sentence.
Hence, the coherent sequence is BACD.
12. (b) Introduction of Louis Armstrong is the first sentence which is shown in (c), what type of childhood he had is shown in (b) is the second sentence, he found a pistol and fired it is the third sentence shown in option (d) and option (a) is showing the result of firing is the last sentence.
Hence, the coherent sequence is CBDA.
13. (b) Ill health is the right choice.
14. (c) Sympathy (An understanding of other people's feelings, especially their problem), Telepathy (Communication of thoughts between people's mind without using speech, writing or other methods), Empathy (The ability to imagine how another person is feeling)
15. (d) The given sentence is in present context. So, 'was followed' should be replaced with 'is followed'.
16. (a) The direct speech is in exclamatory sentence, changes are

- Said > exclaimed
Conjunction > that
I've missed the train > he had missed the bus again
Hence, correct answer is option (a).
17. (d) The direct speech is in Assertive sentence, changes are
Said > said
Conjunction > that
I will reach Patna tomorrow morning > she would reach Patna the next morning
Hence, correct answer is option (d).
18. (d) Helping verb comes before main verb so it should be 'is holding the' at the place of 'holding is the'.
19. (b) In the given sentence there is a contrast, to show that option (b) is the correct choice.
20. (b) Introductory sentence (b) is the first sentence, his death was mysterious is shown in (a) is the second sentence, his lost and found is shown in (d) is the third sentence and after a few days, he died mysteriously is the last sentence.
21. (b) to express in an unclear way – garbled
22. (a) Overcast means covered with cloud so likely is the most appropriate word here.
23. (a) 'At once' is the right option.
24. (b) Migration of Monarch butterfly is an amazing phenomenon should be the first sentence(c), in which season and from where they start migrating is the second sentence (b), how far and to which they migrate is the third sentence(d) and this create a great natural event is the last sentence (a).
Hence, the coherent sequence is CBDA.
25. (d) These sentences are about scuba diving tour that starts after a 30 minute lesson is the first sentence (c), learning basic skills in shallow water is the second sentence(b), shallow water to safe area diving is the third sentence (a) and (d) is the concluding sentence.
Hence, the coherent sequence is CBAD.
26. (c) The direct speech is in Assertive sentence, changes are
- Said > announced
Conjunction > that
We are, has been delayed > we were, had been delayed
The remaining words will be same.
Hence, correct answer is option (c).
27. (c) The subject (you) is plural so the verb should be (wish) and 'to + V1'
28. (c) Will be kept (will +be +kept) is a passive structure in active it is 'will keep' shown in option (c).
29. (c) 'Tells me the funny joke' should be replaced 'with told me the funny joke'
30. (d) 'You feeling' should be replaced with 'are you feeling'.
31. (b) The word 'Serendipity' means 'something pleasant happening by chance' is the right answer.
32. (c) Sentence (c) should be the introductory sentence. Sentence (a) is linked with sentence (c), where did he involve after delegation will be the third sentence, (b) is the concluding sentence.
33. (a) Monotonous
34. (b) (to + V1) is correct structure.
35. (b) 'Pessimistic' is the antonym of 'optimistic'.
36. (a) The direct speech is in Assertive sentence, changes are
Said > said
Conjunction > that
I am not feeling well > she was not feeling well
The remaining words will be same.
Hence, correct answer is option (c).
37. (d) The idiom 'green fingers' means 'someone very good at gardening'.
38. (a) Intently
39. (d) However
40. (a) At
41. (a) Immediately
42. (d) Creating
43. (a) A Past habit is shown in the sentence so 'did not like' is the correct option.

44. (b) Appalling
Frivolous (not having any serious purpose or value)
45. (a) It Is a past event so 'didn't want to eat' is the right option.
46. (b) No Improvement required
47. (c) coherent sequence is
Three crocodiles were found by forest department (d) > features of one of Them (a) > Announcement regarding possibility of finding more crocodiles when water recedes (c) > crocodile attacking a dog video goes viral (b).
48. (b) Illiterate
49. (d) Left no stone unturned
50. (a) How many people helped you in time of difficulty?
51. (b) The correct voice change is – I was not told by anybody that Vanita was unwell.
52. (b) to get used to driving
53. (d) Replace 'bring great joy' with 'brings great joy' as the subject is singular.
54. (c) Catastrophy is the misspelt word.
55. (d) 'Finger in every pie' means someone who is involved in a lot of different activities.
56. (b) 'I've met down' should be replaced with 'I met down'.
57. (a) Lucrative
58. (d) 'Coastal roads should not be taken during monsoons' should be the correct passive voice as the given sentence is showing advice.
59. (b) The active voice is a present continuous tense therefore the passive voice is 'The documents of all the players are being examined by the team manager'.
60. (c) The correct direct speech form is "would you like to take this apartment in rent from tomorrow" he said to me.
61. (c) The idiom 'got cold feet' means to be too fearful to undertake or complete an action.
62. (c) Legitimate (reasonable or acceptable)
63. (d) Interminable
Laconic (Using only a few words to say something), Interim (Temporary until somebody/something more permanent is found), Concise (giving a lot of information in a few words; brief)
64. (c) 'To a conference' should be replaced with 'in/at a conference'
65. (c) While she was reading
66. (c) Being told what to do is not liked by teenagers.
67. (d) The introduction of Whodunit (b) > its chief feature (a), 'Its' is used for whodunit > reader takes note of the clues (d) > concluding part is shown in (c).
Hence, the coherent sequence is BADC.
68. (a) Beyond a few minutes
69. (d) Replace 'where is Anya' with 'where Anya is'?
70. (d) It should be 'when is'.
71. (c) to receive (to + V1) is the correct usage.
72. (b) The given sentence is in present continuous.
The sentence in passive voice is 'The articles on using plastic waste innovatively are being read with interest'.
73. (c) The direct speech is in exclamatory sentence, changes are
Said > exclaimed
Conjunction > that
You speak such good English > I spoke very good English
Hence, correct answer is option (c).
83. (b) Helpful
Reclusive (avoiding the company of other people), hindering (To make it more difficult)
84. (d) Article (a) should not be used before English examination
85. (d) I may please be given some more time to complete the assignments.
86. (b) the given sentence is an indirect speech, changes are
Rohan smiled and said; "I think Jojo likes me!"
87. (d) Replace 'he went' with 'he was going'.
88. (d) the given sentence is in past therefore, it should be 'used to going'.

89. (b) The speech is in Imperative sentence, changes are
"March on!" the commander said to his battalion.
90. (b) The direct speech is in assertive sentence, changes are
Says > says
Conjunction > that
My client is innocent > his client is innocent
Hence, correct answer is option (b).
91. (b) Finest 92. (a) A lot
93. (d) Would have 94. (a) Still
95. (b) Was 96. (d) Drop
97. (d) Them 98. (c) Centre
99. (a) Open
100. (a) To look
101. (b) Preposition (an) is not required
102. (d) Anna suggested we go out for dinner as she had been home that whole week.
103. (a) The given active voice is in simple past tense.
Passive voice is 'All unauthorized farms on the highway were sealed'.
104. (b) this is an active voice sentence. The passive voice is 'do you think our demands will be accepted by the government'.
105. (c) this is a passive voice sentence.
Active voice sentence is 'how many languages do people in India speak?'
106. (a) The idiom 'once in a blue moon' means to do/happen something rarely.
107. (c) The direct speech is in imperative sentence, changes are
Said > encouraged
Conjunction > to
Go on, apply for the job > apply for the job
Hence, correct answer is option (c).
108. (c) Introducing Zuni language shown in (c) should be the first sentence > how Zuni tribes communicate with this language should be the second sentence, shown in (a) > how these tribes preserve their language is shown in (d) is the third fragment
> (b) is the concluding part.
Hence, the coherent sequence is CADB.
109. (d) The structure of active voice is; high interest rates(S) +are alarming (V) + automobile dealers (O)
Hence, the correct passive sentence is 'automobile dealers are being alarmed by the high interest rates'.
110. (b) The direct speech is in assertive sentence, changes are
Said > advised
Conjunction > that
You should lock your car, have been > I should lock my car, had been
The remaining words are same.
Hence, correct answer is option (c).
111. (a) Correct preposition is 'at' before 'home.'
112. (b) Insatiable
Palatable (food with pleasant taste), Insane (crazy or mentally ill), Magnanimous (kind, generous and forgiving)
113. (b)
114. (d) Traffic jam is an uncountable noun so use singular verb (was)
115. (a) All the library rules have been written on the notice-board.
116. (a) The direct speech is in imperative sentence, changes are
Said to > ordered
Conjunction > to
Cut off the prisoner's head! > cut off the prisoner's head.
The remaining words are same.
Hence, correct answer is option (a).
117. (b) No improvement
118. (a) Here, the idiom 'rare bird' means 'an exceptional person or thing.'
119. (c) The direct speech is in imperative sentence, changes are
Said > told
Conjunction > to
Don't throw tantrums > not to throw tantrums.

The remaining words are same.

Hence, correct answer is option (c).

120. (b) Sentence (c) is the introductory sentence > sentence (D) tells what narrator has learnt should be the second sentence > his most helpful thing is shown in (a) should be the third and another advice is which shown in sentence (b) is the concluding sentence.

Hence, the coherent sequence is CDBA.

121. (d) 'Black small bag' should be replaced with 'small black bag.'

122. (c) One's 123. (d) And

124. (d) Monuments 125. (c) Public

126. (d) Till 127. (a) This

128. (d) Tourism 129. (a) Close

130. (a) Will be 131. (d) Of

132. (b) It is a new art form and it will take time to build an audience.

