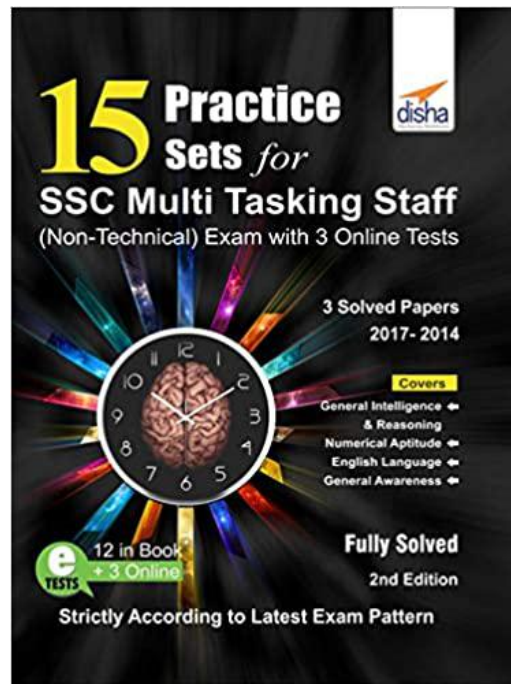


Practice Set for SSC MTS Exam 2020

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PRACTICE SET- 2

GENERAL INTELLIGENCE & REASONING

DIRECTIONS (Qs. 1-3): In questions, select the related word/letters/number from given alternatives.

- Uttarakhand : Dehradun :: Mizoram : ?
(a) Aizawl (b) Kohima
(c) Shillong (d) Darjeeling
- YQXP : JBIA :: OVNU : ?
(a) FAGZ (b) HRIS
(c) DKCJ (d) DNEO
- 1 : 1 :: 10 : ?
(a) 12 (b) 110 (c) 210 (d) 1000
- The following numbers fall in a group. Which one does not belong to the group?
53, 63, 83, 73
(a) 53 (b) 63
(c) 83 (d) 73
- Which one is the same as Mumbai, Kolkata and Cochin?
(a) Delhi (b) Kanpur
(c) Chennai (d) Sholapur

DIRECTION (Qs. 6-7): In question, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

- CEG, JLN, QSU, ?
(a) QOS (b) TVY
(c) HJL (d) UVW
- 285, 253, 221, 189, ?
(a) 150 (b) 182
(c) 157 (d) 156
- In a certain code language PRESENTATION is written as ENESTAITPRON. How would INTELLIGENCE be written in that code language?
(a) TETGLLTNENCE
(b) LLKKTGTTEEBTB
(c) LLENLLTNTETG
(d) LLTEIGENINCE

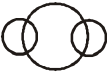



- A word is given in capital letters. It is followed by four words. Out of these four words, three can not be formed from the letters of the word in capital letters. Point out the word which cannot be formed.

SUPERINTENDENT

- (a) DENTIST (b) PERTINENT
(c) TEENER (d) RETENTION

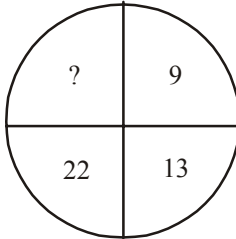
DIRECTION (Q.10): Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

- ba _ ba _ _ bb _ _ aa
(a) baabab (b) babbaa
(c) baaaab (d) bababa
- Rakesh ranks 15th from the top and 45th from the bottom in a class. How many students are there in the class?
(a) 64 (b) 59
(c) 54 (d) None of these
- Moni is daughter of Sheela. Sheela is the wife of my wife's brother. How is Moni related to my wife?
(a) Cousin (b) Niece
(c) Sister (d) Sister-in-law
- Ram moves from a point X to 20 metres towards North. Then he moves 40 metres towards West. Then he moves 20 metres North. Then he moves 40 metres towards East and then 10 metres towards right and he reaches to a point Y. Find the distance and direction of Y from X?
(a) 30 metres, North (b) 30 metres, South
(c) 40 metres, North (d) 40 metres, South
- Which figure represents the relation among Currency, Rupee and Dollar ?

- (a)  (b) 
(c)  (d) 

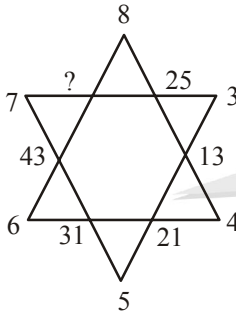
DIRECTIONS (Qs. 15-16): In questions, find the missing number from the given responses.

15.



- (a) 40 (b) 38
(c) 39 (d) 44

16.



- (a) 56 (b) 57
(c) 58 (d) 59

17. Nitin's age was equal to square of some number last year and the following year it would be cube of a number. If again Nitin's age has to be equal to the cube of some number, then for how long he will have to wait?

- (a) 10 years (b) 38 years
(c) 39 years (d) 64 years

18. Six persons are sitting in a circle. A is facing B, B is to the right of E and left of C. C is to the left of D. F is to the right of A. Now D exchanges his seat with F and E with B. Who will be sitting to the left of D?

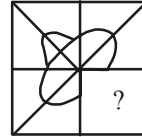
- (a) D (b) E
(c) A (d) B

19. From the given alternatives select the word which **cannot** be formed using the letters of the given word.
QUINTESSENCE

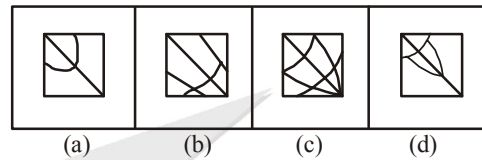
- (a) Essence (b) Entice
(c) Sequin (d) Question

DIRECTION (Q. 20): In question, which answer figure will complete the pattern in the question figure?

