8 Practice Set

ARITHMETIC

1. A number being successively divided by 3, 5 and 8 leaves 1,2 and 4 as remainders respectively. What are the remainders if the order of divisors be reversed?
(a) 3, 3, 1 (b) 3, 1, 3
(c) 1, 3, 3 (d) None of these

2. Find the unit digit in the product $(2467)^{153} \times (341)^{72}$.
(a) 6 (b) 7
(c) 8 (d) 9

3. A shopkeeper bought 30 kg of wheat at the rate of ₹45 per kg. He sold forty per cent of the total quantity at the rate of ₹ 50 per kg. Approximately, at what price per kg should he sell the remaining quantity to make 25 percent overall profit?
(a) ₹ 54 (b) ₹ 52
(c) ₹ 50 (d) ₹ 60

4. 4 goats or 6 sheeps can graze a field in 50 days. 2 goats and 9 sheeps can graze the field in
(a) 100 days (b) 75 days
(c) 50 days (d) 25 days

5. If two numbers are respectively 20% and 50% of a third number, what is the percentage of the first number to the second ?
(a) 10 (b) 20
(c) 30 (d) 40

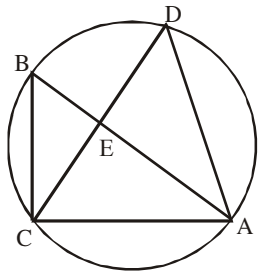
6. If the manufacturer gains 10%, the wholesale dealer 15% and the retailer 25%, then find the cost of production of a table, the retail price of which is ₹ 1265?
(a) ₹ 800 (b) ₹ 1000
(c) ₹ 900 (d) ₹ 600

7. Out of a certain sum, $\frac{1}{3}$ rd is invested at 3%, $\frac{1}{6}$ th at 6% and the rest at 8%. If the simple interest for 2 years from all these investments amounts to ₹ 600, find the original sum.
(a) ₹ 4000 (b) ₹ 5000
(c) ₹ 6000 (d) ₹ 7000

8. If the difference between S.I and C.I for 2 years on a sum of money lent at 5% is ₹ 6, then the sum B.
(a) ₹ 2200 (b) ₹ 2400
(c) ₹ 2600 (d) ₹ 2000

9. A contractor undertakes to built a walls in 50 days. He employs 50 peoples for the same. However after 25 days he finds that only 40% of the work is complete. How many more man need to be employed to complete the work in time?
(a) 25 (b) 30
(c) 35 (d) 20

10. In the adjoining the figure, points A, B, C and D lie on the circle. AD = 24 and BC = 12. What is the ratio of the area of the triangle CBE to that of the triangle ADE



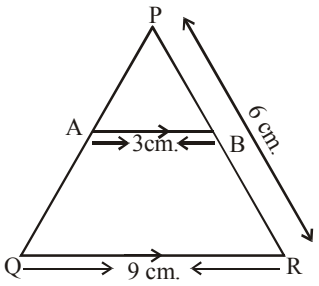
(a) 1 : 4 (b) 1 : 2
(c) 1 : 3 (d) Insufficient data

11. Find the co-ordinates of the point which divides the line segment joining the points (4, –1) and (–2, 4) internally in the ratio 3 : 5

(a) $\left(\frac{6}{4}, \frac{7}{2}\right)$ (b) $\left(\frac{4}{7}, \frac{8}{7}\right)$

(c) $\left(\frac{7}{4}, \frac{7}{8}\right)$ (d) $\left(\frac{7}{12}, \frac{8}{4}\right)$

12. In the given fig. AB || QR, find the length of PB.



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

13. A triangle and a parallelogram are constructed on the same base such that their areas are equal. If the altitude of the parallelogram is 100 m, then the altitude of the triangle is :

(a) 100 m (b) 200 m

(c) $100\sqrt{2}$ m (d) $10\sqrt{2}$ m

14. In a 800 m race around a stadium having the circumference of 200 m, the top runner meets the last runner on the 5th minute of the race. If the top runner runs at twice the speed of the last runner, what is the time taken by the top runner to finish the race ?

(a) 20 min (b) 15 min

(c) 10 min (d) 5 min

15. If $\tan\theta = \frac{1}{\sqrt{7}}$, then $\frac{\text{cosec}^2\theta - \sec^2\theta}{\text{cosec}^2\theta + \sec^2\theta}$?

(a) $\frac{5}{7}$ (b) $\frac{3}{7}$ (c) $\frac{1}{12}$ (d) $\frac{3}{4}$

16. If $y = \frac{2\sin\alpha}{1+\cos\alpha+\sin\alpha}$ then $\frac{1-\cos\alpha+\sin\alpha}{1+\sin\alpha}$ is equal to

(a) 1/y (b) y

(c) 1 – y (d) 1 + y

17. If $\theta + \phi = \frac{\pi}{6}$, what is the value of $(\sqrt{3}+\tan\theta)$ $(\sqrt{3}+\tan\phi)$?

(a) 1 (b) – 1 (c) 4 (d) – 4

18. If $x = 2 + \sqrt{3}$, then $x^2 + \frac{1}{x^2}$ is equal to

(a) 10 (b) 12

(c) –12 (d) 14

19. If $a^2 + b^2 + c^2 = 2a - 2b - 2$, then the value of 3a – 2b + c is

(a) 0 (b) 3

(c) 5 (d) 2

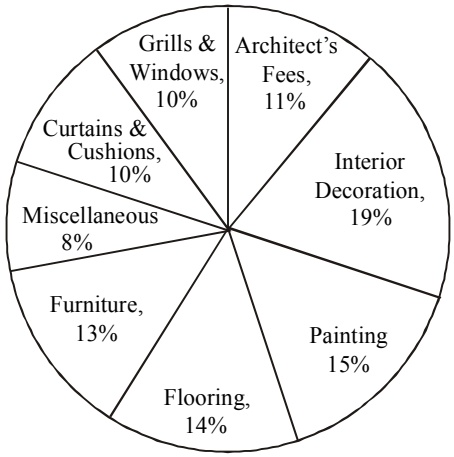
20. The least value of $3^x \quad 3^{-x}$ is :

(a) 2 (b) 1

(c) 0 (d) $\frac{2}{3}$

DIRECTIONS (Q. 21-23) : *Study the following pie-chart carefully and answer the questions given below.*

Cost estimated by a family in renovation of their house



Total estimated cost is ₹1,20,000

21. What is the difference in the amount estimated by the family on interior decoration and that on architect's fees?

(a) ₹10,000 (b) ₹9,500

(c) ₹7,200 (d) ₹9,600

22. During the process of renovation, the family actually incurred miscellaneous expenditure of ₹10,200. The miscellaneous expenditure incurred by the family is what percentage of the total estimated cost?

(a) 9.5% (b) 9%

(c) 8.5% (d) 10.5%

23. Other than getting the discount of 12% on the estimated cost of furniture and the actual miscellaneous expenditure being ₹10,200 instead of the estimated one, the family's estimated cost is correct. What is the total amount spend by the family in renovating its house?