133. (b) 2, 1, 2 & 5

134. (b) A fairly new company or industry

135. (d) Comedy groups are packing up and founders are resigning.

136. (d) 4, 3 & 4

137. (c) couldn't come

138. (a) Humanitarian

Philosopher (who has developed a set of ideas or belief about the meaning of life), Humanist (who follows principles of humanism), Misanthropist (one who hates human)

139. (b) No improvement

140. (a) Sumptuous

141. (b) Will have left

142. (d) Article 'the' should be used before United States (showing group) and not before a country (Canada)

143. (b) The direct speech is in exclamatory sentence, changes are

Said > exclaimed

Conjunction > that

What a lovely scene! I wish I could stay here forever > It was a lovely scene. She further wished that she could stay there forever.

The remaining words are same.

Hence, correct answer is option (b).

144. (d) My grandfather said to me, "May God give you success in your new venture! My prayers will always with you."

145. (a) The direct speech is in assertive sentence, changes are

Said to > informed

Conjunction > that

Are new, we received this consignment yesterday > were new, they received that consignment the day before.

The remaining words are same.

Hence, correct answer is option (a).

146. (a) Plausible

147. (c) A lot of

148. (b) The coherent sequence is (c) who play Hayavadana > why is this played (d) > division of play is shown in (b) is the third sentence > (a) is the last sentence. Hence, the coherent sequence is CDBA.

149. (d) Active structure (S + V1 + S, ES + O)

Passive structure (O + is/are + V3 + by + S)

About 100 million useful bacteria are carried by an apple.

150. (d) Replace 'visit to a' with 'visit of.'

151. (a) Here, the subject is not mentioned so assuming 'we' a Subject; the active voice is 'we are making preparations for our Annual fest.'

152. (c) 'Prefers to walk' is the correct option as the subject is singular.

153. (c) The direct speech is in interrogative sentence, changes are

Said to > asked

Conjunction > whether

Have you completed the project? > He had completed the project.

The remaining words are same.

Hence, correct answer is option (c).

154. (b) The given reporting verb (says) is in present so there will be no change in the tense of reported speech.

168. (a) The idiom 'See eye to eye' means 'be in full agreement.'

- 169. (d)** Successor
- 170. (a)** These lines are about how to write a story or a novel;
Sentence (d) should be the first sentence > Sentence (c) is telling about first rule of writing, should be the second sentence > sentence (b) is about example of (c), is the third sentence > sentence (a) should be the concluding sentence.
Hence, the coherent sequence is DCBA.
- 171. (a)** 'Nipped it in the bud' means 'to stop something at an early stage.'
- 172. (c)** The given lines are about happiness curriculum.
Sentence (b) should be the first sentence (Country needs) > Sentence (d) should be the second sentence telling about who needs it in country also (it) pronoun, is used here for young generation) > sentence(c) is telling why young generation needs it should be the third sentence > Sentence (a) is the concluding part.
Hence, the coherent sequence is BDCA.
- 173. (d)** 'Was not bear' should be replaced with 'couldn't bear.'
- 174. (c)** Hydrophobia
Claustrophobia (fear of confined space), Auto phobia (fear of being alone), Pyre phobia (fear from fire)
- 175. (b)** The direct speech is in interrogative sentence, changes are
Said > asked
Conjunction > whether
Do you think you can complete the report within five days? > I thought I could complete the report within five days.
Hence, the correct answer is option (b).
- 176. (c)** 'and also' should be replaced with 'and alsoa.'
- 177. (d)** is not a good
- 178. (a)** Our students(S) performed (V) the play(O) on environment issues with great professionalism.
- 179. (a)** The direct speech is in imperative sentence, changes are
Said to > warned
- Conjunction > to
Don't over speed at night > not to over speed at night.
Hence, the correct answer is option (a).
- 180. (d)** The coherent sequence is CBAD.
- 181. (c)** My friend said, "You can stay at my place in Dehradun whenever you wish."
- 182. (d)** Penniless
- 183. (a)** 'who has' should be replaced with 'that have.'
- 184. (b)** Apathetic
- 185. (d)** My father built our home in 1990.
- 186. (c)** The direct speech is in assertive sentence, changes are
Said > told
Conjunction > that
I have to be there by 10 am tomorrow > She had to be there by 10am the next day.
The remaining words are same.
Hence, correct answer is option (c).
- 187. (d)** The place of enlightenment (d) > original tree ended (b) > Conjunction 'but' is linked with (b) should be the third sentence and (c) is the last sentence.
The coherent sequence is DBAC.
- 188. (a)** 'In week day' should be replaced with 'in week days.'
- 189. (b)** The coherent sequence is; report of American research (b) > where the Report was published (source) (d), what the report suggests (c), examples of vitamin A is the last sentence.
Hence, the coherent sequence is BDCA.
- 190. (a)** since I have seen
- 191. (b)** Sentence (b) should be the first sentence as it is telling about a book 'The Tiger who came to Tea.' > what the book tells is shown in (d) > how does tiger end up (c) > sentence (a) should be the first sentence.
Hence, the coherent sequence is BDCA.
- 192. (b)** the given sentence is an active voice in present continuous tense.
The passive voice is 'A story is being written by me after a long time.'

- 193 (a) Maestro
Layman, amateur and novice are nearly opposite in meaning.

MATHEMATICS

1. (d) The value of

$$\begin{aligned} & \frac{7+8 \times 8 \div 8 \text{ of } 8+8 \div 8 \times 4 \text{ of } 4}{4 \div 4 \text{ of } 4+4 \times 4 \div 4-4 \div 4 \text{ of } 2} \\ &= \frac{7+8 \times 8 \div 64+8 \div 8 \times 16}{\frac{4}{16}+4-\frac{4}{8}} \\ &= \frac{7+1+1 \times 16}{\frac{1}{4}+4-\frac{1}{2}} \\ &= \frac{8+16}{1+16-2} = \frac{24 \times 4}{15} = \frac{32}{5} = 6.4 \end{aligned}$$

2. (c) Average exports of car A per year

$$\begin{aligned} &= \frac{200+150+275+175+300}{5} \\ &= \frac{1100}{5} = 220 \end{aligned}$$

Export of car A in 2014 = 200
Which is exactly 10% more than the average export of car's per year

3. (a) Given: $\sin \theta = \sqrt{3}$ $\cos \theta \Rightarrow \tan \theta = \sqrt{3}$

$$\Rightarrow \theta = 60^\circ$$

So the value of $2 \sin^2 \theta + \sec^2 \theta + \sin \theta$
 $\sec \theta + \operatorname{cosec} \theta$ for $\theta = 60^\circ$

$$2(\sin 60^\circ)^2 + (\sec 60^\circ)^2 + \frac{\sin 60^\circ}{\cos 60^\circ} + \operatorname{cosec} 60^\circ$$

$$\text{or } 2 \times \left(\frac{\sqrt{3}}{2}\right)^2 + (2)^2 + \sqrt{3} + \frac{2}{\sqrt{3}}$$

$$\Rightarrow 2 \times \frac{3}{4} + 4 + \sqrt{3} + \frac{2}{\sqrt{3}}$$

$$= \frac{6}{4} + 4 + \frac{3+2}{\sqrt{3}} = \frac{6\sqrt{3}+16\sqrt{3}+12+8}{4\sqrt{3}}$$

$$= \frac{22\sqrt{3}+20}{4\sqrt{3}} \text{ or } \frac{11\sqrt{3}+10}{2\sqrt{3}}$$

$$\text{or } \frac{11\sqrt{3}+10}{2\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{33+10\sqrt{3}}{6}$$

4. (b) A & B efficiency ratio = 3 : 7 (Given)
It means $(A+B)$ one day work = $(3+7) = 10$
unit/day if they completed the whole work
in $10\frac{1}{2}$ days

So total amount of work = rate \times days

$$= 10 \times 10\frac{1}{2} = 10 \times \frac{21}{2} = 105 \text{ unit}$$

Both are working 8 days together

So amount of work done in 8 days

$$= 8 \times 10 = 80$$

Remaining work = total work - Amount of
work done in 8 days

$$= (105 - 80) \text{ unit} = 25 \text{ unit}$$

So 60% of remaining work

$$= 25 \times 60\% = 15 \text{ unit}$$

time taken by A to complete the 15 unit work

$$= \frac{60\% \text{ of remaining work}}{\text{Rate}} = \frac{15}{3} = 5 \text{ days}$$

5. (b) Let 12th number is x

Then 11th number is $2x$ and

13th number is $(x+3)$

According to the average concept

$$\text{Total} = \underbrace{\text{Average} \times \text{Number}}$$

$$\left(\begin{array}{c} \text{First} \\ 3 \text{ No.} \\ \text{total} \end{array} \right) + \left(\begin{array}{c} \text{Total from} \\ 4^{\text{th}} \text{ to} \\ 10^{\text{th}} \text{ No.} \end{array} \right) + \left(\begin{array}{c} \text{Total} \\ 11^{\text{th}} \text{ to} \\ 13^{\text{th}} \text{ No.} \end{array} \right) = 611$$

$$\begin{array}{ccc} \downarrow & & \downarrow & & \downarrow \\ 117 & + & 343 & + & 2x + x + x + 3 = 611 \\ 460 + 4x + 3 = 611 & \therefore & x = \frac{148}{4} = 37 \end{array}$$

$$\text{So, average of 11th and 13th number} = \frac{3x+3}{2}$$

$$\text{Put } x = 37, \text{ we have} = \frac{3 \times 37 + 3}{2} = \frac{114}{2} = 57$$