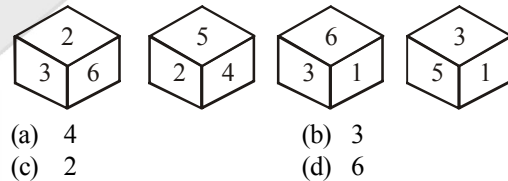
20. Question figure :



Answer Figures :



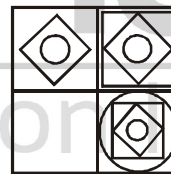
21. Four different positions of dice are as shown below. What number is opposite to face 3?



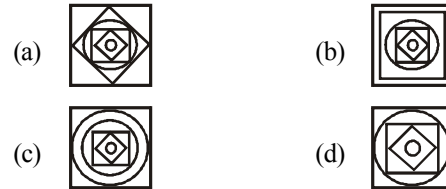
- (a) 4 (b) 3
(c) 2 (d) 6

DIRECTIONS (Qs. 22-23): In each of the following questions, which answer figure will complete the question figure?

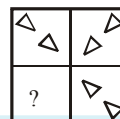
22. Question Figure:



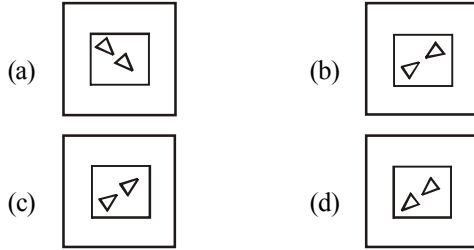
Answer Figures:



23. Question Figure :



Answer Figures:

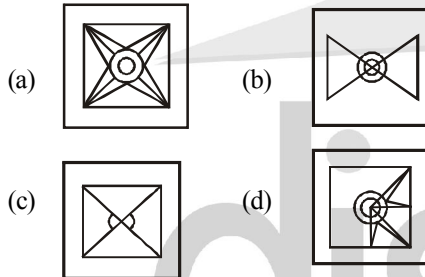


DIRECTION (Q. 24): In the following questions, select the answer figure in which the question figure is hidden/embedded.

24. Question Figure:



Answer Figures :



25. A word is represented by only one set of numbers as given in anyone of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in the two matrices given below. The columns and rows of matrix I are numbered from 0 to 4 and that of matrix II numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column e.g., 'C' can be represented by 00, 12, 23, etc. and 'M' can be represented by 56, 67, 77, etc. Similarly, you have to identify the set for the given word - GOD.

Matrix-I

	0	1	2	3	4
0	C	D	E	F	G
1	G	D	C	G	E
2	E	F	G	C	D
3	G	C	F	D	E
4	D	C	F	G	E

Matrix-II

	5	6	7	8	9
5	L	M	N	O	P
6	O	L	M	N	P
7	L	O	M	P	N
8	N	O	P	M	L
9	P	L	M	N	O

- (a) 10, 11, 65 (b) 95, 79, 12
(c) 30, 65, 40 (d) 00, 10, 75

NUMERICAL APTITUDE

26. Which is the smallest of the following numbers ?

- (a) $\sqrt{7}$ (b) $\frac{1}{\sqrt{7}}$
(c) $\frac{\sqrt{7}}{7}$ (d) $\frac{1}{7}$

27. If $x^{1/3} + y^{1/3} = z^{1/3}$, then $(x + y - z)^3 + 27xyz$ is equal to?

- (a) 3 (b) 0
(c) 1 (d) 2

28. A bag contains Rs 216 in the form of one rupee, 50 paise and 25 paise coins in the ratio of 2 : 3 : 4. The number of 50 paise coins is :

- (a) 96 (b) 144
(c) 114 (d) 141

29. In a mixture of 45 litres, the ratio of milk and water is 4 : 1. How much water must be added to make the mixture ratio 3 : 2 ?

- (a) 72 litres (b) 24 litres
(c) 15 litres (d) 1.5 litres

30. A started a business with ₹ 4500 and another person B joined after some period with ₹ 3000. Determine this period after B joined the business if the profit at the end of the year is divided in the ratio 2 : 1

- (a) After 3 months (b) After 4 months
(c) After 6 months (d) After $2\frac{1}{2}$ months

31. A cistern has two taps (which fill it in 12 min and 15 min, respectively) and an exhaust tap. When all three taps are opened together, it takes 20 min to fill the empty cistern. How long will the exhaust tap take to empty it ?

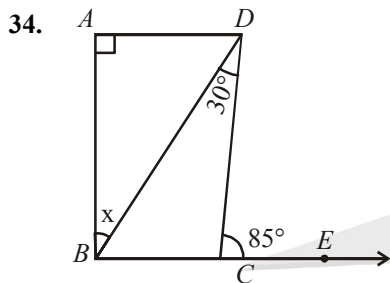
- (a) 20 min (b) 16 min
(c) 12 min (d) 10 min

32. 12 men complete a work in 18 days. Six days after they had started working, 4 men joined them. How many days will all of them take to complete the remaining work ?