(a) ₹1,16,728 (b) ₹1,15,926

(c) ₹1,19,500 (d) ₹1,18,728

24. The length of a rectangular plot is thrice its breadth. If the area of the rectangular plot is 7803 sq. metre, what is the breadth of the rectangular plot?
(a) 51 metres (b) 153 metres
(c) 104 metres (d) 88 metres

25. A cylindrical tube open at both ends is made of metal. The internal diameter of the tube is 6 cm and length of the tube is 10 cm. If the thickness of the metal used is 1 cm, then the outer curved surface area of the tube is
(a) 140π sq cm (b) 146.5π sq cm
(c) 70π sq cm (d) None of these

26. Given that 0.111 ..... $\frac{1}{9}$; 0.444 is equal to :
(a) $\frac{1}{90}$ (b) $\frac{2}{45}$ (c) $\frac{1}{99}$ (d) $\frac{4}{9}$

27. If $x = 1\ \sqrt{2}$ and $y = 1 - \sqrt{2}$, find the value of $(x^2 + y^2)$.
(a) 6 (b) –1 (c) 2 (d) 5

28. What least number must be subtracted from 1936 so that the remainder when divided by 9, 10, 15 will leave in each case the same remainder 7?
(a) 29 (b) 39 (c) 49 (d) 59

29. The respective ratio between the speeds of a car, a train and a bus is 5 : 9 : 4. The average speed of the car, the bus and the train is 72 km/h together. What is the average speed of the car and the train together ?
(a) 82 km/h
(b) 78 km/h
(c) 84 km/h
(d) Cannot be determined

30. If 11 lichchus are bought for 10 paise and 10 lichchus are sold for 11 paise, the gain % is
(a) 10% (b) 11% (c) 20% (d) 21%

31. There are two numbers such that the sum of twice the first number and thrice the second number is 141 and the sum of thrice the first number and twice the second number is 174. Which is the larger number?
(a) 52 (b) 36 (c) 48 (d) 24

32. 24 men working 8 hours a day can finish a work in 10 days. Working at the rate of 10 hours a day, the number of men required to finish the same work in 6 days is :
(a) 30 (b) 32 (c) 34 (d) 36

33. R and S start walking each other at 10 AM at the speeds of 3 km/h and 4 km/h respectively. They were initially 17.5 km apart. At what time do they meet?
(a) 2 : 30 PM (b) 11 : 30 AM
(c) 1 : 30 PM (d) 12 : 30 PM

34. A wire can be bent in the form of a circle of radius 56 cm. If it is bent in the form of a square, then its area will be:
(a) $3520\ cm^2$ (b) $6400\ cm^2$
(c) $7744\ cm^2$ (d) $8800\ cm^2$

35. A sells a tube to B at a profit of 20% and B sells it to C at profit of 25 %. If C pays ₹ 225 for it, what did A pay for it?
(a) ₹ 100 (b) ₹ 125
(c) ₹ 150 (d) ₹ 175

36. Two pipes can fill a cistern in 14 and 16 hours respectively. The pipes are opened simultaneously and it is found that due to leakage in the bottom, 32 minutes extra are taken for the cistern to be filled up. If the cistern is full, in what time would the leak empty it ?
(a) 110 hr (b) 112 hr
(c) 115 hr (d) 100 hr

37. A plane left 30 minutes later than the scheduled time and in order to reach the destination 1500 km away in time, it had to increase the speed by 250 km/h from the usual speed. Find its usual speed.
(a) 720 km/h (b) 740 km/h
(c) 730 km/h (d) 750 km/h

38. If $(2a + 3b)(2c - 3d) = (2a - 3b)(2c + 3d)$, then :
(a) $\frac{a}{b}\ \frac{c}{d}$ (b) $\frac{a}{d}\ \frac{c}{b}$
(c) $\frac{a}{b}\ \frac{d}{c}$ (d) $\frac{b}{a}\ \frac{c}{d}$

39. If $x = 3 + 2\sqrt{2}$, then the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$ is :
(a) 1 (b) 2
(c) $2\sqrt{2}$ (d) $3\sqrt{3}$

40. If $\sin(x + y) = \cos[3(x + y)]$, then the value of $\tan[2(x + y)]$ is
(a) 1 (b) 0
(c) $\frac{1}{\sqrt{3}}$ (d) $\sqrt{3}$

GENERAL INTELLIGENCE & REASONING

DIRECTIONS (Qs. 41-43) : *In the questions, select the related word/ letters/numbers from the given alternatives.*

41. ACE : FHJ : : OQS : ?
(a) PRT (b) RTU
(c) TVX (d) UWY

42. Saint : Meditation : : Scientist : ?
(a) Research (b) Knowledge
(c) Spiritual (d) Rational

43. 7 : 56 :: 9 : ?
(a) 63 (b) 81 (c) 90 (d) 99

DIRECTIONS (Qs. 44–45): *In the following question, find the odd word/number from the given alternative.*

44. (a) Lord Dalhousie (b) Lord Mountbatten
(c) Lord Linlithgow (d) Lord Tennyson

45. (a) 226 (b) 290
(c) 360 (d) 170

DIRECTIONS (Qs. 46–47): *In the following question a series is given, with me term missing. Choose the correct alternative from the given ones that will complete the series.*

46. AYBZC, DWEXF, GUHVI, JSKTL, (?), POQPR
(a) MQDRN (b) QMONR
(c) MQNRO (d) NQMOR

47. 8, 15, 28, 53, ...?
(a) 98 (b) 106 (c) 100 (d) 102

48. In a certain code language NATIONALISM is written as OINTANMSAIL. How is DEPARTMENTS written in that code?
(a) RADEPTSTMNE (b) RADPETSTMNE
(c) RADPESTMTNE (d) RADPETSTNME

49. If 'green' is called `white', `white' is called `yellow , 'yellow' is called `red', `red' is called `orange', then which of the following represents the colour of sunflower?
(a) red (b) yellow
(c) brown (d) indigo

50. A man said to a woman, "Your mother's husband's sister is my aunt." How is the woman related to the man ?
(a) Granddaughter (b) Daughter
(c) Sister (d) Aunt

51. Rasik walks 20 m North. Then, he turns right and walks 30 m. Then he turns right and walks 35 m. Then he turns left and walks 15 m. Then he again turns left and walks 15 m. In which direction and how many metres away is he from his original position?
(a) 15 metres West (b) 30 metres East
(c) 30 metres West (d) 45 metres East

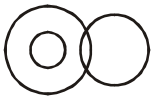
52. In a row of boys Akash is fifth from the left and Nikhil is eleventh from the right. If Akash is twenty-fifth from the right then how many boys are there between Akash and Nikhil?
(a) 14 (b) 13 (c) 15 (d) 12

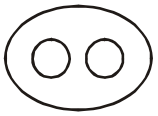
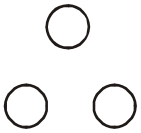
53. P, Q, R and S are four men. P is the oldest but not the poorest. R is the richest but not the oldest. Q is older than S but not than P or R. P is richer than Q but not than S. The four men can be ordered (descending) in respect of age and richness, respectively, as
(a) PQRS, RPSQ (b) PRQS, RSPQ
(c) PRQS, RSQP (d) PRSQ, RSPQ

DIRECTIONS (Qs. 54): *Arrange the following in a logical order:*

54. 1. Birth 2. Death
3. Funeral 4. Marriage
5. Education
(a) 1, 3, 4, 5, 2 (b) 1, 5, 4, 2, 3
(c) 2, 3, 4, 5, 1 (d) 4, 5, 3, 1, 2

55. Choose the diagram which represent the relationship among the following :- Capsules, Antibiotics, Injection.

(a)  (b) 

(c)  (d) 

DIRECTIONS (Qs. 56) : *In the question belows are given two statements followed by two conclusions. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given statements disregarding commonly know facts. Given Answer.*

Give answer (a) If only conclusion I follows.
Give answer (b) if only conclusion II follows.
Give answer (c) if either I or II follows.
Give answer (d) if neither I nor II follows.