6. (b) Total exports of car A in 2014 and 2018

$$= 200 + 300 = 500$$

and total exports of car B in 2015 and 2016

$$= 250 + 200 = 450$$

so the required ratio = 500 : 450 = 10 : 9

7. (d) Given $x^8 - 1442x^4 + 1 = 0$

dividing the above expression by x^4

$$\frac{x^8}{x^4} - \frac{1442x^4}{x^4} + \frac{1}{x^4} = 0 \text{ so } x^4 + \frac{1}{x^4} = 1442$$

$$\text{or } x^4 + \frac{1}{x^4} + 2 = 1442 + 2$$

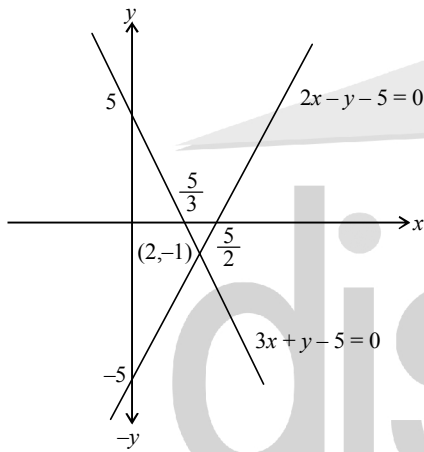
$$\left(x^2 + \frac{1}{x^2}\right)^2 = 1444$$

$$\therefore \left(x^2 + \frac{1}{x^2}\right) = \sqrt{1444} = 38$$

$$\text{or } \left(x^2 + \frac{1}{x^2} - 2\right) = 38 - 2$$

$$\left(x - \frac{1}{x}\right)^2 = 36 \Rightarrow \left(x - \frac{1}{x}\right) = \sqrt{36} = 6$$

8. (d)



From graph, we have $p(\alpha, \beta) = (2, -1)$

$$\therefore 3\alpha + \beta = 3 \times 2 - 1 = 5$$

9. (c) Given $\sqrt{86 - 60\sqrt{2}} = a - b\sqrt{2}$
we can write

$$\sqrt{86 - 2\sqrt{2} \times 900} = a - b\sqrt{2}$$

or square root $\sqrt{86 - 2\sqrt{1800}}$
so we can write

$$\sqrt{(\sqrt{50} - \sqrt{36})^2} = a - b\sqrt{2}$$

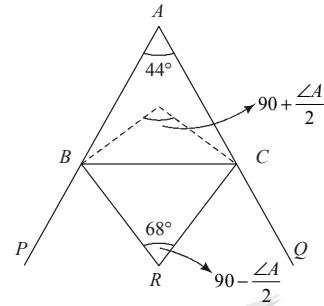
$$\sqrt{50} - \sqrt{36} = a - b\sqrt{2}$$

$$5\sqrt{2} - 6 = a - b\sqrt{2}$$

after comparing $a = -6, b = -5$

$$\text{so } \sqrt{a^2 + b^2} = \sqrt{(-6)^2 + (-5)^2} = \sqrt{61} = 7.8$$

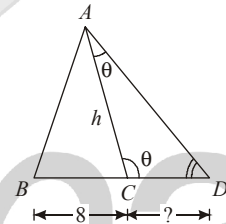
10. (c)



$$\therefore \angle BRC = 90 - \frac{1}{2} \angle A = 90 - \frac{44}{2} = 68^\circ$$

$$\text{So the value of } \frac{1}{2} \angle BRC = \frac{68}{2} = 34^\circ$$

11. (c) From $\triangle ABC$ and $\triangle DAC$



$$\angle ACB = \angle BCA \quad (\text{Common})$$

$$\angle ADC = \angle BAC \quad (\text{Given})$$

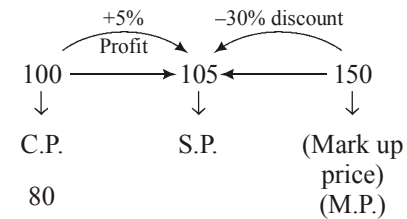
So $\triangle BAC \cong \triangle ADC$

$$\text{So the ratio } \frac{CB}{AC} = \frac{AC}{CD}$$

$$\frac{8}{12} = \frac{12}{CD} \quad [\because CB = 8 \text{ cm and } AC = 12 \text{ cm}]$$

$$CD = \frac{12 \times 12}{8} = 18 \text{ cm}$$

12. (a) Short Tricks



$$\text{So } x = 150 - 100 = 50$$

13. (c) Given $a^2 + b^2 + c^2 + 96 = 8(a + b - 2c)$

$$\Rightarrow a^2 - 8a + b^2 - 8b + c^2 + 16c + 96 = 0$$

$$\text{or } (a^2 - 8a + 16) + (b^2 - 8b + 16) + c^2 +$$

$$16c + 64 = 0$$

$$\text{or } (a - 4)^2 + (b - 4)^2 + (c + 8)^2 = 0$$

or $(a-4)^2=0, (b-4)^2=0, (c+8)^2=0$
 $a-4=0, b-4=0$ and $c+8=0$
 $\Rightarrow a=4, b=4, c=-8$

$\therefore \sqrt{ab-bc+ca}$
 $= \sqrt{4 \times 4 - 4 \times (-8) + (-8) \times 4}$
 $= \sqrt{16 + 32 - 32} = 4$

14. (d) Here $h = a, r = \frac{a}{2}$

According to question
 Ratio of the volume of
 cube : cylinder

$= a^3 : \pi \left(\frac{a}{2}\right)^2 \times (a)$

$= a^3 : \frac{\pi a^3}{4} = 1 : \frac{\pi}{4} = 1 : 0.786$

So according to the question

$= \frac{\text{Material left}}{\text{Volum of cube}} \times 100$

$= \frac{(1-0.786)}{1} \times 100$
 $= 0.214 \times 100 = 21.4\% \approx 21$

15. (c) Volume Ratio $= \frac{\pi r_1^2 h_1}{\pi r_2^2 h_2} = \frac{x}{y}$

or $\frac{r_1^2}{(r_2)^2} \frac{h_1}{h_2} = \frac{x}{y}$ or $\frac{a^2}{b^2} \times \frac{h_1}{h_2} = \frac{x}{y}$

or $\frac{h_1}{h_2} = \frac{b^2 x}{a^2 y} = b^2 x : a^2 y$

16. (c) The value of
 $(\cos^6 \theta + \sin^6 \theta - 1) (\tan^2 \theta + \cot^2 \theta + 2)$
 assume any value of θ

Let $\theta = 45^\circ$
 so $[(\cos 45^\circ)^6 + (\sin 45^\circ)^6 - 1]$
 $[(\tan 45^\circ)^2 + (\cot 45^\circ)^2 + 2]$

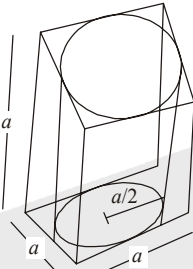
$\left(\frac{1}{8} + \frac{1}{8} - 1\right) [1^2 + 1^2 + 2] ; \left(\frac{1}{4} - 1\right) \times 4$

$\frac{-3}{4} \times 4 = -3$

17. (d) Let $B = 100$

then $A = 100 + 100 \times \frac{28}{100} = 128$

sum of $A + B = 100 + 128 = 228$



$\therefore C = 228 \times \frac{75}{100} = 171$

Now, $\frac{(C-A)}{A} \times 100$

$= \left(\frac{171-128}{128}\right) \times 100 = \frac{43}{128} \times 100 = 33.6\%$

18. (c) Let the cost price of 120 quintals of wheat is ₹1000

then price of 1 quintal of wheat

$= \frac{1000}{120} = ₹8.33$

Selling price of 20% of wheat

$= 120 \times \frac{20}{100} \times \frac{3}{4} \times 8.33 \approx 150$

To get profit of 25%.

Selling price of 120 quintals

$= 1000 \times 1.25 = 1250$

\therefore Selling price of remaining wheat.

$= (120 - 24) = 96$ quintal

$= 1250 - 150 = 1100$

cost price of 96 quintal $= 96 \times 8.33 = 799.68$

% gain $= \left(\frac{1100 - 799.68}{799.68}\right) \times 100 = 37.5\%$

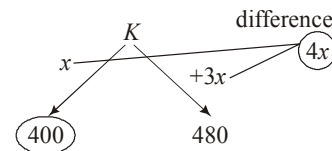
19. (d) The value of $22.\bar{4} + 11.5\bar{67} - 33.\bar{59}$

$= 22 + 0.444 \dots + 11 + 0.56767 \dots - 33 - 0.595959 \dots$

$= 0.444 + 0.5676 - 0.5959$

$= 0.4161616$ or $0.4\bar{16}$

20. (d) Let C.P. be K



So equating the difference

$\Rightarrow 3x - (-x) \Rightarrow 4x = 480 - 400 = 80$

$x = 20$

if $x = 20$, it means C.P.

$K = 400 + x = 400 + 20 = ₹420$

21. (c)

Girls	Boys
Ratio $\rightarrow 4 \times 12$ = 48 unit	5×12 = 60 unit

$$\left(\begin{array}{l} \text{Less than} \\ \text{12 yrs age} \end{array} \right) \left(\begin{array}{l} \times \frac{7}{12} \\ \\ \end{array} \right) \left(\begin{array}{l} \\ \\ \times \frac{3}{5} \end{array} \right) \left(\begin{array}{l} \text{Less than} \\ \text{12 yrs} \end{array} \right)$$

28 unit 36 unit
So total students less than 12 years
= (28 + 36) = 64 unit

According to question

Given number of students less than 12 yrs
= 480

$$\therefore 64 \text{ unit} = 480 \therefore 1 \text{ unit} = \frac{480}{64} = \frac{60}{8} = \frac{15}{2}$$

so $\frac{5}{18}$ of total no of students

$$= 108 \times \frac{15}{2} \times \frac{5}{18} = 15 \times 15 = 225$$

22. (a)

$$\frac{(2\sin A)(1 + \sin A)}{1 + \sin A + \cos A}$$

assume the value of $A = 90^\circ$

$$\text{so } \frac{2\sin 90(1 + \sin 90)}{(1 + \sin 90 + \cos 90)}$$

$$= \frac{2 \times 1(1+1)}{1+1+0} = \frac{4}{2} = 2$$

option (a) becomes $1 + \sin 90 - \cos 90 = (2)$
So the right option is (a).