(a) 10 days (b) 12 days
(c) 15 days (d) 9 days

33. A motor boat whose speed is 15 km/h in still water goes 30 km downstream and comes back in four and a half hours. The speed of the stream is :

(a) 46 km/h (b) 6 km/h
(c) 7 km/h (d) 5 km/h



If $AD \parallel BE$, $\angle DCE = 85^\circ$ and $\angle BDC = 30^\circ$, then what is the value of x ?

(a) 30° (b) 35°
(c) 45° (d) 55°

35. The L.C.M. of two number is 630 and their H.C.F. is 9. If the sum of numbers is 153, their difference is

(a) 17 (b) 23
(c) 27 (d) 33

36. What is the number of points in the plane of a $\triangle ABC$ which are at equal distance from the vertices of the triangle?

(a) 0 (b) 1
(c) 2 (d) 3

37. Find the compound interest on Rs 25625 for 12 months at 16% per annum, compounded quarterly.

(a) 29977.62 (b) 4352.62
(c) 4100 (d) 29725

38. If a dividend of ` 57,834 is to be divided among Meena, Urmila and Vaishali in the proportion of 3:2:1, find Urmila's share.

(a) ₹19,281 (b) ₹17,350
(c) ₹23,133 (d) ₹19,278

39. A certain number of men can do a work in 60 days. If there were 8 men more it could be finished in 10 days less. How many men are there ?

(a) 75 men (b) 40 men
(c) 48 men (d) 45 men

40. For what value of k , will the expression $3x^3 -$

$kx^2 + 4x + 16$ be divisible by $\left(x - \frac{k}{2}\right)$?

(a) 4 (b) -4
(c) 2 (d) 0

41. a, b, c and d are four consecutive numbers. If the sum of a and d is 103, what is the product of b and c ?

(a) 2652 (b) 2562
(c) 2970 (d) 2550

42. If the HCF of $x^3 + mx^2 - x + 2m$ and $x^2 + mx - 2$ is a linear polynomial, then what is the value of m ?

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

43. If mean of y and $\frac{1}{y}$ is M , then what is the

mean of y^3 and $\frac{1}{y^3}$?

(a) $\frac{M(M^2 - 3)}{3}$ (b) M^3

(c) $M^3 - 3$ (d) $M(4M^2 - 3)$

44. A cyclist covers a distance of 750 m in 2 min 30 sec. What is the speed in km/h of the cyclist ?

(a) 18 km/h (b) 15 km/h
(c) 20 km/h (d) None of these

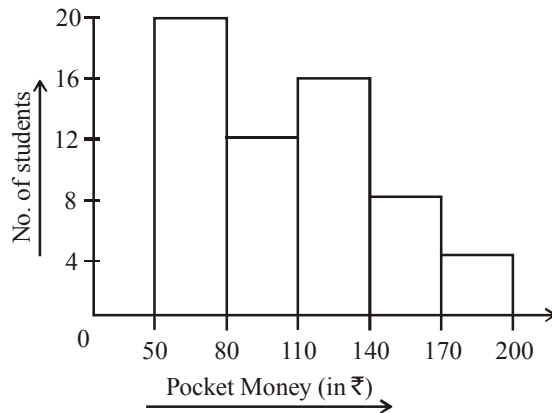
45. The average age of a man and his son is 16 years. The ratio of their ages is 15 : 1 respectively. What is the son's age?

(a) 30 years (b) 32 years
(c) 2 years (d) 4 years

46. The equation of a line parallel to the line $3x - 4y + 5 = 0$ and passing through the point $(2, -3)$ is

(a) $2x - 3y = 7$ (b) $3x + 4y = 9$
(c) $4x + 3y = 8$ (d) $3x - 4y = 18$

DIRECTIONS (Qs. 47-48): The adjacent histogram shows the average pocket money received by 60 students for a span of one month. Study the diagram and answer the question.



47. Maximum number of students received pocket money between
 (a) 50–80 (b) 140–170
 (c) 80–110 (d) 110–140
48. The number of students who received pocket money upto ₹ 140 is
 (a) 20 (b) 32
 (c) 48 (d) 56
49. Semi-circular lawns are attached to all the edges of a rectangular field measuring $42\text{ m} \times 35\text{ m}$. The area of the total field is :
 (a) 3818.5 m^2 (b) 8318 m^2
 (c) 5813 m^2 (d) 1358 m^2
50. A steel wire has been bent in the form of a square of area 121 cm^2 . If the same wire is bent in the form of a circle, then the area of the circle will be :
 (a) 130 cm^2 (b) 136 cm^2
 (c) 145 cm^2 (d) None of these

ENGLISH LANGUAGE

DIRECTIONS (Qs. 51-52): In the following questions four alternatives are given for the idiom/phrase italicised and underlined in the sentence.

51. The project did not appear to hold out bright prospects.
 (a) Highlight (b) show
 (c) Offer (d) promise
52. I am afraid he is burning the candle at both ends and ruining his life.
 (a) wasting his money
 (b) becoming overgenerous
 (c) overtaxing his energies
 (d) losing his objectives

DIRECTIONS (Qs. 53-54): In questions given below out of four alternatives. Choose the one which can be substituted for the given word/sentence.

53. The custom or practice of having more than one husband at same time
 (a) Polygyny (b) Polyphony
 (c) Polyandry (d) Polychromy
54. Tending to move away from the centre or axis
 (a) Centrifugal (b) Centripetal
 (c) Axiomatic (d) Awry

DIRECTIONS (Qs. 55-56): In this section, you are required to spot errors in sentences. Each sentence is divided into three parts. Read each sentence to find out whether there is an error in any of the parts. No sentence has more than one error. Some of the sentences do not have any error. When you find an error in a sentence, the letter indicated under that part of the sentence is the answer and therefore the same may be marked on the separate Answer Sheet. If there is no error in any part, mark (d) as the answer.