56. **Statements:**
All leaders are good team workers.
All good team workers are good orators.
Conclusions:
I. Some good team workers are leaders.
II. All good orators are leaders.

57. If '–' stands for division, '+' for multiplication '÷'for subtraction and '×' for addition. Which one of the following equation is correct?
(a) $6 \div 20 \times 12 + 7 - 1 = 70$
(b) $6 + 20 - 20 \div 7 \times 1 = 62$
(c) $6 - 20 \div 12 \times 7 + 1 = 57$
(d) $6 + 20 - 20 \div 7 - 1 = 38$

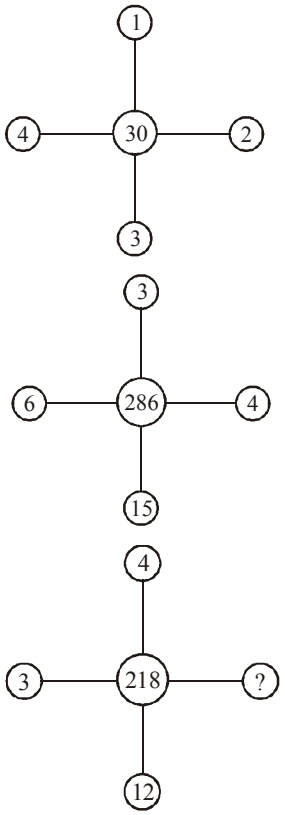
DIRECTIONS (Qs.58–59): *In the following questions, select the missing number from the given response.*

58.

2	7	9
7	3	4
9	8	?
126	168	216

(a) 8 (b) 3 (c) 6 (d) 36

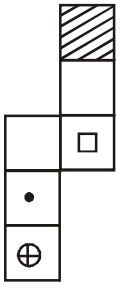
59.



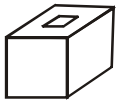
(a) 6 (b) 7 (c) 9 (d) 12

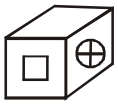
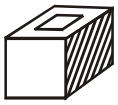
Directions (Qs. 60): *Choose the box that is similar to the box formed from the given sheet of paper (X).*

60.



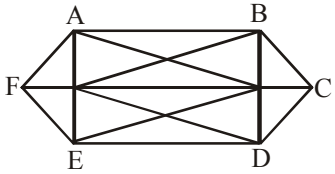
(X)

(1)  (2) 

(3)  (4) 

(a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 4 only

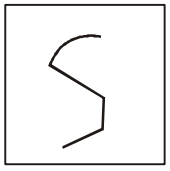
61. How many triangles are there in the figure ABCDEF?



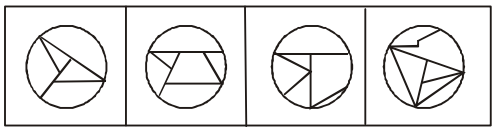
(a) 24 (b) 26
(c) 28 (d) 30

Directions (Qs. 62): From the given answer figures, select the one which is hidden/embedded in the question figure.

62.



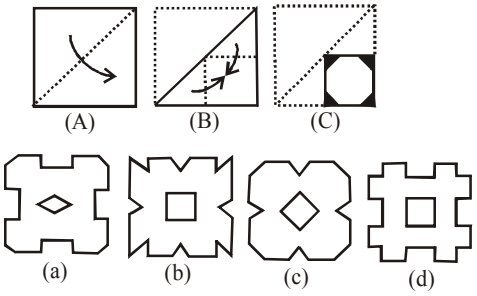
(X)



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

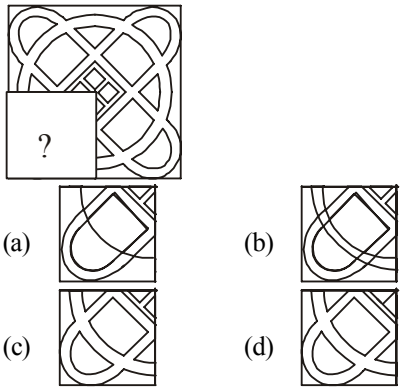
DIRECTIONS (Qs. 63) : *In the question a set of three figures A, B and C showing a sequence of folding of a piece of paper. Fig. (C) shows the manner in which the folded paper has been cut. These three figures are followed by four answer figures from which you have to choose a figure which would most closely resemble the unfolded form of fig. (C).*

63.



DIRECTIONS (Q.64): *In the following question, which answer figure will complete the pattern in the question figure?*

64.



65. From the given alternative words, select the word which cannot be formed using the letters of the given word :
TRIVANDRUM
(a) RAIN (b) DRUM
(c) TRAIN (d) DRUK

66. How many meaningful English words can be formed with the letters 'ILP' using all the letters only once in each word ?
(a) None (b) One (c) Two (d) Three

67. If each alternate letter in the word 'FLIPPER' starting with F is changed to the next letter in the English alphabetical series and each of the remaining letters is changed to the previous letters in the English alphabetical series then how many letters will appear more than once in the new arrangement ?
(a) None (b) One
(c) Two (d) Three

68. Pointing to a girl, Mr. Arun said. "She is the daughter of my mother's only child". How is the girl related to Mr. Arun ?
(a) Sister (b) Mother
(c) Cousin (d) Daughter

DIRECTIONS (Qs. 69-71) : *Study the following information to answer the given questions :*

Eight friends A, B, C, D, E, F, G and H are sitting around a circle facing the centre, not necessarily in the same order. F sits fourth to the left of B. A and H are immediate neighbours of F. C sits third to the left of A. G sits third to the right of E.

69. What is D's position with respect to B ?
(a) Immediate left (b) Sixth to the right
(c) Second to the left (d) Seventh to the left

70. What arc the immediate neighbours of G ?
(a) F and H (b) A and F
(c) C and H (d) B and C

71. If C is related to E in a certain way and similarly F is related B in the same way, to whom is A related to ?
(a) H (b) D (c) G (d) C

DIRECTIONS (Qs. 72-74) : *In each question below is given a group of numbers/symbols followed by five combinations of letter codes numbered (a), (b), (c), (d) and (e). You have to find out which of the combinations correctly represents the group of numbers/symbols based on the following coding system and the conditions and mark the number of that combination as your answer.*

Number/ Symbols	9	4	&	5	%	3	#	7	6	@	8	+	2	$
Letter Codes	X	P	J	H	B	D	K	F	S	T	N	G	R	L

Conditions:

(i) If the first element is a symbol and the last element is a number, then the codes for both are to be interchanged.

(ii) If both the first and last elements are symbols, then the last element is to be coded as the code for the first element.

(iii) If the group of elements contains only one symbol, then that symbols is to be coded as A.