23. (a)

Total work = 24 units

A \longrightarrow 6 $\xrightarrow{\text{rate}}$ 4 units/day

B \longrightarrow 8 \longrightarrow 3 units/day

C \longrightarrow

A + B + C \longrightarrow 3 \longrightarrow 8 units/day

So the work done of

$$C = (\text{Total } A + B + C) 8 - (A + B)\text{'s workdone}$$

$$= 8 - (4 + 3) = 1 \text{ unit/day}$$

So the amount will be distributed according to their work ratio.

$$\text{total wage} = (A + B + C) = (4 + 3 + 1) \text{ units}$$

$$= 1848$$

$$8 \text{ units} \rightarrow 1848$$

$$1 \text{ unit} \rightarrow \frac{1848}{8} = 231$$

So C's share i.e. 1 unit = 231 Rupees

24. (a)

Given

$$\text{If } x + y + z = 11, x^2 + y^2 + z^2 = 133$$

$$\text{and } x^3 + y^3 + z^3 = 881$$

We know

$$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$$

$$11^2 = 133 + 2(xy + yz + zx)$$

$$\frac{121 - 133}{2} = (xy + yz + zx) - 6 = (xy + yz + zx)$$

so using standard result

$$(s^3 + y^3 + z^3) - 3xyz$$

$$= (x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)$$

So putting all values $\downarrow \downarrow$

$$881 - 3xyz = 11 \times (133 - (-6) - 3xyz)$$

$$= 1529 - 881$$

$$xyz = -\frac{648}{3} = -216$$

$$\text{so, } \sqrt[3]{-216} = -6$$

25. (d)

Given

Total no of employee = 2400

Converting degree into percentage
 $360^\circ = 100\%$

$$1^\circ = \frac{100}{360} = \left(\frac{5}{18}\right)\%$$

So no of employee in office A (126°)

$$= \left(\frac{5}{18} \times 126\right)\% = 35\%$$

So no of employee in office A
= $2400 \times 35\% = 840$

$$\text{In office } B = 18^\circ = \left(\frac{5}{18} \times 18\right)\% = 5\%$$

So no of employees in office B
= $2400 \times 5\% = 120$

$$\text{In office } C = (54^\circ) = \left(\frac{5}{18} \times 54\right)\% = 15\%$$

So no of employees in office
C = $2400 \times 15\% = 360$

$$\text{In office } D(90^\circ) = \left(\frac{5}{18} \times 90\right)\% = 25\% = 600$$

$$\text{In office } E(72^\circ) = \left(\frac{5}{18} \times 72\right)\% = 20\% = 480$$

So number of employees of the company in between 350 and 650 = 3

26. (c) Total capacity = 120 ltr

$$A \rightarrow 30 \text{ h} \xrightarrow{\text{rate}} 4 \text{ ltr/hr}$$

$$B \rightarrow 40 \text{ h} \xrightarrow{\text{rate}} 3 \text{ ltr/hr}$$

$$C \rightarrow 60 \text{ h} \xrightarrow{\text{rate}} 2 \text{ ltr/hr}$$

Total amount of water in tank per hr = 9 ltr/hr
According to question, pipes A, B and C are opened at 7:00 am 8 am and 10:00 am.

$$A \xrightarrow{\text{opened}} 7:00 \text{ am} \xrightarrow{\text{in } 3\text{hr}} 4 \times 3 = 12$$

$$B \xrightarrow{\text{opened}} 8:00 \text{ am} \xrightarrow{\text{in } 2\text{hr}} 3 \times 2 = 6$$

$$\xrightarrow{\text{remaining}} 120 - (12 + 6) = 120 - 18 = 102 \text{ ltr.}$$

102 ltr filled by (A + B + C) together, .

$$\text{so total time} = \frac{102}{9} = 11 \frac{3}{9} \text{ hrs}$$

or 11 hr 20 min

So from 10 am the tank filled completely at 9:20 pm

27. (b) We know that

Volume of cylinder = $\pi r^2 h$

Radius is decreased by 20%

Height is increased by 40%

So percentage charge in the volume

$$= x + y + \frac{xy}{100} = -20 - 20 + \frac{+400}{100} = -36\%$$

$$\text{again } x + y + \frac{xy}{100} = -36 + 40 + \frac{(-36) \times 40}{100}$$

$$= 4 - 14.4 = -10.4\%$$

So % change in volume = 10.4% decrease

28. (c) Given B : G

$$\begin{array}{ccc} 1 & : & 2 \\ & & \downarrow \text{or} \\ 5x & & 3x \\ & \curvearrowright & \uparrow \\ & +66\% & \end{array}$$

According to the question

$$\frac{5x + 6x}{3} = 66$$

$$11x = 66 \times 3 : x = 18$$

So no of girls in the class = $3x = 3 \times 18 = 54$

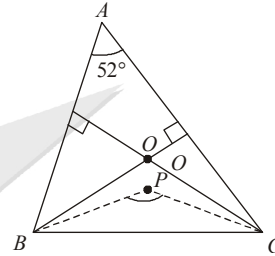
29. (d) Given

Let CP be ₹100

So, when profit is ₹20, C.P. = 100

$$\therefore \text{ when profit is ₹30.80, C.P.} = \frac{30.80}{20} \times 100 = ₹154$$

30. (d)



By orthogonal property of triangle

We know that $\angle BOC = 180^\circ - \angle A = 180 - 52$

$$\therefore \angle OBC + \angle OCB = \angle A$$

$$\therefore \angle BPC = 180 - \frac{A}{2}$$

$$= 180^\circ - \frac{52}{2} = 180 - 26 = 154^\circ$$

31. (d) Ratio of $\frac{c}{a} = \frac{5}{2}$... (i)

According to question

$$b = \frac{5}{2} - \frac{7}{4} = \frac{3}{4}$$

$$\text{so, } a + c = \frac{23}{12} - \frac{9}{12} = \frac{14}{12} \Rightarrow a + c = \frac{7}{6} \dots \text{(ii)}$$

from (i) and (ii)

$$a + \frac{5}{2}a = \frac{7}{6} \Rightarrow \frac{7a}{2} = \frac{7}{6}$$

$$a = \frac{1}{3}$$

$$c = \frac{5}{2} \times \frac{1}{3} = \frac{5}{6}$$

$$\therefore c - a = \frac{5}{6} - \frac{1}{3} = \frac{1}{2}$$

32. (a) $\frac{(253)^3 + (247)^3}{25.3 \times 25.3 - 624.91 + 24.7 \times 24.7} = 50 \times 10^k$

$$= \frac{(253 + 247) [(253)^2 + (247)^2 - 247 \times 253]}{\frac{1}{100} [(253)^2 - 247 \times 253 + (247)^2]}$$

$$= 50 \times 10^k$$

$$500 \times 100 = 50 \times 10^k$$

$$1000 = 10^k$$

$$10^3 = 10^k \Rightarrow k = 3$$

33. (a) Given

$$60\% \text{ journey} \rightarrow \frac{2}{5} \text{ th of time}$$

so, 40% of journey $\rightarrow \frac{3}{5}$ th (remaining) of time

$$\text{Average Speed} = \frac{\text{total distanes}}{\text{total time}} = \frac{5}{5} = 1 \text{ km/hr}$$

$$\text{Distance : } 3 \text{ km} \times \frac{2 \text{ km}}{3 \text{ hr}}$$

$$\text{Time : } 2 \text{ hr} \times \frac{3 \text{ hr}}{3}$$

$$\text{Speed} = \frac{2}{3} \times \frac{20}{60} = 40 \text{ km/hr}$$

34. (a) We have to find the ratio

$$= \frac{\text{total No of workers whose wages are less than 500}}{\text{total No of workers whose daily wages are ₹600 and above}}$$

$$= \frac{30 + 45}{55 + 35} = \frac{75}{90} = \frac{5}{6} = 5 : 6$$

35. (c) $\sin 56^\circ \sec 34^\circ + \cos 25^\circ \operatorname{cosec} 65^\circ$

$$\text{If } x + y = 90^\circ$$

$$\text{Then } \sin x + \cos y = 2 \sin x$$

$$\sec x + \operatorname{cosec} y = 2 \sec x$$

$$\text{and } \frac{\sin x}{\cos y} = 1$$

$$\text{So } \frac{2 \sin x \times 2 \sec x}{\frac{\sin 56^\circ}{\cos 34^\circ} + \frac{\cos 25^\circ}{\sin 65^\circ}} = \frac{2 \times 2 \sin x}{\frac{\cos x}{1+1}}$$

$$= \frac{4 \sin 81^\circ}{\frac{\cos 9^\circ}{2}} = \frac{4 \times 1}{2} = 2$$

36. (b) By option method

$$(\sqrt{2} + \sqrt{5} - \sqrt{3})k = -12$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$1.4 + 2.2 - 1.7$$

$$\approx 2k = -12$$

$$k = -6$$

Option (a) is not possible because all are positive and their sum is 5.