55. These are his conclusion remarks.
 (a) (b) (c)
 No error
 (d)
56. The shopkeeper offered either to exchange
 (a)
the goods or refund the money. No error
 (b) (c) (d)

DIRECTIONS (Qs. 57-59): Look at the underlined part of each sentence. Below each sentence, three possible situations for the underlined part are given. If one of them (a), (b) or (c) is better than the underlined part, indicate your response on the Answer Sheet against the corresponding letter (a), (b) or (c). If none of these substitutions improves the sentence, indicate (d) as your response on the Answer Sheet. Thus a "No Improvement" response will be signified by the letter (d).

57. I am used to hard work.
 (a) work hard (b) work hardly
 (c) hard working (d) No improvement
58. Twenty kilometres are not a great distance in these days of fast moving vehicles.
 (a) is not a great distance
 (b) is no distance
 (c) aren't a great distance
 (d) No improvement
59. They were working as usually.
 (a) usual (b) as usual
 (c) usually (d) No improvement

DIRECTIONS (Qs. 60-61): Pick out the nearest correct meaning or synonym of the words given below:

60. RECUPERATE
(a) recapture (b) delight
(c) recover (d) overcome
61. ALMS
(a) blessings (b) charity
(c) prayers (d) worship

DIRECTIONS (Qs. 62-63): Pick out the opposite meaning or antonym of the words given below:

62. INDICT
(a) condemn (b) reprimand
(c) acquit (d) allege
63. VACILLATE
(a) amplify (b) stimulate
(c) consistent (d) eradicate

DIRECTIONS (Qs. 64-66): Choose the correct spelling of the given word.

64. (a) Efflorascence (b) Efflorescence
(c) Eflorescence (d) Eflorescence
65. (a) Aliennate (b) Allienate
(c) Alienate (d) Alienatte
66. (a) Gragarious (b) Gragerious
(c) Gregarious (d) Grigareous

DIRECTIONS (Qs. 67-68): In the following questions, sentences are given with blanks to be filled with appropriate word(s). Choose the correct alternative form the given options and indicate it.

67. It is not fair to cast on honest and innocent persons.
(a) aspiration (b) aspersions
(c) inspiration (d) adulation
68. No country can to practice a constant, rigid foreign policy in view of the world power dynamics.
(a) oblivate (b) anticipate
(c) afford (d) envisage

DIRECTION (Q. 69): In these questions, the sentences have been given in Active / Passive Voice. From the given alternatives, choose the one which best expresses the given sentence in Passive / Active Voice.

69. The Principal has granted him a scholarship.
(a) A scholarship has granted to him by the Principal.
(b) He has been granted a scholarship by the Principal.
(c) He has granted a scholarship by the Principal.
(d) A scholarship was granted to him by the Principal.

DIRECTIONS (Qs. 70-71): In the following questions, the 1st and last sentences of the passage are numbered 1 & 6 and the rest of the passage is split into four parts and named P, Q, R and S. These four parts are not given in their proper order. Read the sentence and find out which of the four combinations is correct. Then find the correct answer

70. 1. Kapil
P. left in an aeroplane
Q. after reading
R. had decided.
S. to build his own boat nine years earlier
6. a sailing magazine.
(a) PRQS (b) RSQP
(c) RQPS (d) PSRQ
71. 1. When
P. it becomes an honour
Q. in recognition of their great performance
R. illustrious personalities
S. win an award
6. of a lifetime
(a) RPQS (b) PQRS
(c) QRSP (d) RSQP

DIRECTIONS (Qs. 72-75): In the following passages, some of the words have been left out. First read the passage over and try to understand what it is about. Then fill in the blanks with the help of the alternatives given. Mark your answer in the Answer-Sheet.

Several commentators have remarked that Finance Minister Arun Jaitley's budget for 2017-18 lacks much 72. But everything has to be viewed in 73. This year's Budget was presented at a time when there are several 74 clouds hanging over the economy. We are still reeling 75 the effects of demonetisation, which must have earned a prominent place in the record books as one of the biggest policy induced disasters of all time.

72. (a) Confidence (b) Fizz
(c) work (d) effort
73. (a) place (b) perspective
(c) distance (d) mirror
74. (a) white (b) storm
(c) clean (d) black
75. (a) to (b) off
(c) of (d) from

GENERAL AWARENESS

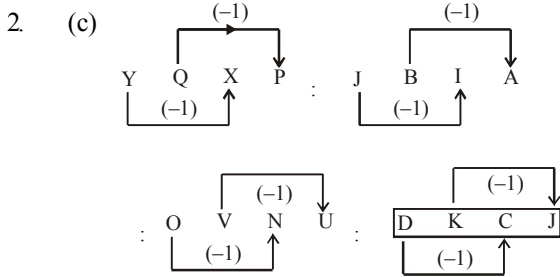
76. Which Article of the Indian Constitution guarantees rights to arrested persons ?
(a) Article 22 (b) Article 35
(c) Article 20 (d) Article 42