72. 28%956
(a) RNBXHS (b) RNAXSH
(c) RNBXSH (d) RNAXHS

73. ©62+74
(a) PSRGFT (b) TSRFGP
(c) PSRFGT (d) PRSGFT

74. +5963%
(a) GHXSDG (b) GSHXDB
(c) GHXDSG (d) GHSXDB

75. In a certain code, a number 13479 is written as AQFJL and 2568 is written as DMPN. How is 396824 written in that code ?
(a) QLPNMJ (b) QLPNMF
(c) QLPMNF (d) QLPNDF

76. In the following sequence or instructions, 1 stands for Run, 2 stands for Stop, 3 stands for Go, 4 stands for Sit and 5 stands for Wait. If the sequence is continued, which instruction will come next ?
4 4 5 4 5 3 4 5 3 1 4 5 3 1 2 4 5 4 5 3 4 5 3
(a) Wait (b) Sit (c) Stop (d) Run

77. If the first and second letters in the word DEPRESSION were interchanged, also the third and the fourth letters, the fifth and the sixth letters and so on, which of the following would be the seventh letter from the right ?
(a) R (b) O (c) S (d) P

78. In a certain code '*na pa ka so*' means 'birds fly very high', '*ri so la pa*' means 'birds are very beautiful' and '*ti me ka bo*' means 'the parrots could fly'. Which of the following is the code for 'high' in that language ?
(a) *na* (b) *ka* (c) *bo* (d) *so*

79. If 'P' denotes '–'; 'Q' denotes ' ÷ ', 'R' de notes '×' and 'W' denotes '+' then-
48 Q 12 R 10 P 8 W 4=?
(a) 56 (b) 40
(c) 52 (d) None of these

80. Laxman went 15 km to the west from my house, then turned left and walked 20 km. He then turned East and walked 25 km and finally turning left covered 20 km. How far was he from my house ?
(a) 5km (b) 10km (c) 40km (d) 80km

GENERAL AWARENESS

81. Which of the following is not evident at Mohenjodaro?
(a) Pasupati seal
(b) Great granary and great bath
(c) Multi-pillared assembly hall
(d) Evidence of double burials

82. Which one of the following is not a part of early Jains literature?
(a) Therigatha (b) Acarangasutra
(c) Sutrakritanga (d) Brihatkalpasutra

83. When did Delhi first become capital of a kingdom?
(a) At the time of Tomar dynasty
(b) Tughlaq dynasty
(c) Lodhi dynasty
(d) None of these

84. Total schedules in Indian Constitution are:
(a) 22 (b) 10 (c) 16 (d) 12

85. Who was the President of the Constituent Assembly?
(a) Rajendra Prasad (b) B. R. Ambedkar
(c) K. M. Munshi (d) G.V. Mavlankar

86. By Which name/names is our country mentioned in the constitution?
(a) India and Bharat
(b) India and Hindustan
(c) Bharat Only
(d) India, Bharat and Hindustan

87. Per capita Income of a country derived from
(a) National Income
(b) Population
(c) National Income and Population both
(d) None of these

88. Which one of the following agencies of Indian Government implements the price support scheme (PSS)?
(a) FCI (b) NAFED
(c) Agriculture pricing agency of India
(d) None of the above

89. 'Udyog Bandu' is a/an ?
(a) labour supplying agency
(b) sick Industry rehabilitation agency
(c) committee to assist industrial units in solving time bound establishment and related problems
(d) agency for financing industrial development

90. Which one of the following is a vector quantity?
(a) Momentum (b) Pressure
(c) Energy (d) Work

91. The working principle of a washing machine is :
(a) centrifugation (b) dialysis
(c) reverse osmosis (d) diffusion

92. Acid rain is caused by the pollution of environment by
(a) carbon dioxide and nitrogen
(b) carbon monoxide and carbon dioxide
(c) ozone and carbon dioxide
(d) nitrous oxide and sulphur dioxide

93. The wine is prepared by the process of
(a) fermentation (b) catalysation
(c) conjugation (d) displacement

94. Which one of the following hormones contains iodine?
(a) Thyroxine (b) Testosterone
(c) Insulin (d) Adrenaline

95. The major component of honey is
(a) glucose (b) sucrose
(c) maltose (d) fructose

96. In eye donation, which one of the following parts of donor's eye is utilized?
(a) Iris (b) Lens (c) Cornea (d) Retina

97. Octopus is
(a) an arthropod (b) an echinoderm
(c) a hemichordate (d) a mollusc

98. Who is the author of the book 'Harry Potter' and the 'Half-Blood Prince'?
(a) Mark Twain (b) J. K. Rowling
(c) William Shakespeare
(d) Jules Verne

99. Which of the following games is **not** included in the Olympic Games?
(a) Skiing (b) Cycling
(c) Cricket (d) Archery

100. In context to India's defence structure 'Agni missile' is _____.
(a) Surface-to-air (b) Air-to-air
(c) Air-to-surface (d) Surface-to-surface

101. What does NPR stand for?
(a) National Population Programme
(b) National Population Project
(c) National Population Register
(d) National Population Production

102. The BASIC countries are a bloc of four larger developing countries. Which one of the following is not a BASIC country?
(a) Brazil (b) Switzerland
(c) India (d) China

103. NASA recently gave its approval to New Horizons mission to investigate a mysterious object in kuiper Belt. Name the mysterious object.
(a) 2014 MU69 (b) 2014 MU68
(c) 2015 MU69 (d) 2014 MV69

104. Which state has recently banned e-cigarettes?
(a) Kerala (b) Nagaland
(c) Assam (d) Bihar

105. The book "When Breath Becomes Air" has been authored by whom?
(a) Ruskin Bond (b) Raj Kotwal
(c) Paul Kalanithi (d) Zalmay Khalilzad

106. Applications are often referred to as .....
(a) Data files (b) executable files
(c) system software (d) the operating system

107. PC stands for
(a) Personal Comprehension
(b) Personal Computing
(c) Personal Computer
(d) Personal Calculations

108. A directory within a directory is called .....
(a) Mini Directory (b) Junior Directory
(c) Part Directory (d) Sub Directory

109. A(n) ..... is created by an application.
(a) executable file (b) software program
(c) document (d) operating system

110. Compatibility in regard to computers refers to .....
(a) the software doing the right job for the user
(b) it being versatile enough to handle the job
(c) the software being able to run on the computer
(d) software running with other previously installed software

111. First underground railway (Metro Railway) started in which year?
(a) 1982 (b) 1989
(c) 1984 (d) 1992

112. Shatabdi Express train introduced in
(a) 1984 (b) 1988
(c) 1990 (d) 1985

113. At which of the following place Diesel Component Works is established ?
(a) Jamshedpur (b) Patiala
(c) Perambur (d) Warangal

114. _____Zone is the largest in Indian Railways ?
(a) Central Railway (b) Northern Railway
(c) Eastern Railway (d) Western Railway

115. The railway station situated in the extreme south is
(a) Chennai (b) Cochin
(c) Kanyakumari (d) Trivandrum

116. Who launched Pradhan Mantri Grameen Awas Yojna in Agra?
(a) Pranab Mukherjee (b) Rajnath Singh
(c) Narendra Modi (d) Arun Jaitley

117. Where was a recent mock drill conducted by NSG?
(a) Jammu & Kashmir (b) Punjab
(c) Maharashtra (d) New Delhi

118. Which country has launched the world's longest secure quantum communication line?
(a) China (b) Japan
(c) USA (d) Russia

119. Who has been conferred with prestigious Mother Teresa International Award 2016?
(a) Edwin Britto (b) Al Nahyan
(c) Sayed Iqbal Haider
(d) Ansar Burney

120. Which cricketer has become the first to take 50 wickets in two consecutive years?
(a) Rohit Sharma
(b) Ravichandran Ashwin
(c) Murali Kartik
(d) Ravindra Jadeja

Hints & Explanations

1. (a) Complete remainder $= d_1d_2r_3 + d_1r_2 + r_1$
$= 3 \times 5 \times 4 + 3 \times 2 + 1 = 67$
Divided 67 by 8, 5 and 3, the remainders are 3, 3, 1.