Option (b) is possible because

$$(\sqrt{2} + \sqrt{5} + \sqrt{3})(2 - \sqrt{10})$$

$$(1.4 + 2.2 + 1.7)(2 - 3.16)$$

$$(5.2) \times (-1.16) \approx -6$$

37. (c) $\cos^2 \theta - \sin^2 \theta = \frac{1}{2}$

As θ lies in 1st Quadrant it means θ lies between 0° to 90°

$$\therefore \cos 2\theta = \frac{1}{2}$$

$$\{\therefore \cos^2 \theta - \sin^2 \theta = \cos 2\theta\}$$

$$\therefore \cos 2\theta = \cos 60^\circ \Rightarrow 2\theta = 60^\circ$$

$$\Rightarrow \theta = 30^\circ$$

So, the value of the expression

$$\tan^2 2\theta + \sin^2 3\theta, \text{ when } \theta = 30^\circ$$

$$\text{So, } (\tan 2 \times 30^\circ)^2 + (\sin 3 \times 30^\circ)^2$$

$$(\sqrt{3})^2 + (1)^2$$

$$3 + 1 = 4$$

38. (b)

$$1^{\text{st}} \text{ year} \rightarrow 10\%$$

$$2^{\text{nd}} \text{ year} \rightarrow 11\%$$

$$3^{\text{rd}} \text{ year} \rightarrow 12.1\%$$

$$4^{\text{th}} \text{ year} \rightarrow 13.31\%$$

So, the difference b/w 3rd and 4th year

$$= 1.21\%$$

So, the interest value = $18000 \times 1.21\%$

$$= 180 \times 1.21 = ₹217.8$$

39. (d) $\operatorname{cosec}(65^\circ + \theta) - \sec(25^\circ + \theta) + \tan^2 20^\circ - \operatorname{cosec}^2 70^\circ$

$$\text{If } x + y = 90^\circ \text{ then } \operatorname{cosec} x = \sec y$$

$$\text{So, } \cos(65^\circ + \theta) - \sec(25^\circ + \theta) + \sec^2 20^\circ - 1$$

$$- \operatorname{cosec}^2 70^\circ = -1$$

40. (b) $A \qquad B$

$$\text{Income ratio} \rightarrow 5 : 7$$

$$\text{Expenditure ratio} \rightarrow 2 : 3$$

$$\text{Given saving} \quad 4000 \quad 5000$$

$$\text{Ratio will be} \quad 4 : 5$$

The ratio should be in 4 : 5

$$\text{Income ratio } (5 : 7) \times 2 = 10 : 14$$

$$\text{Expenditure ratio } (2 : 3) \times 3 = 6 : 9$$

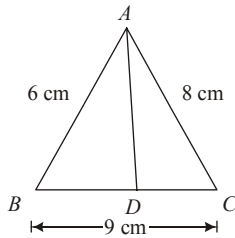
saving ratio 4 : 5

We know the multiple factor in = 1000

$$\text{So, total income} = (10 + 14) = 24 \text{ part}$$

$$\text{So, total amount} = 24 \times 1000 = ₹24,000$$

41. (b)



Using Apollonius theorem
 $AB^2 + AC^2 = 2(AD^2 + BD^2)$

$$(6^2 + 8^2) = 2 \left(AD^2 + \left(\frac{9}{2} \right)^2 \right)$$

$$\frac{100}{2} = AD^2 + \frac{81}{4}$$

$$AD^2 = \frac{100}{2} - \frac{81}{4}$$

$$AD^2 = \frac{200 - 81}{4} = \frac{119}{4}$$

$$AD = \sqrt{\frac{119}{4}} = \frac{\sqrt{119}}{2}$$

42. (d)

Given number : $389x6378y$
 If this no is divisible by 72 then same number should be divisible by 8 and 9
 Divisibility rule of 9 \rightarrow sum of digit should be divisible by 9
 Divisibility rule of 8 \rightarrow last 3 digit should be divisible by 8

So, $\underbrace{3+8+9+x+6+3+7+8+y}_{\substack{\downarrow \\ \text{sum} \rightarrow 48+x}} \quad \underbrace{}_{\substack{\downarrow \\ y \text{ should be } 4, \\ \text{for divisible} \\ \text{by } 8}}$
 \downarrow
 x should be 6
 division with 9

So the value of $\sqrt{6x+7y}$
 $= \sqrt{6 \times 6 + 7 \times 4} = \sqrt{36 + 28} = \sqrt{64} = 8$

43. (d)

$$\frac{(1 + \cos \theta)^2 + \sin^2 \theta}{(\operatorname{cosec}^2 \theta - 1) \sin^2 \theta}$$

$$= \frac{1 + \cos^2 \theta + 2 \cos \theta + \sin^2 \theta}{(\operatorname{cosec}^2 \theta \times \sin^2 \theta - \sin^2 \theta)}$$

$$\frac{(1 + 1 + 2 \cos \theta)}{(1 - \sin^2 \theta)}$$

{ \because identity $\sin^2 \theta + \cos^2 \theta = 1$ }

$$\frac{2 + 2 \cos \theta}{\cos^2 \theta} = \frac{2(1 + \cos \theta)}{\cos^2 \theta}$$

$$\text{or } 2 \sec \theta [1 + \sec \theta]$$

44. (b) Number = $[\text{LCM}(12, 16, 18, 20, 25)] \times k + 4$

$$\downarrow$$

$$= [144 \times 25] \times k + 4$$

$$= 3600k + 4$$

or

This expression should be divisible by 7, according to question.

For $k = 5$

$$\therefore \text{The actual number} = 3600 \times 5 + 4 = 18004$$

\downarrow
 Thousands place

So, digit at thousands place = 8

45. (c)

Given $(a + b) : (b + c) : (c + a) = 7 : 6 : 5$

$2(a + b + c) = 18$ part

$(a + b + c) = 9$ part ... (1)

so from above expression

$b + c = 6$ part

so $a + \underbrace{b+c}_6 = 9$

$a = 9 - 6 = 3$

$a + b = 7$

put in equation (1)

$\frac{a+b}{7} + c = 9$

$c = 2$

and $c + a = 5$

put the value of $(a + c)$ in Eq. (1)

we get

$a + b + c = 9$

$b = 4$

So the required ratio of $a : b : c = 3 : 4 : 2$

$$\frac{1}{a} : \frac{1}{b} : \frac{1}{c} = \frac{1}{3} : \frac{1}{4} : \frac{1}{2}$$

$$= 4 : 3 : 6$$

46. (d)

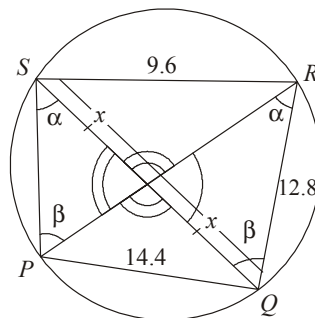
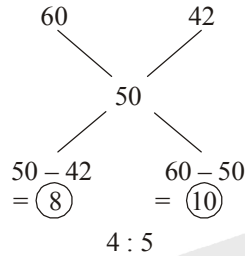


Fig. Cubic Quadrilateral

Triangles are similar
 \therefore ratio of PQ and $SR = 9.6 : 14.4 = 2 : 3$
 So the ratio of side QR and PS should be in
 $= 2 : 3$
 So by options 19.2 is the right answer
 because the ratio of $12.8 : 19.2 \Rightarrow 2 : 3$

47. (c) By alligation method



48. (c) According to the asked question
 Selling article at 29% loss
 It means $71\% = 355$
 So, $CP(100\%) = 5 \times 100 = 500$
 to gain 21% profit = 121% of CP

$$= 500 \times \frac{121}{100} = ₹605$$

49. (b) $\left(\frac{1 - \tan \theta}{\tan \theta - 1} \right)^2 + 1 = \tan^2 \theta + 1$
 $= \sec^2 \theta$

50. (a) $\sqrt{\frac{\cos \theta + \cos \theta}{\cot \theta - \cos \theta}}$

$$\begin{aligned}
 &= \sqrt{\frac{\cos \theta \left[\frac{1}{\sin \theta} + 1 \right]}{\cos \theta \left(\frac{1}{\sin \theta} - 1 \right)}} = \sqrt{\frac{1 + \sin \theta}{1 - \sin \theta}} \\
 &= \sqrt{\frac{(1 + \sin \theta) \times (1 + \sin \theta)}{(1 - \sin \theta) \times (1 + \sin \theta)}} \\
 &= \sqrt{\frac{(1 + \sin \theta)^2}{1 - \sin^2 \theta}} = \frac{1 + \sin \theta}{\cos \theta} = \frac{1}{\cos \theta} + \frac{\sin \theta}{\cos \theta} \\
 &= (\sec \theta + \tan \theta)
 \end{aligned}$$

51. (c) Given
 $5 \sin \theta - 4 \cos \theta = 0$

$$5 \sin \theta = 4 \cos \theta \text{ or, } \tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{4}{5}$$

so, the value of $\frac{5 \sin \theta - 2 \cos \theta}{5 \sin \theta + 3 \cos \theta}$

dividing both numerator and denominator
 by $\cos \theta$, we get

$$= \frac{5 \tan \theta - 2}{5 \tan \theta + 3}$$

Put $\tan \theta = \frac{4}{5}$

we have $= \frac{5 \times \frac{4}{5} - 2}{5 \times \frac{4}{5} + 3} = \frac{4 - 2}{4 + 3} = \frac{2}{7}$

52. (b) Volume of a cone $(v) = 4\pi r^2 h$

so $\frac{v_1}{v_2} = \left(\frac{r_1}{r_2} \right)^2 \times \left(\frac{h_1}{h_2} \right)$

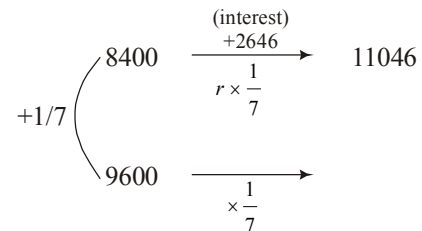
$$\frac{h_1}{h_2} = \frac{1}{3} \times \left(\frac{2}{1} \right)^2 = \frac{4}{3} = 4 : 3$$

53. (a) Upstream speed = 7 km/h $\rightarrow b - s$
 Downstream speed = 25 km/h $\rightarrow b + s$

It means
 $b - s = 7 \text{ km/h} \quad \dots(i)$
 $b + s = 25 \text{ km/h} \quad \dots(ii)$
 $\frac{2b}{b} = \frac{32 \text{ km/h}}{16 \text{ km/h}}$

so time taken = $\frac{P}{b} = \frac{44.8}{16} = 2.8 \text{ hr.}$

54. (d)

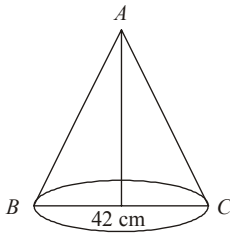


Rate and time is same for both cases if
 principle increased by $\frac{1}{7}$ the interest should
 also increased by $\frac{1}{7}$ times.