77. Cryogenic is a science deals with
(a) High Temperatures (b) Low Pressure
(c) High Pressure (d) Low Temperature
78. is an active factor of production
(a) Product (b) Labour
(c) Wages (d) Price
79. When total utility becomes maximum, then marginal utility will be
(a) Maximum
(b) Minimum
(c) Either maximum or minimum
(d) Zero
80. Wood Spirit is which of the following ?
(a) Ethyl Alcohol (b) Propanol
(c) Methyl Alcohol (d) Butanol
81. Study of crop production is
(a) Entology (b) Ecology
(c) Botany (d) Agronomy
82. Tattvabodhini Sabha was founded by In 1839
(a) Swami Vivekanand
(b) Keshav Chandra Sen
(c) Dabendranath Tagore
(d) Swami Sahajanamd
83. After the revolt of 1857, British pursued the policy of
(a) Divide and Policies
(b) Rules and Regulation
(c) Divide and Rule
(d) Unity and Poliy
84. Prithvi-I missile was inducted into the in 1994
(a) Indian Army (b) Indian Air Force
(c) Indian Navy (d) All of these
85. is issued by the court in case of illegal detention of a person
(a) Quo Warranto (b) Habeas Corpus
(c) Mandamus (d) Certiorari
86. At the time of Emergency, the Indian State become unitary from
(a) Semi Federal (b) Federal
(c) Unitary (d) Quasi-federal
87. Bos Taurus is a scientific name of
(a) Buffalo (b) Horse
(c) Cow (d) Cat
88. is the Kuchipudi dancer
(a) Anupama Mohan (b) Bimbavati Devi
(c) Arush Mudgal (d) Swapnasundari
89. Which of the following is not a chief organ of the United Nations Organisations?
(a) International Labour Organisation
(b) Security Council
(c) International Court of Justice
(d) General Assembly
90. Who was the Viceroy when the Simon Commission visited India?
(a) Lord Chelmsford (b) Lord Reading
(c) Lord Irwin (d) Lord Wellington
91. Animals active at night are called
(a) Diurnal (b) Nocturnal
(c) Parasites (d) Nacto-diurnal
92. Lines joining places of equal temperature are called
(a) Isotherms (b) Isohyets
(c) Isomers (d) Isobars
93. Natural radioactivity was discovered by
(a) Marie Curie
(b) Earnest Rutherford
(c) Henry Bacquerel
(d) Enrico Fermi
94. How many days moon takes to revolve around the earth?
(a) $26\frac{1}{3}$ (b) $27\frac{1}{3}$
(c) $28\frac{2}{3}$ (d) $29\frac{1}{2}$
95. In which atmospheric layer are the communication satellites located?
(a) Stratosphere (b) Ionosphere
(c) Troposphere (d) Mesosphere
96. The book, 'Born Again on the Mountain' is authored by
(a) Pooja Rani (b) Arunima Sinha
(c) Bachendri Pal (d) Urbashi Lal
(d) Rafael Nadal
97. Which state has recently celebrated the Kati Bihu festival 2018?
(a) Meghalaya (b) Assam
(c) West Bengal (d) Jharkhand
98. The scientists of which space agency have found superflares flares from the Young Red Dwarf Stars imperiling planets?
(a) ISRO (b) JAXA
(c) NASA (d) Roscosmos
99. Who has won the Wildlife Photographer Of The Year 2018?
(a) Thomas D Mangelsen
(b) Michael Nichols
(c) Marsel van Oosten
(d) Pal Hermansen
100. Which country is host to the Interfaith Alliance Forum 2018?
(a) Iran (b) Israel
(c) India (d) UAE

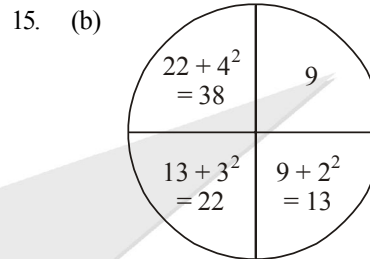
Hints & Explanations

1. (a) Dehradun is capital of Uttarakhand.
Similarly, Aizawl is capital of Mizoram.

Required distance = $XY = AX + AY$
 $= 20 + 10$
 $= 30 \text{ m, North}$

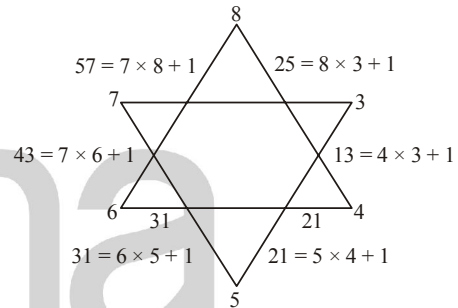


14. (b) Dollar — — Rupee
 Currency



3. (d) As, $(1)^3 : 1$
 Similarly,
 $(10)^3 : 1000$
4. (b) Here, only 63 is not belonging to group because it is divisible by 3.
5. (c) Mumbai, Kolkata and Cochin all are coastal city. Similarly, Chennai is also a coastal city.