2. (b) Clearly, unit's digit in the given product = unit's digit in $7^{153} \times 1^{72}$.
Now, 7^4 gives unit digit 1.
$\therefore$ 7^{153} gives unit digit $(1 \times 7) = 7$.
Also 1^{72} gives unit digit 1.
Hence, unit's digit in the product $= (7 \times 1) = 7$.

3. (d) CP of wheat $= 30 \times 45 = ₹1350$
40% of 30 kg = 12 kg
SP of 12 kg $= 12 \times 50 = ₹600$
For 25% profit, total SP of all the wheat is
$$1350 \times \frac{125}{100} = 1350 \times \frac{5}{4} = ₹\frac{6750}{4} = ₹1687.5$$
Remaining wheat $(30 - 12) = 18$ kg.
Rate of remaining wheat
$$= \frac{1087.5}{18} \approx ₹60$$

4. (d) Given that
$$1 \text{ Goats} = \frac{3}{2} \text{sheeps.}$$
Now, 2 goats + 9 sheeps
$$= 2 \times \frac{3}{2} \text{sheeps} + 9 \text{ sheeps}$$
= 12 sheeps
Here $M_1D_1 = M_2D_2$
$\Rightarrow \quad 6 \times 50 = 12 \times d_2$
$d_2 = 25$ days

5. (d) Let the third number be 100. Then, the first and second numbers will be 20 and 50, respectively.
$$\text{Required \%} = \frac{20}{50} \times 100 \quad 40\%$$

6. (a) Let the cost of production of the table be ₹ x.
Then, 125% of 115% of 110% of x = 1265
$$\Rightarrow \frac{125}{100} \times \frac{115}{100} \times \frac{110}{100} \times x \quad 1265$$
$$\Rightarrow \frac{253}{160} x = 1265 \Rightarrow x \quad \left(\frac{1265 \times 160}{253}\right) = ₹800$$

7. (b) Rest part $= 1 - \left(\frac{1}{3} \quad \frac{1}{6}\right) \quad \frac{1}{2}$
Rate % per annum on total sum
$$= \left(\frac{1}{3} \times 3\right) + \left(\frac{1}{6} \times 6\right) + \left(\frac{1}{2} \times 8\right) \quad 6\%$$
$\therefore$ P $\quad \frac{600 \times 100}{6 \times 2} \quad ₹5,000$

8. (b) Difference $= \frac{PR^2}{10000}$
$$\Rightarrow \quad 6 = \frac{P \times 5 \times 5}{10000}$$
$\Rightarrow \quad 6 \times 400 = ₹2400.$

9. (a) 50 men complete 0.4 work in 25 days.
Applying the work rule,
$m_1 \times d_1 \times w_2 \quad m_2 \times d_2 \times w_1$
we have,
$50 \times 25 \times 0.6 \quad m_2 \times 25 \times 0.4$
$$\text{or } m_2 = \frac{50 \times 25 \times 0.6}{25 \times 0.4} \quad 75 \text{ men}$$
Number of additional men required
$= (75 - 50) = 25$

10. (a) AD 24, BC 12
In ΔBCE & ΔADE
since $\angle CBA \quad \angle CDA$ (Angles by same arc)
$\angle BCE \quad \angle DAE$ (Angles by same arc)
$\angle BEC \quad \angle DEA$ (Opp. angles)
$\therefore \angle BCE$ & $\angle DAE$ are similar Δs
with sides in the ratio 1 : 2
Ratio of area = 1:4 (i.e square of sides)

11. (c) Here $x_1 \quad 4, x_2 \quad -2, y_1 \quad -1, y_2 \quad 4$
and $m_1 \quad 3$ and $m_2 \quad 5$
$$\therefore x \quad \frac{m_1x_2 \quad m_2x_1}{m_1 \quad m_2} \quad \frac{3(-2) \quad 5(4)}{3 \quad 5} \quad \frac{7}{4}$$
and
$$y \quad \frac{m_1y_2 \quad m_2y_1}{m_1 \quad m_2} \quad \frac{3(4) \quad 5(-1)}{3 \quad 5} \quad \frac{7}{8}$$
$\therefore$ The required point is $\left(\frac{7}{4}, \frac{7}{8}\right)$

12. (b) $\Delta PAB \sim \Delta PQR$

$\frac{PB}{AB} = \frac{PR}{QR} \Rightarrow \frac{PB}{3} \quad \frac{6}{9}$

$\therefore$ PB 2 cm

13. (b) Let the common base be x m.
Now, area of the triangle = area of the parallelogram

$\frac{1}{2} \times x \times$ Altitude of the triangle $= x \times 100$

Altitude of the triangle = 200 m

14. (c) After 5 minutes (before meeting), the top runner covers 2 rounds i.e., 400 m and the last runner covers 1 round i.e., 200 m.
$\therefore$ Top runner covers 800 m race in 10 minutes.

15. (d) Given, $\tan\theta = \frac{1}{\sqrt{7}}$

$\sec\theta = \sqrt{1+\tan^2\theta} \quad \sqrt{1 \quad \left(\frac{1}{\sqrt{7}}\right)^2} \quad \sqrt{\frac{8}{7}}$

$\text{cosec}\,\theta = \frac{\sec\theta}{\tan\theta} \quad \frac{\sqrt{\frac{8}{7}}}{\sqrt{\frac{1}{7}}} \quad \sqrt{8}$

$\therefore \quad \frac{\text{cosec}^2\theta - \sec^2\theta}{\text{cosec}^2\theta + \sec^2\theta} \quad \frac{\sqrt{8}^{\,2} - \left(\sqrt{\frac{8}{7}}\right)^2}{\sqrt{8}^{\,2} \quad \left(\sqrt{\frac{8}{7}}\right)^2}$

$= \frac{8 - \frac{8}{7}}{8 \quad \frac{8}{7}} \quad \frac{8\left(1 - \frac{1}{7}\right)}{8\left(1 \quad \frac{1}{7}\right)} \quad \frac{\frac{6}{7}}{\frac{8}{7}} = \frac{6}{8} \quad \frac{3}{4}$

16. (b) $\frac{1-\cos\alpha+\sin\alpha}{1+\sin\alpha} =$

$= \frac{1-\cos\alpha+\sin\alpha}{1+\sin\alpha} \cdot \frac{1+\cos\alpha+\sin\alpha}{1+\cos\alpha+\sin\alpha}$

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

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

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

$= \frac{2\sin\alpha}{1+\cos\alpha+\sin\alpha} = y$

17. (c) Given that $\theta + \phi = \frac{\pi}{6}$

$\Rightarrow \quad \tan(\theta+\phi) = \tan\frac{\pi}{6}$

$\Rightarrow \quad \frac{\tan\theta+\tan\phi}{1-\tan\theta\tan\phi} \quad \frac{1}{\sqrt{3}}$