Now, $\frac{1}{7}$ of 2646 = 378

so total increased = 2646 + 378 = ₹3024

55. (c)



$$r = \frac{42}{2} = 21 \text{ cm}$$

curved surface area = $\pi r l$

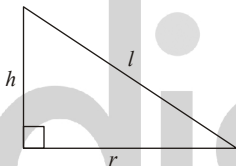
so according to given value in the question

$$\pi r l = 2310$$

$$\frac{22}{7} \times 21 \times l = 2310$$

$$l = \frac{2310}{66} = 35 \text{ cm}$$

For height using R.A.T.



$$\text{if } r = 3 \times 7$$

$$l = 5 \times 7$$

$$\text{so } h = 4 \times 7$$

$$\text{so the volume of the cone} = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \times \frac{22}{7} \times 21 \times 21 \times 28 = 12936 \text{ cm}^3$$

56. (a) Given

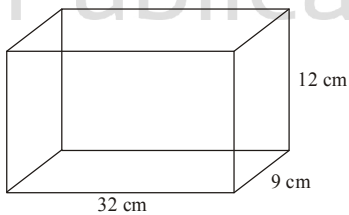


Fig. Cuboid

Assume this cuboid is melted into two cube of same size

So volume of cuboid = Volume of 2 cube of same size

$$32 \times 12 \times 9 = 2(a^3)$$

$$2^4 \times 2^2 \times 3^3 = a^3$$

$$2^6 \times 3^3 = a^3$$

$$12^3 = a^3$$

$$a = 12$$

So, required ratio

$$2 [32 \times 9 + 9 \times 12 + 12 \times 32] : 12 \times 12^2$$

$$130 : 144$$

$$65 : 72$$

57. (c) According to question

$$\frac{x+2}{x+3} = \frac{x+30}{x+35}$$

after solving

$$5x + 10 = x + 30$$

$$4x = 20$$

$$x = 5$$

$$\text{so } \sqrt{(x+7)(x-2)} = \sqrt{(5+7)(5-2)}$$

$$= \sqrt{12 \times 3} = \sqrt{36} = 6$$

58. (a) We know that profit = Investment \times time

so according to the question

$$\text{Investment Ratio } 14 : 15$$

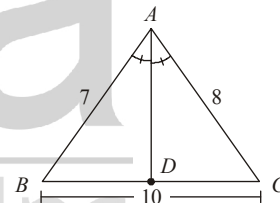
$$\text{Time } 3 : x$$

$$\text{Profit Ratio } 2 : 5$$

$$\text{Now, } \frac{14 \times 3}{15 \times x} = \frac{2}{5}$$

$$\therefore x = \frac{105}{15} = 7 \text{ month}$$

59. (c)



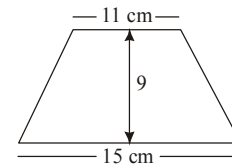
AD is angle bisector

so applying angle bisector theorem

$$\frac{BD}{CD} = \frac{AB}{AC} \text{ or } \frac{BD}{CD} = \frac{7}{8}$$

$$\text{So, } BD = \frac{7}{15} \times 10 = \frac{14}{3} = 14 : 3$$

60. (c)



$$\therefore \text{Volume} = \text{Base area} \times \text{Height} \quad \dots(1)$$

$$\text{So area of trapezium} = \frac{1}{2} (l_1 + l_2) \times h$$

$$= \frac{1}{2} (11 + 15) \times 9 = 117 \text{ cm}^2$$

So after putting value in Eq. (1) we have
 $V = B \times H$

$$H = \frac{V}{B} = \frac{1731.6}{117} \text{ (Given)}$$

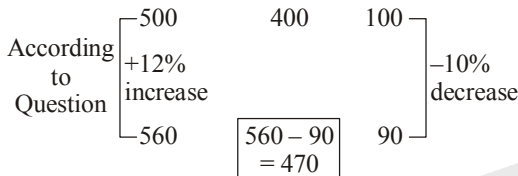
$$H = 14.8 \text{ cm}$$

61. (c)

Given

Let income = 500

Income : Expenditure : Saving



So increase in expenditure
 = income after increased - decreased saving
 = 560 - 90 = 470

So % increased is expenditure

$$= \left(\frac{470 - 400}{400} \right) \times 100 = \frac{70}{400} \times 100 = 17.5\%$$

62. (a)

We know that

Lateral surface area = 352

$$2\pi rh = 352$$

$$2 \times \frac{22}{7} \times 7 \times r = 352$$

$$r = 8$$

Then volume = $\pi r^2 h$

$$= \frac{22}{7} \times 7 \times 8^2 = 22 \times 64 = 1408 \text{ cm}^3$$

63. (b)

Given

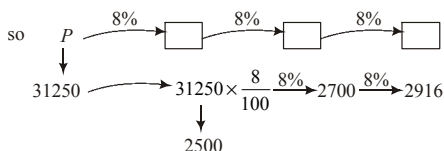
12% Rate of interest for 12 month

So 1% rate of interest for 1 month

\therefore 8% rate of interest for 8 month

Use cyclic concept

1	2	3
8%	8%	8%



So total interest = 2500 + 2700 + 2916 = ₹ 8116

64. (d)

Three given number are — 7897, 8110 and 8536

Let the remainder = K

So if the remainder is same

$$\begin{aligned} 7897 - K &= N_1 \\ 8110 - K &= N_2 \\ 8536 - K &= N_3 \end{aligned}$$

HCF \rightarrow x

Common factor of N_1, N_2 and N_3 is x
 So the difference between the no should also equal

$$\begin{aligned} N_1 - N_2 &= 8110 - 7897 = 213 \\ N_2 - N_3 &= 8536 - 8110 = 426 \\ N_3 - N_1 &= 8536 - 7897 = 639 \end{aligned}$$

HCF \rightarrow x \rightarrow 213

65. (d)

So sum of digit of 213 = 2 + 1 + 3 = 6

Given

Copper to zinc in alloys A = 3 : 4

Copper to zinc in alloys B = 5 : 9

Using alligation method

A	:	B
$\frac{3}{7}$:	$\frac{5}{14}$

A & B are taken in the ratio = 2 : 3

Using weighted average concept

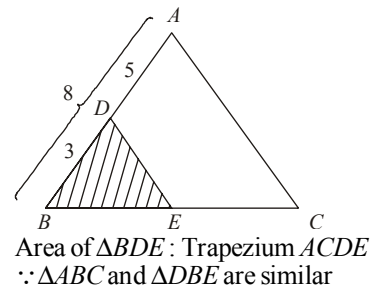
$$2 \times \frac{3}{7} + 3 \times \frac{5}{14} = \frac{6}{7} + \frac{15}{14}$$

$$\text{or} = \frac{12}{14} + \frac{15}{14} = \frac{27}{14}$$

Ratio of Copper : Total in mixture = 27 : 70

$$\text{Ratio of Copper : Zinc} = \frac{27}{70 - 27} = \frac{27}{43}$$

66. (b)



$$\left\{ \begin{array}{l} DE \parallel AC \quad (\text{Parallell Line}) \\ \angle B = \angle B \quad (\text{Common Angle}) \end{array} \right\}$$

So, area ratio of $\Delta BDE : \Delta ABC$
 $3^2 : 8^2$

9 : 64

For Trapezium area = Area of ΔABC - Area of ΔBDE

$$= 64 - 9 = 55$$

So the required ratio of $\Delta BDE : \square ACDE$

$$= 9 : 55 \text{ Ans}$$

67. (c)

1 year ago \rightarrow $\begin{array}{c} A \\ 4 \\ \textcircled{4x} \end{array}$ $\begin{array}{c} B \\ 3 \\ \textcircled{3x} \end{array}$

After 3 yrs : $(4x + 4) : (3x + 4) = 6 : 5$

$$\text{So } \frac{4x + 4}{3x + 4} = \frac{6}{5}$$

$$20x + 20 = 18x + 24 \Rightarrow x = 2$$

So present age of A & B = $4 \times 2 + 1$ $3 \times 2 + 1$

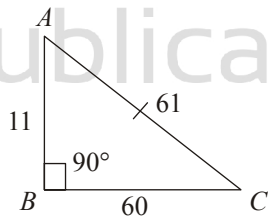
$$\begin{array}{c} 9 \text{ yr} \\ \downarrow \end{array} : \begin{array}{c} 7 \text{ yr} \\ \downarrow \end{array}$$

after 9 yrs ages Ratio $4 \times 2 + 1 + 9 : 3 \times 2 + 1 + 9$

$$= \frac{18}{9} : \frac{16}{8}$$

$$\Rightarrow 2 : 2$$

68. (d) $\therefore 11, 60$ and 61 cm are the Pythagoras triplet they form a right angle triangle