16. (b)



6. (c)
- $C \xrightarrow{+2} E \xrightarrow{+2} G \quad J \xrightarrow{+2} L \xrightarrow{+2} N \quad Q \xrightarrow{+2} S \xrightarrow{+2} U$
- Similarly,
- $H \xrightarrow{+2} J \xrightarrow{+2} L$
7. (c)
- 285 253 221 189 157
- 32— —32— —32— —32— —32—

8. (d)

PR ES EN TA TION → EN ES TA IT PR ON

1 2 3 4 5 6 → 3 2 4 5 1 6

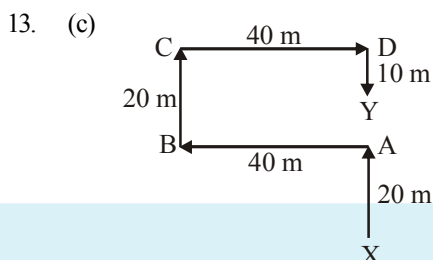
Similarly,

IN TE LL IG EN CE → LL TE IG EN IN CE

1 2 3 4 5 6 → 3 2 4 5 1 6

9. (d) RETENTION
10. (b) ba/ b ba a / b bbaaa/ b bbb a a aa
11. (b) Clearly, no. of students in the class = $14 + 1 + 44 \Rightarrow 59$.

12. (b)



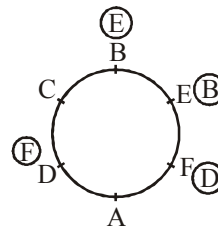
17. (b) Clearly, we have to first find two numbers whose difference is 2 and of which the smaller one is a perfect square and the bigger one a perfect cube.

Such numbers are 25 and 27.

Thus, Nitin is now 26 years old. Since the next perfect cube after 27 is 64,

So required time period = $(64 - 26) \text{ years} = 38 \text{ years}$.

18. (c)



Now, A is to the left of D.

19. (d) There is no 'O' letter in the keyword.

20. (d)

21. (a) The numbers 1, 2, 5 and 6 are on the adjacent faces of the number 3. So, the number 4 lies opposite 3.

22. (a) 23. (c) 24. (a)

25. (c) $G \Rightarrow 04, 10, 22, 30, 43$

$O \Rightarrow 58, 65, 76, 86, 99$

$D \Rightarrow 01, 11, 24, 33, 40$

Option	G	O	D
(a)	10	14	65
(b)	95	76	12
(c)	30	65	40
(d)	00	10	75

26. (d) Clearly, $\frac{1}{7} < \frac{1}{\sqrt{7}} = \frac{\sqrt{7}}{7} < \sqrt{7}$

$\Rightarrow \frac{1}{7}$ is the smallest number.

27. (b) The given equation $= x^{1/3} + y^{1/3} = z^{1/3}$
cubing both sides

$$(x^{1/3} + y^{1/3})^3 = z$$

$$\Rightarrow x + y + 3(x^{2/3})(y^{1/3}) + 3(x^{1/3})(y^{2/3}) = z$$

$$\Rightarrow x + y + 3[(x^{2/3})(y^{1/3}) + (x^{1/3})(y^{2/3})] = z$$

$$\Rightarrow x + y + 3(x^{1/3})(y^{1/3})(x^{1/3} + y^{1/3}) = z$$

$$\text{putting } x^{1/3} + y^{1/3} = z^{1/3}$$

$$\Rightarrow x + y + 3(x^{1/3})(y^{1/3})(z^{1/3}) = z$$

$$\Rightarrow x + y - z = -3(x^{1/3})(y^{1/3})(z^{1/3})$$

$$\Rightarrow (x + y - z)^3 = -3(x^{1/3})(y^{1/3})(z^{1/3})$$

$$\Rightarrow (x + y - z)^3 = -27xyz \text{ (cubing both sides)}$$

$$\Rightarrow (x + y - z)^3 = -27xyz = 0$$

28. (b) Let the no. of one rupee, 50 paise and 25 paise coins be $2x$, $3x$ and $4x$ respectively.

According to question,

$$\text{₹} \left(2x + \frac{3x}{2} + \frac{4x}{4} \right) = \text{Rs. } 216$$

$$\Rightarrow \frac{8x + 6x + 4x}{4} = 216$$

$$\therefore x = 48$$

$$\therefore \text{Number of 50 paise coins} = 48 \times 3 = 144$$

29. (c) Quantity of milk $= 45 \times \frac{4}{5} = 36$ litres

$$\text{Quantity of water} = 45 \times \frac{1}{5} = 9 \text{ litres}$$

Let x litres of water be added to make the ratio $3 : 2$

$$\text{Then, } \frac{36}{9+x} = \frac{3}{2}$$

$$\Rightarrow 72 = 27 + 3x \Rightarrow x = 15 \text{ litres}$$

30. (a) Let B joined after x months.

$$\text{Then, } 4500 \times 12 : 3000(12-x) = 2 : 1$$

Ratio of their investments

$$= \frac{4500 \times 12}{3000(12-x)} = \frac{2}{1}$$

$$\Rightarrow x = 3$$

31. (d) Let the exhaust tap empties the tank in x minutes.

$$\text{Then, } \frac{1}{12} + \frac{1}{15} - \frac{1}{x} = \frac{1}{20} \text{ or}$$

$$\frac{1}{x} = \frac{1}{12} + \frac{1}{15} - \frac{1}{20}$$

$$\text{or } \frac{1}{x} = \frac{5+4-3}{60} = \frac{6}{60} = \frac{1}{10} \text{ or } x = 10 \text{ min}$$

32. (d) In 1 day, work done by 12 men $= \frac{1}{18}$

$$\text{In 6 days, work done by 12 men} = \frac{6}{18} = \frac{1}{3}$$

$$\text{Remaining work} = \frac{2}{3}$$

$$\text{Now, } m_1 \times d_1 \times w_2 = m_2 \times d_2 \times w_1$$

$$\text{or } 12 \times 18 \times \frac{2}{3} = 16 \times d_2 \times 1$$

$$\text{or } d_2 = \frac{4 \times 18 \times 2}{16} = 9 \text{ days}$$

33. (d) Let the speed of the stream be x km/h.