$\Rightarrow \quad \sqrt{3}\tan\theta \quad \sqrt{3}\tan\phi \quad 1 - \tan\theta\tan\phi$ ...(1)

$(\sqrt{3}+\tan\theta)(\sqrt{3}+\tan\phi)$

$= 3 \quad \sqrt{3}\tan\theta \quad \sqrt{3}\tan\phi \quad \tan\theta\tan\phi$

$= 3 + 1 - \tan\theta\tan\phi + \tan\ \theta\tan\phi = 4$

18. (d) $x = 2 \quad \sqrt{3}$

$\frac{1}{x} = \frac{1}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}} = 2 - \sqrt{3}$

$x^2 \quad \frac{1}{x^2} = \left(x \quad \frac{1}{x}\right)^2 - 2$

$= 2 \quad \sqrt{3} \quad 2 - \sqrt{3}^{\,2} - 2$

$= 16 - 2 = 14$

19. (c) $a^2 + b^2 + c^2 = 2a - 2b - 2$
$(a^2 - 2a + 1) + (b^2 + 2b + 1) + c^2 = 0$
$(a-1)^2 + (b+1)^2 + c^2 = 0$
This equation is possible if
$a - 1 = 0$, $b + 1 = 0$ and $c = 0$
$a = 1$, $b = -1$, $c = 0$
$3a - 2b + c = 3 \times 1 - 2 \times (-1) + 0$
$= 3 + 2 = 5$

20. (a) Working with the options, for x = 0, the least value of

$f(x) \quad 3^x \quad 3^{-x} \quad 2$

Alternate :

Let $A = 3^x$ and $\frac{1}{A} \quad 3^{-x}$

$\Rightarrow$ Both are positive.

Now, A.M. of A and $\frac{1}{A}$ is greater than or equal to their G.M.

i.e. $\frac{A + \frac{1}{A}}{2} \geq \sqrt{A.\frac{1}{A}}$

or $A + \frac{1}{A} \geq 2$

or $3^x + 3^{-x} \geq 2.$

21. (d) Required difference

$= \left(\frac{19-11}{100}\right) \times 120000 = 9600$

22. (c) Required percentage

$= \frac{10200}{120000} \times 100 = 8.5\%$

23. (d) Estimated cost of furniture and miscellaneous expenditures

$= \left(\frac{13+8}{100}\right) \times 120000 = 25200$

Actual cost of furniture

$= \frac{88}{100} \times \frac{13}{100} \times 120000 = 13728$

Actual cost of furniture and miscellaneous expenditure

$= 13728 + 10200 = 23928$

Total expenditure of the family

$= 120000 - 25200 + 23928 = 118728$

24. (a) Let the breadth of the rectangular plot be x metre.

$\therefore$ Length = $3x$ metre

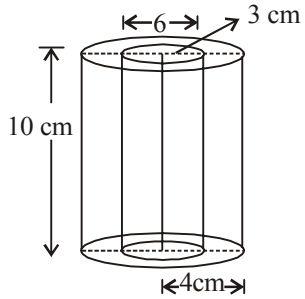
According to the question,

$3x \times x = 7803$

$\Rightarrow x^2 = \frac{7803}{3} = 2601$

$\therefore x = \sqrt{2601} = 51$ metre

25. (d) Internal diameter of the tube = 6 cm



$\therefore$ Internal radius (r) = 3 cm

Height of the tube (h) = 10 cm

Thickness of the metal = 1 cm

$\therefore$ Outer radius (R) = Thickness of the metal + Internal radius = 1 + 3 = 4 cm

$\therefore$ Outer curved surface area

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

$= 2\pi(3)(10) + \pi(4)^2 + \pi(16-9)$

$= 60\pi + 16\pi + 7\pi = 83\pi$ sq cm

26. (d) Given : $0.111 ..... = \frac{1}{9}$

$0.444..... = 4 \times 0.111 .....$

$= 4 \times \frac{1}{9} = \frac{4}{9}$

27. (a) $x^2 + y^2 = (1+\sqrt{2})^2 + (1-\sqrt{2})^2 = 2[(1)^2 + (\sqrt{2})^2]$

$= 2 \times 3 = 6.$

28. (b) The LCM of 9, 10 and 15 = 90

On dividing 1936 by 90, the remainder = 46

But 7 is also a part of this remainder.

$\therefore$ the required number = 46 – 7 = 39

29. (c) Totalspeed of car, bus and train= 72 × 3 = 216km

Speed of car and train

$= \frac{5+9}{5+9+4} \times 216 = 168$ km

Average = $\frac{168}{2} = 84$km

30. (d) C.P. for 1 lichchu = $\frac{10}{11}$ paise

S. P. for 1 lichchu = $\frac{11}{10}$ paise

$\therefore$ gain % = $\frac{\frac{11}{10} - \frac{10}{11}}{\frac{10}{11}} \times 100 = 21\%$

31. (c) Let the first number be x and the second number be y.

According to the question,

$2x + 3y = 141$ ...(i)

$3x + 2y = 174$ ...(ii)

By equation (i) × 3 – (ii) × 2, we have

$6x + 9y - 6x - 4y = 423 - 348$

$\Rightarrow 5y = 75 \Rightarrow y = \frac{75}{5} = 15$

From equation (i), $2x + 3 \times 15 = 141$

$\Rightarrow 2x = 141 - 45 = 96 \Rightarrow x = \frac{96}{2} = 48$

$\therefore$ Larger number = 48

32. (b) $m_1 \times d_1 \times t_1 \times w_2 = m_2 \times d_2 \times t_2 \times w_1$
$24 \times 10 \times 8 \times 1 = m_2 \times 6 \times 10 \times 1$
$\Rightarrow m_2 \quad \frac{24\times10\times8}{6\times10} \quad 32\,\text{men}$

33. (d) Let after t hours they meet then,
$3t + 4t = 17.5 \Rightarrow t = 2.5$
$\therefore$ Time = 10 am + 2.5 h = 12 : 30pm

34. (c) Length of wire
$= 2\pi \times R = \left(2 \times \frac{22}{7} \times 56\right) \text{cm} = 352\,\text{cm}.$
Side of the square = $\frac{352}{4}$ cm = 88 cm.
Area of the square = $(88 \times 88)\,\text{cm}^2 = 7744\,\text{cm}^2$.

35. (c) Let A paid = Rs x
125 % of 120% of x = 225
$\Rightarrow \frac{125}{100} \times \frac{120}{100} \times x \quad 225$
$\Rightarrow x \quad \frac{225\times100\times100}{125\times120} \quad ₹150$

36. (b) Cistern filled by both pipes in one hour
$= \frac{1}{14} \quad \frac{1}{16} \quad \frac{15}{112}\text{th}$
$\therefore$ Both pipes filled the cistern in $\frac{112}{15}$ hrs.
Now, due to leakage both pipes filled the cistern in
$\frac{112}{15} \quad \frac{32}{60} \quad 8\,\text{hrs.}$
$\therefore$ Due to leakage, filled part in one hour
$\frac{1}{8}$
$\therefore$ part of cistern emptied, due to leakage in one hour
$= \frac{15}{112} - \frac{1}{8} \quad \frac{1}{112}\text{th}$
$\therefore$ In 112hr, the leakage would empty the cistern.