We know that the radius of circumference

$$= \frac{\text{Hypotenous}}{2} = \frac{61}{2} \Rightarrow 30.5 \text{ cm}$$

69. (b) According to given value

Interest on Ist part = $(R \times T)\%$

$$= 4 \frac{1}{5} \times 6 \frac{2}{3} \% = \frac{21}{5} \times \frac{20}{3} = 28\%$$

Interest on IInd part = $(R \times T)\%$

$$= 2 \frac{3}{4} \times 4\% = \frac{11}{4} \times 4 = 11\%$$

Let the Ist part principal = x

and IInd part principal = y

So 28% of $x = 2 \times (11\%$ of $y)$

$$x : y = 11 : 14$$

total = 25 part

so 25 part \rightarrow 5000

1 part \rightarrow 200

so the difference b/w their interest

$$= 14 - 11 = 3 \text{ part}$$

$$3 \text{ part} = 3 \times 200 = ₹ 600$$

70. (a) Given

$$x = \sqrt{1 + \frac{\sqrt{3}}{2}} - \sqrt{1 - \frac{\sqrt{3}}{2}} \quad \dots(1)$$

Squaring on both side

$$x^2 = \left\{ \left(\sqrt{1 + \frac{\sqrt{3}}{2}} \right) - \left(\sqrt{1 - \frac{\sqrt{3}}{2}} \right) \right\}^2$$

$$= \left(1 + \frac{\sqrt{3}}{2} \right) + \left(1 - \frac{\sqrt{3}}{2} \right) - 2\sqrt{1 - \frac{3}{4}}$$

$$x^2 = 2 - 2 \times \frac{1}{2} = 1 \Rightarrow x = \pm 1$$

So the value of

$$\frac{\sqrt{2} - x}{\sqrt{2} + x} = \frac{\sqrt{2} - 1}{\sqrt{2} + 1} \times \frac{\sqrt{2} - 1}{\sqrt{2} - 1}$$

(Rationalisation)

$$= \frac{3 - 2\sqrt{2}}{1} = 3 - 2 \times 1.414 = 0.17$$

71. (a) Female employees in office C

$$= 2400 \times \frac{54}{360} \times \left(\frac{100 - 20}{100} \right) = 288$$

Female employees in office E

$$= 2400 \times \frac{72}{360} \times \frac{40}{100} = 192$$

Required ratio = 288 : 192 \Rightarrow 3 : 2

72. (c)

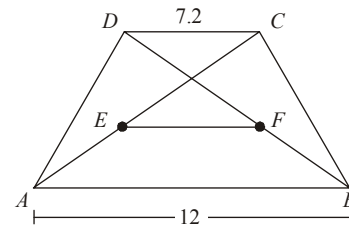


Fig. Trapezium ABCD

By property of trapezium

$$EF = \frac{AB - CD}{2} = \frac{12 - 7.2}{2}$$

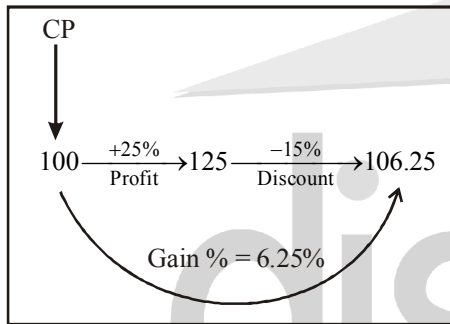
$$= \frac{4.8}{2} = 2.4 \text{ cm}$$

73. (b) Resultant after 3 percentage change =

$$100 \xrightarrow{+16\% \uparrow} 116 \xrightarrow{+14\% \uparrow} 132.24 \xrightarrow{-30\% \uparrow} 92.6 \approx 93$$

so percentage change = $100 - 93 \approx 7\%$ decreases

74. (a)



so,

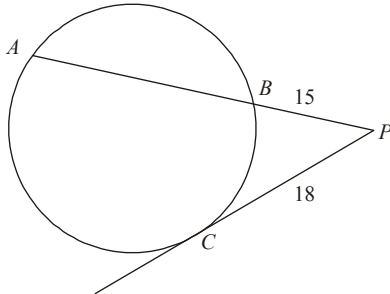
Given Qty	Parts	Net Profit
35%	7	25%
40%	8	6.25%
25%	5	0

Applying weight average method

$$= \frac{7 \times 25 + 6.25 \times 8 + 0}{20}$$

$$= \frac{175 + 50 + 0}{20} = \frac{225}{20} = 11.25\%$$

75. (c)



By circle property

$$PC^2 = PA \times PB$$

$$PC^2 = PA \times PB$$

$$(18)^2 = PA \times 15$$

$$PA = \frac{18 \times 18}{15} = 21.6 \text{ cm}$$

$$\text{so } AB = PA - PB = 21.6 - 15 = 6.6 \text{ cm}$$

76. (d) $(8^{2k} + 5^{2k})$

where k = odd number

or $(64)^k + (25)^k$

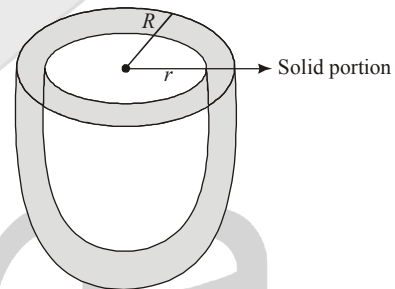
we know that

If k is odd then $(a + b)$ is definitely the factor of $a^k + b^k$

so $64^k + 25^k$

Factor $64 + 25 = 89$

77. (a)



Total surface area = external vessel surface area + internal surface area + upper portion surface area

$$= 2\pi R^2 + 2\pi r^2 + \pi(R^2 - r^2)$$

Putting the value we get

$$= 2\pi(R^2 + r^2) + \pi(R^2 - r^2)$$

$$= 2\pi(7^2 + 6^2) + \pi(7^2 - 6^2)$$

$$= 2 \times \pi(49 + 36) + \pi 13$$

$$= 170\pi + 13\pi = 183\pi$$

78. (b) Let the original price is ₹100

$$\text{after deduction, price} = 100 \times \frac{75}{100} = 75$$

$$\text{Increase in sale} = 100 \times \frac{120}{100} = 120$$

$$\text{Difference} = 120 - 75 = 45$$

Different percent

$$= \frac{45}{75} \times 100 = 60\%$$

So after increasing 60%, 75 will 120, which gives the required gained percentage.

79. (c) Gives

Male Female

55%

45% \Leftarrow (100 - 55)%

Illiterate 40% of 55% 60% of 45% I.L.%
 $(100-40)\% = 22\%$ 27%

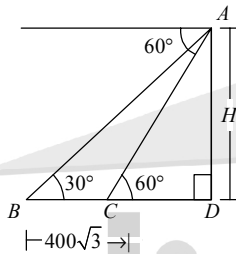
Literate 33% 18%

$$= \frac{\text{No of More Male}}{\text{No of literate Female}} \times 100$$

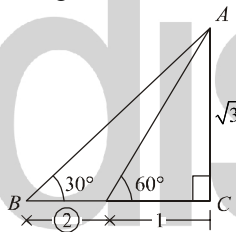
$$= \frac{33-27}{27} \times 100$$

$$= \frac{6}{27} \times 100 = 22\frac{2}{9}\%$$

80. (c)



Using standard result



2 parts $\rightarrow 400\sqrt{3}$

1 parts $\rightarrow 200\sqrt{3}$

So $\sqrt{3}$ parts $\rightarrow 200\sqrt{3} \times \sqrt{3} = 600\text{ m}$

81. (d)

	Speed	Distance	Time
same direction	$x \times 5/18 \text{ m/s}$	$200 + l$	30 sec
concept of relativity	$(x-6) 5/18 \text{ m/s}$	l	20 sec

Using $D = ST$

$$x \times \frac{5}{18} = \frac{l+200}{30} \dots(i)$$

$$(x-6) \times \frac{5}{18} = \frac{l}{20} \dots(ii)$$

$$l = \frac{100}{18} (x-6)$$

Put value of l in Eq. (i)

$$3.0 \times \frac{50}{18} x = \frac{100}{18} x - \frac{100}{3} + 200$$

$$\frac{50}{18} x = \frac{500}{3}$$

$$x = 60$$

82. (d) $x = (633)^{24} - (277)^{38} + (266)^{54}$

for unit digit

Step I:

$$\begin{array}{r} 4)24 \overline{)6} \quad 4)38 \overline{)9} \quad 4)54 \overline{)13} \\ \underline{24} \quad \underline{36} \quad \underline{52} \\ 0 \quad 2 \text{ Remainder } \quad 2 \text{ Remainder} \end{array}$$

Step II: (base unit place) Remainder

[Note down when remainder equals is 0
exponent equal to 4]

so $3^4 - 7^2 + 6^3$

taking unit place $1 - 9 + 6 = 7 - 9$

or $17 - 9$ or $17 - 9 = 8$

83. (a) Volume of 3 solid sphere = Volume of single solid sphere

$$\frac{4}{3}\pi 1^3 + \frac{4}{3}\pi x^3 + \frac{4}{3}\pi 8^3 = \frac{4}{3}\pi 9^3$$

or $1^3 + x^3 + 8^3 = 9^3$

$$1 + x^3 + 512 = 729$$

$$x^3 = 729 - 512 = 216$$

$$x = 6$$

So surface area = $4\pi r^2$

$$= 36 \times 4\pi = 144\pi \text{ cm}^2$$

84. (a)

$$\left(2\frac{6}{7} \text{ of } 4\frac{1}{5} \div \frac{2}{3}\right) \times 1\frac{1}{9} \div \left(\frac{3}{4} \times 2\frac{2}{3} \text{ of } \frac{1}{2} \div \frac{1}{4}\right)$$

$$= \frac{\left[\frac{20}{7} \times \frac{21}{5} \times \left(\frac{3}{2}\right)\right] \times \frac{10}{9}}{\left(\frac{3}{4} \times \frac{8}{3} \times \frac{1}{2}\right) \div \frac{1}{4}} = \frac{20}{4} = 5$$