Then, upstream speed $= (15 - x)$ km/h.

and downstream speed $= (15 + x)$ km/h.

$$\text{Now, } \frac{30}{(15+x)} + \frac{30}{(15-x)} = 4.5$$

Solving these equations, we get $x = 5$ km/h.

34. (b) $AD \parallel BE$

$$\therefore \angle ADC = \angle DCE \text{ (alternate angles)}$$

$$\Rightarrow \angle ADB + 30^\circ = 85^\circ$$

$$\Rightarrow \angle ADB = 55^\circ$$

$$\text{and } \angle BAD = 90^\circ \quad (\text{given})$$

Now, in $\triangle ABD$,

$$\angle ABD + \angle ADB + \angle BAD = 180^\circ$$

$$\Rightarrow x + 55^\circ + 90^\circ = 180^\circ$$

$$\Rightarrow x = 180^\circ - 145^\circ = 35^\circ$$

35. (c) Let numbers be x and y .

\therefore Product of two numbers = their (LCM \times HCF)

$$\Rightarrow xy = 630 \times 9$$

$$\text{Also, } x + y = 153 \text{ (given)}$$

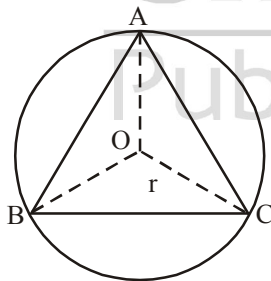
$$\text{since } x - y = \sqrt{(x+y)^2 - 4xy}$$

$$\Rightarrow x - y = \sqrt{(153)^2 - 4(630 \times 9)}$$

$$= \sqrt{23409 - 22680} = \sqrt{729} = 27$$

36. (b) Number of points is one, because circumcentre is the only point in the plane of a triangle, which is equidistant from the vertices of the triangle.

$$OA = OB = OC = r$$



37. (b) Principal (P) = Rs 25625

$$\text{Rate (r)} = 16\% = \frac{16}{4}\% = 4\%$$

$$\text{Time} = 12 \text{ months} = 4 \text{ quarters}$$

$$A = 25625 \left(1 + \frac{4}{100}\right)^4 = 25625 \left(\frac{26}{25}\right)^4$$

$$25625 \times \frac{26}{25} \times \frac{26}{25} \times \frac{26}{25} \times \frac{26}{25} = ₹ 29977.62$$

$$\text{C.I.} = A - P = 29977.62 - 25625 = ₹ 4352.62$$

38. (d) Share of Urmila in dividend = $\left(\frac{2}{6} \times 57834\right)$
= ₹ 19278

39. (b) We have :

x men to the work in 60 days and $(x+8)$ men do th work in

$$(60 - 10 =) 50 \text{ days.}$$

Then by "basic formula", $60x = 50(x+8)$

$$\therefore x = \frac{50 \times 8}{10} = 40 \text{ men.}$$

40. (b) The expression $3x^3 - kx^2 + 4x + 16$ is divisible by $x - \frac{k}{2}$.

Then, $x = \frac{k}{2}$ satisfy the equation

$$\Rightarrow 3\left(\frac{k}{2}\right)^3 - k\left(\frac{k}{2}\right)^2 + 4\left(\frac{k}{2}\right) + 16 = 0$$

$$\Rightarrow \frac{3k^3 - 2k^3 + 16k + 128}{8} = 0$$

$$\Rightarrow k^3 + 16k + 128 = 0$$

$$\Rightarrow (k+4)(k^2 - 4k + 32) = 0$$

$$\Rightarrow k+4 = 0$$

$$\Rightarrow k = -4$$

41. (a) Here $d = a + 3$

$$a + a + 3 = 103$$

$$2a = 100$$

$$a = 50$$

So, numbers are 50, 51, 52 and 53

$$\therefore b \times c = 51 \times 52 = 2652$$

42. (a) Let $f_1(x) = x^3 + mx^2 - x + 2m$

$$\text{and } f_2(x) = x^2 + mx - 2$$

$$\text{Let } m = 1$$

$$\therefore f_1(x) = x^3 + x^2 - x + 2$$

$$\text{and } f_2(x) = x^2 + x - 2 = (x+2)(x-1)$$

When $x = 1$,

$$f(1) = 1 + 1 - 1 + 2 \neq 0$$

When $x = -2$,

$$f(-2) = (-2)^3 + (-2)^2 - (-2) + 2 = 0$$

Required value of m is 1.

43. (d) Mean of y and $\frac{1}{y} = M$

$$\Rightarrow \frac{y + \frac{1}{y}}{2} = M \Rightarrow y + \frac{1}{y} = 2M \quad \dots (i)$$

Now, mean of y^3 and $\frac{1}{y^3}$ is

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

$$\Rightarrow \frac{y^3 + \frac{1}{y^3}}{2} = \frac{(2M)^3 - 6M}{2}$$

$$= \frac{(2M)[(2M)^2 - 3]}{2} = M(4M^2 - 3)$$

44. (a) Speed = $\left(\frac{750}{150}\right)$ m/sec = 5 m/sec
 $= \left(5 \times \frac{18}{5}\right)$ km/hr = 18 km/hr.

45. (c) Let the age of father and son be $15x$ years and x years respectively.