37. (d) Let the usual speed of the plane be x km/h
$\therefore$ Time taken in covering the distance of 1500 km
$= \frac{1500}{x}$ hours
$\therefore \quad \frac{1500}{x \quad 250} = \frac{1500}{x} - \frac{1}{2}$
$\Rightarrow \quad 3000x = 3000(x + 250) - x(x + 250)$
$\Rightarrow \quad x^2 + 250x - 3000 \times 250 = 0$
$\Rightarrow \quad x \quad \frac{-250 \quad \sqrt{62500 \quad 3000000}}{2}$
$= \frac{-250 \quad 1750}{2} \quad 750\,\text{km/h}$

38. (a) $(2a + 3b)(2c - 3d) = (2a - 3b)(2c + 3d)$
$\Rightarrow \frac{(2a \quad 3b)}{(2a - 3b)} \quad \frac{(2c \quad 3d)}{(2c - 3d)}$
$\Rightarrow \frac{2\left(\frac{a}{b}\right) \quad 1}{2\left(\frac{a}{b}\right) - 1} \quad \frac{2\left(\frac{c}{d}\right) \quad 1}{2\left(\frac{c}{d}\right) - 1}$
$\Rightarrow \frac{a}{b} \quad \frac{c}{d}$

39. (b) $x = 3 + 2\sqrt{2}$
$\therefore \frac{1}{x} = \frac{1}{3 \quad 2\sqrt{2}}$
$= \frac{1}{3+2\sqrt{2}} \times \frac{3-2\sqrt{2}}{3-2\sqrt{2}} = \frac{3-2\sqrt{2}}{9-8}$
$= 3 - 2\sqrt{2}$
$\therefore \left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)^2 = x \quad \frac{1}{x} - 2$
$= 3 + 2\sqrt{2} + 3 - 2\sqrt{2} - 2 = 4$
$\therefore \sqrt{x} - \frac{1}{\sqrt{x}} = 2$

40. (a) $\sin(x + y) = \cos[3(x + y)]$
$\cos[90° - (x + y)] = \cos[3(x + y)]$
$90° - (x + y) = 3(x + y)$
$4(x + y) = 90°$
$2(x + y) = 45°$
$\therefore \tan[2(x + y)] = \tan 45° = 1$

41. (c) TVX : Each letter of the first group is moved five steps forward to obtain the corresponding letter of the second group.

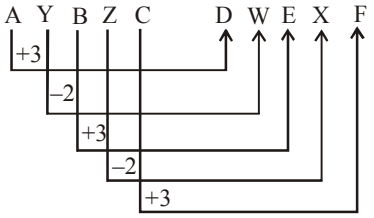
42. (a) A saint practices meditation. While, a scientist does research.

43. (c) The relationship is $x : x(x+1)$

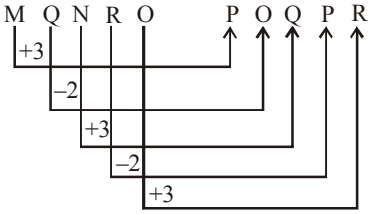
44. (d) All except Lord Tennyson were either the Governor-General or the Viceroy of India.

45. (c) After a close look you will get that except 360 each number is one more than square of a natural number, i.e., $226 = 15^2 + 1$; $290 = 17^2 + 1$; $170 = 13^2 + 1$.

46. (c) The Pattern is–

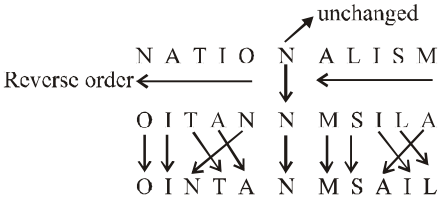


Therefore,

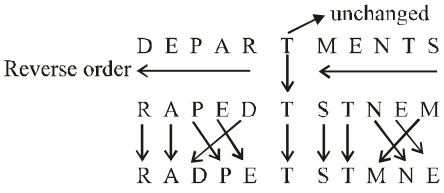


47. (d) $8 \times 2 - 1 = 15, 15 \times 2 - 2 = 28, 28 \times 2 - 3 = 53, 53 \times 2 - 4 = 102$

48. (b)



Similarly,



49. (a) The colour of sunflower is yellow and yellow is called 'red'. Hence sunflower is red.

50. (c) Woman's Mother's husband

↓

Woman's father

Woman's father's sister ⟶ Woman's Aunt.

Since, woman's aunt is man's aunt

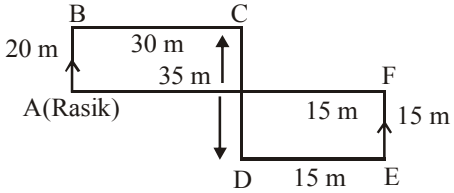
∴ Woman is sister of man.

51. (d) The movements of Rasik from A to F are as shown in figure.

Since CD = AB + EF, so F lies in line with A.

Rasik's distance from original position A = AF = (AG + GF) = (BC + DE) = (30 + 15) m = 45m.

Also, F lies to the east of A.



52. (b) There are $(25 - 11 - 1) = 13$ boys between Akash and Nikhil.

53. (b) $Q > S, P > Q, R > Q$

Age: As, $Q > S, P > Q, R > Q$

Also, P is the oldest.

∴ $P > R > Q > S$

Richness : As, $P > Q, S > P$

Also R is he richest.

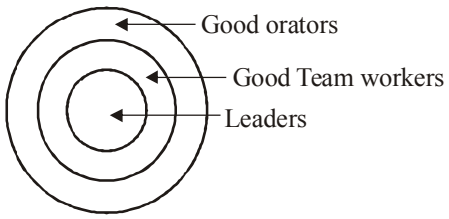
∴ $R > S > P > Q$

54. (b) Clearly, the given words when arranged in the order of various events as they occur in man's life, term the sequence: Birth – Education – Marriage – Death – Funeral. So the correct order becomes 1 5 4 2 3

55. (c) Capsules are different from injection but both are uses as antibiotics.

56. (a) Conclusions I: True

Conclusions II: False



57. (a)

$- \Rightarrow \div, + \Rightarrow \times$

$\div \Rightarrow -, \times \Rightarrow$

Option (a) : $6 \div 20 \times 12 + 7 - 1 = 70$

L.H.S. $= 6 - 20 + 12 \times 7 \div 1$

$= 6 - 20 + 84$

$= 90 - 20 = 70$ R. H.S.

58. (c) $2 \times 7 \times 9 = 126$

$7 \times 3 \times 8 = 168$

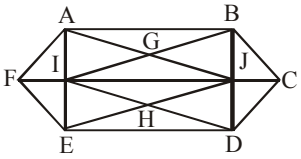
$9 \times 4 \times x = 216$

$\Rightarrow \quad x = 6$

59. (b) $4^2 + 1^2 + 2^2 + 3^2 = 30$
$6^2 + 3^2 + 4^2 + 15 = 286$
$3^2 + 4^2 + x + 12^2 = 218$
$169 + x = 218$
$x = 218 - 169 = \sqrt{49} = 7$

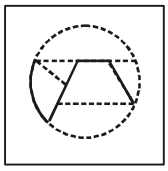
60. (c) When the sheet shown in fig. (X) is folded to form a cube, then the face with shading lies opposite to the free bearing a square, the face bearing a dot lies opposite to a blank face and the face bearing a circle (with a '+' sign inside it) lies opposite to another blank face. The cubes in figures (2) and (4) have the shaded face adjacent to the face bearing a square. Therefore, the cubes in these two figures cannot be formed. Hence, only cubes in figures (1) and (3) can be formed.