85. (a) Given: If article is sold at $\left(33\frac{1}{3}\%\right)\frac{1}{3}$ price

loss of $\left(33\frac{1}{3}\%\right)\frac{1}{3}$ it means C.P. is $\frac{2}{3}$

so, $\frac{S.P.}{3} = \frac{2}{3} C.P.$

or $S.P. = 2C.P.$

so when it is sold at 60% of the original price

$S.P. = 2C.P. \times 60\%$

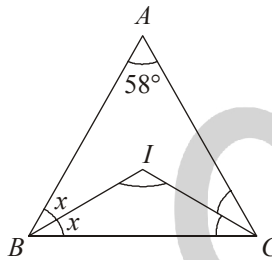
$S.P. = 120\% \text{ of } C.P.$

So, it is clear that 20% profit

86. (b) $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$
 $\downarrow \qquad \qquad \downarrow \qquad \qquad \downarrow$
 $2^3 = 218 + 3ab \quad (2)$
 $8 - 218 = 6ab$
 $-\frac{210}{6} = ab$

$-35 = ab$

87. (d)



We know that

$\angle BIC = 90^\circ + \frac{\angle A}{2}$ [Internal angle property]

$= 90 + \frac{58}{2} = 90 + 29 = 119^\circ$

88. (b) Given:

$2\sqrt{2}x^3 - 3\sqrt{3}y^3$

$= (\sqrt{2}x - \sqrt{3}y)(Ax^2 + By^2 + Cxy)$

We can write the above expression as

$= \frac{(\sqrt{2}x)^3 - (\sqrt{3}y)^3}{(\sqrt{2}x - \sqrt{3}y)} = 2x^2 + 3y^2 + \sqrt{6}xy$

$= (Ax^2 + By^2 + Cxy) = (2x^2 + 3y^2 + \sqrt{6}xy)$

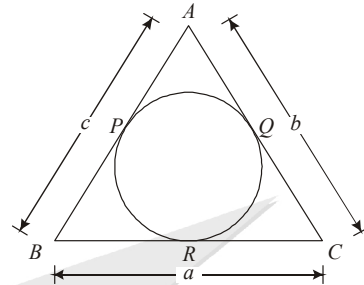
After comparing

$A = 2 \quad B = 3 \quad C = \sqrt{6}$

so the value of $A^2 + B^2 - C^2$

$= 2^2 + 3^2 - (\sqrt{6})^2 = 7$

89. (d)



Perimeter = $a + b + c = 32$ cm

$AB - BC = (4)$ cm

$AB - AC = (2)$ cm

So we can write this above expression as

$a + b + c = 32$

$c - a = 4$

$c - b = 2$

$\begin{array}{r} + \quad + \quad + \\ \hline 3c = 38 \end{array}$

$c = 38/3$ cm

90. (d) By observation method

Regular Hexagonal interior angles Regular Octagonal interior angle

120° 135°

The given interior angle of polygon

is $\left(128\frac{4}{7}\right)^\circ$ which is greater than 120° but

less than 135° so this is definitely 7 sides polygon

so, $n = 7$

No of diagonal + sides = $\frac{n \times (n-1)}{2}$

No of diagonal + sides = $\frac{7 \times 6}{2} = 21$ cm

91. (a) Surface area difference

$4\pi(r+4)^2 - 4\pi r^2 = 464\pi$

$4\pi[(r+4)^2 - r^2] = 464\pi$

$4\pi [16 + 8r] = 464\pi$

$8r = 100; r = \frac{25}{2}$

$\therefore \text{volume} = \frac{4}{3}\pi r^3 = \frac{4}{3}\pi \left(\frac{25}{2}\right)^3 = \frac{15625}{6}\pi$

92. (d) Let no be $10a + b$
so according to question

$$(a + b) = \frac{1}{7}[10a + b]$$

$$(7a + 7b) = 10a + b$$

$$3a = 6b \Rightarrow a = 2b \quad \dots (i)$$

$$a - b = 4 \quad \dots (ii)$$

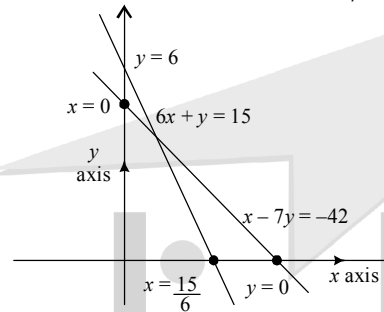
from (i) and (ii) $a = 8, b = 4$

number $(10a + b) = 84$

after reversing the no = 48

after dividing remainder by 7 = $\frac{48}{7} = 6$

93. (a)



Given: Graph equation

$$x - 7y = -42$$

Interest at y axis then $x = 0$
so $0 - 7y = -42$ $y = 6$

second graph equation gives

$$6x + y - 15 = 0$$

$$6x + y = 15$$

Intersects at $x = \text{axis}$

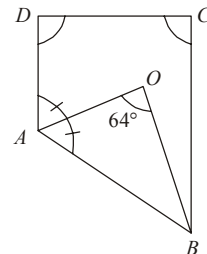
$$y = 0$$

$$\therefore 6x + 0 = 15$$

$$x = \frac{15}{6} = \frac{5}{2}$$

$$\text{so sum} = 6 + \frac{5}{2} = \frac{17}{2}$$

94. (b)



By quadrilateral property

$\angle A, \angle B$ meet at $\angle O$ which is angle bisector

$$\text{so } \frac{A+B}{2} = 116 \Rightarrow A+B = 232^\circ$$

Again by quadrilateral property

$$\angle A + \angle B + \angle C + \angle D = 360^\circ \quad 232^\circ + \angle C + \angle D = 360^\circ$$

$$\text{so, } \angle C + \angle D = 360^\circ - 232^\circ = 128^\circ$$

95. (c)

	Investment Ratio		
	A	B	C
Time	12	8	6
Investment	1/6	1	5/3
Profit Ratio	1	4	5

$$\therefore \text{Profit} = \text{Time} \times \text{Investment}$$

$$\text{so, investment ratio of } A, B \text{ and } C = \frac{1}{6} : 1 : \frac{5}{3}$$

$$= 1 : 6 : 10$$

A's investment 1 part = 54000

different b/w the B and C investment

$$= B - C$$

$$= (10 - 6) \text{ part} = 4 \text{ part}$$

$$\text{so the value of 4 parts} = 4 \times 54000 = ₹ 216000$$

96. (c) We know the formula

$$\text{Speed Ratio } \left[\frac{a}{b} = \sqrt{\frac{t_b}{t_a}} \right] \rightarrow \text{Reverse of time Ratio}$$

$$\frac{A}{28} = \sqrt{\frac{8}{49}} = \sqrt{\frac{64}{49}} = \frac{8}{7}$$

$$A = \frac{8 \times 28}{7} = 32 \text{ km/h}$$

97. (a) Number of employees in office A

$$= \frac{126^\circ}{360^\circ} \times 2400 = 840$$

Number of employees shifted from office A

$$= 840 \times \frac{40}{100} = 336$$

Initially, Number of employees in office B

$$\frac{18^\circ}{360^\circ} \times 2400 = 120$$

Number of employees in office C

$$= \frac{54^\circ}{360^\circ} \times 2400 = 360$$

After shifting $168 \left(= \frac{336}{2} \right)$ employees from

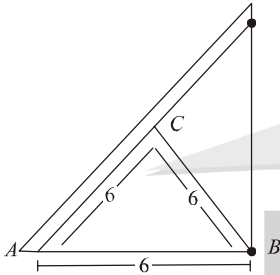
office A to office B,

Number of employees in office B = $120 + 168 = 288$

Difference in number of employees in office B and office C = $360 - 288 = 72$

98. (a) We know the volume of right pyramid volume

$$= \frac{1}{3} \times B \times H$$



So base area = $\frac{\sqrt{3}}{4} \times 6 \times 6$

$$\left\{ \because \frac{\sqrt{3}}{4} a^2 = \text{equilateral triangle area} \right\}$$

$$= 9\sqrt{3} \text{ cm}^2$$

$$\text{so volume} = \frac{1}{3} \times 9\sqrt{3} \times H$$

$$45\sqrt{3} = \frac{1}{3} \times 9\sqrt{3} \times H$$

$$H = 5 \times 3 = 15 \text{ cm}$$

99. (d) We know the standard formula

$$M_1 \times D_1 \times H_1 = M_2 D_2 H_2$$

$$x \times 34 \times 9 = \frac{60}{100} \times 51 \times H_2$$

$$H_2 = \frac{x \times 34 \times 9 \times 100}{60 \times 51}$$

$$H_2 = 10 \text{ Hrs}$$

100. (d) A exports from 2014 to 2017 = $200 + 150 + 275 + 175 = 800$

B exports from 2015 to 2018 = $250 + 200 + 325 + 275 = 1050$

$$\% \text{ less} = \left(\frac{1050 - 800}{1050} \right) \times 100 = \frac{250}{1050} \times 100 = 23.8\%$$