Now, according to the question, $\frac{15x + x}{2} = 16$

or, $x = \frac{16 \times 2}{16} = 2$ years

Hence age of the son = 2 years

46. (d) The required line is parallel to $3x - 4y + 5 = 0$

or $y = \frac{3}{4}x + \frac{5}{4} \Rightarrow$ Their slopes are equal

$$\therefore m = \frac{3}{4}$$

Also, it passes through $(2, -3)$. so $y = mx + c$

$$\Rightarrow -3 = \frac{3}{4} \times 2 + c \Rightarrow c = -\frac{9}{2}$$

\therefore The required equation is

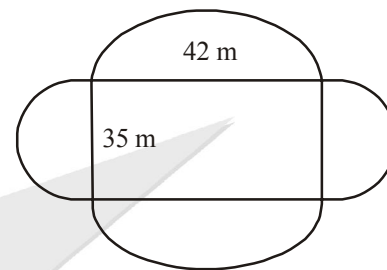
$$y = \frac{3}{4}x - \frac{9}{2}$$

$$\text{or } 3x - 4y = 18$$

47. (a)

48. (c) $20 + 12 + 16 = 48$

49. (a) Area of the field = Area of rectangle + Area of circle with diameter 35 m + Area of circle with diameter 42 m.



$$= 42 \times 35 + 2 \times \frac{1}{2} \times \frac{22}{7} \times (21)^2 + 2 \times \frac{1}{2} \times \frac{22}{7} \times (17.5)^2$$

$$= 1470 + 1386 + 962.5 = 3818.5 \text{ m}^2$$

50. (d) Perimeter of the square = circumference of the circle

We have, $4 \times 11 = 2\pi r \Rightarrow r = \frac{4 \times 11}{2 \times \pi}$

Area of the circle = πr^2

$$= \pi \times \left(\frac{4 \times 11}{2 \times \pi}\right)^2 = 49\pi$$

$$= 154 \text{ cm}^2$$

51. (c)

52. (c)

53. (c)

54. (a)

55. (c)

56. (a)

57. (a) work hard is correct choice.

58. (a) Twenty kilometres is not a great distance in these days of fast moving vehicles.

59. (b) they are working as usual.

60. (c) Once I fall ill, it takes me long to recuperate. That is, I take a long time to recover my health or strength after I have been ill.

61. (b) When a cyclone affects an area, the people are deprived of their belongings. You then give them money, clothes, food etc. Such gifts to the poor and needy are called alms. Since they are given out of charity (kindness and tolerance), these gifts are also known as charity.

62. (c) Indict means to charge someone with a crime or something wrong. Accuse also means the same, acquit means to free of charge.
63. (d) Vacillate means to move from one place to another and consistent means to stay the same, eradicate means to remove.
64. (b) 65. (c)
66. (c) 'Gregarious' is the correctly spelt word which means fond of company or sociable.
67. (b) 68. (b)
69. (b) The transformation follows the simple rules related to the transformation of an Assertive Sentence.
70. (b) 71. (d) 72. (b) 73. (b)
74. (b) 75. (d)
76. (a) Article 22 proceeds to guarantee certain fundamental rights to every arrested person.
77. (d) Cryogenics is the study of the production and behaviour of materials at very low temperatures.
78. (b) Some of the important factors of production are: (i) Land (ii) Labour (iii) Capital (iv) Enterprnuer. Land is a passive factor whereas labour is an active factor of production
79. (d) When total utility is maximum at the 5th unit, marginal utility is zero
80. (c) Wood spirit is a poisonous colorless liquid used as a solvent and fuel; ingestion may cause blindness or death. Called also methyl or wood alcohol.
81. (d) Agronomy is the science and technology of producing and using plants for food, fuel, fiber, and land reclamation
82. (c) The Tattwabodhinī Sabha ("Truth Propagating/Searching Society") was a group started in Calcutta on 6 October 1839 as a splinter group of the Brahmo Samaj, reformers of Hinduism and Indian Society. The founding member was Debendranath Tagore
83. (c) After the revolt, the British pursued the policy of divide and rule, towards the general populace.
84. (a) Prithvi (Sanskrit: prthvi "Earth") is a tactical surface-to-surface short-range ballistic missile .This class of Prithvi missile was inducted into the Indian Army in 1994
85. (b) Habeas corpus ("You may have the body") is a recourse in law whereby a person can report an unlawful detention or imprisonment before a court, usually through a prison official
86. (d) Professor K.C. Wheare, who regards the American constitution as the model of a true federation has described the Indian constitution as 'quasi federal', that is 'a unitary state with subsidiary federal features rather than a federal state with subsidiary unitary features
87. (c) Cows are raised in many different countries around the world, mainly for the cowsnatural resources such as milk, meat
88. (a) Anupama Mohan is one of the best-known disciples of Kuchipudi.
89. (a)
90. (c) Lord Irwin was the viceroy of India when Simon Commission visited India.
91. (b) Animals active at night are called Nocturnal.
92. (a) Isotherm is a line on the map connecting points having the same temperature at a given time.
93. (c) Henry Becquerel is associated with the discovery of Radioactivity.
94. (b) The Moon taken $27\frac{1}{3}$ days to revolve around the earth.
95. (b)
96. (b) Arunima Sinha wrote the book "Born again on the mountain", which was launched by PM Narendra Modi in 2014.
97. (b) 98. (c) 99. (c) 100. (d)