61. (c)

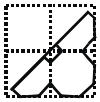


The triangles are:
ΔFAE; ΔFAI; ΔFIE; ΔCBD; ΔCBJ; ΔCJD; ΔAIJ; ΔBJI; ΔBJA; ΔAIB; ΔIED; ΔJDE; ΔJDI; ΔIEJ; ΔGAB; ΔGAI; ΔGJI; ΔGJB; ΔHJI; ΔHDE;

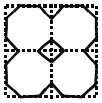
62. (b) ΔHEI; ΔHJD; ΔAJF; ΔEFJ; ΔBCI; ΔCDI; ΔIBD; ΔJEA.



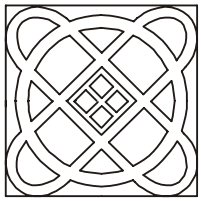
63. (c) Unfolded step I



step II



64. (c)



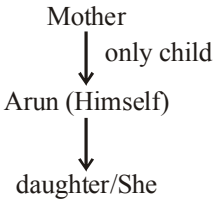
65. (d) DRUK cannot be formed using TRIVANDRUM as it does not contain letter 'K'.

66. (b) Meaningful word ⇒ LIP

67. (a)

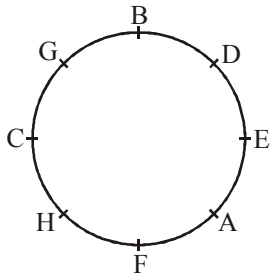
F	L	I	P	P	E	R
+1 ↓	−1 ↓	+1 ↓	−1 ↓	+1 ↓	−1 ↓	+1 ↓
G	K	J	O	Q	D	S

68. (d)



Therefore, the girl is the daughter of Arun.

(69-71) :



69. (a) D is to the immediate left of B.

70. (d) B and C are immediate neighbours of G.

71. (c) C is sitting just opposite to E. F is sitting just opposite to B. Similarly, A is sitting just opposite to G.

72. (d)

2	8	%	9	5	6
↓	↓	↓	↓	↓	↓
R	N	A	X	H	S

Condition (iii) is applicable.

73. (a)

@	6	2	+	7	4
↓	↓	↓	↓	↓	↓
P	S	R	G	F	T

Condition (i) is applicable.

74. (a)

+	5	9	6	3	%
↓	↓	↓	↓	↓	↓
G	H	X	S	D	G

Condition (ii) is applicable.

75. (d)

1	3	4	7	9	2	5	6	8
A	Q	F	J	L	D	M	P	N

Thus,

3	9	6	8	2	4
Q	L	P	N	D	F

76. (d) 4, 45, 453, 4531, 45312, 45, 453, 4531
The next coded digit will be 1. Hence, the instruction Run will come next.

77. (d) The new letter sequence is EDRPSEISNO.
The seventh letter from the right is P.

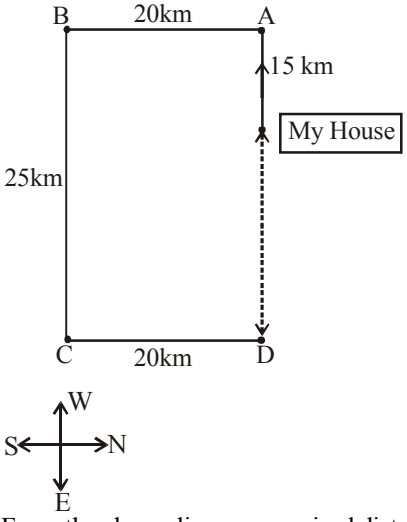
D E P R E S S I O N

1 2 3 4 5 6 7 8 9 10

78. (a) na *pa* ka *so* → *birds* fly *very* high
ri *so* la *pa* → *birds* are *very* beautiful
ti me *ka* bo → the parrots could fly
Thus *high* is coded as *na*.

79. (d) 48 Q 12 R 10 P 8 W 4 = ?
⇒ ? = 48 ÷ 12 × 10 – 8 + 4
⇒ ? = 4 × 10 – 8 + 4
⇒ ? = 40 – 8 + 4 = 36

80. (b)



From the above diagram required distance
= 25 – 15 = 10 km.

81. (d)

82. (a) Therigatha was a part of the Buddhist literature.

83. (a) 84. (d) 85. (a)

86. (a) Our country is mentioned in the constitution by the name of India and Bharat

87. (c) Per capita Income of a country derived from National Income and population both.

88. (b) NAFED implements the price support scheme (PSS).

89. (c) 'Udyog Bandhu' is a committee to assist industrial units in solving time bound establishment and related problems.

90. (a) Scalars are quantities that have magnitude only; they are independent of direction. Vectors have both magnitude and direction. Momentum is the product of the mass and velocity of an object (p = mv). Momentum is a vector quantity, since it has a direction as well as a magnitude. The rest of quantities in option pressure, work and energy have magnitude but not direction.

91. (a) Washing machine works on the principle of centrifugation. Centrifugation is a process that involves the use of the centrifugal force for the separation of mixtures with a centrifuge, used in industry and in laboratory settings. More-dense components of the mixture migrate away from the axis of the centrifuge, while less-dense components of the mixture migrate towards the axis.

92. (a) Fuel value can be expressed in terms of calorific value of fuel. The calorific value of a fuel is the amount of heat produced by burning 1 kg of fuel. Hydrogen has the highest calorific value of (141,790 KJ/kg) thus have highest fuel value. Calorific value of charcoal, natural gas and gasoline are (29,600; 43,000; 47,300 kJ/kg) respectively. Natural gas majorly consists of methane.

93. (a)

94. (a) Thyroxine hormone and tri-iodothyronine hormone are secreted by thyroid follicular cells of thyroid gland. The major component of thyroxine hormone is iodine. Deficiency of iodine causes goitre in human.

95. (d) The major component of honey is fructose.
Composition of honey in (percentage)

Fructose	– 38.2	Sucrose	– 1.5
Glucose	– 31	Minerals	– 0.5
Water	– 17.1		
Maltose	– 7.2		

Carbohydrate – 4.2

96. (c) Generally blindness is caused by the dryness and hardness of cornea. Cornea is a clear layer which helps passing of light. It is an outer layer and can be transfer from one person to another.

97. (d) Octopus is an animal of class-Cephalopoda and phylum Mollusca. The shell is absent. It is found at bottom of the sea. It kills its prey with poisonous saliva. It can change its colour.

98. (a) 99. (c) 100. (d) 101. (c)

102. (b) The BASIC countries are a bloc of four large developing countries comprises Brazil, South Africa, India and China formed by an agreement on 28 November 2009. The four committed to reduce greenhouse gas emission.

103. (a) 104. (a) 105. (b)
106. (b) 107. (c) 108. (d)
109. (a) 110. (c) 111. (c)
112. (b) 113. (b) 114. (c)
115. (c)

116. (c) Narendra Modi, Prime Minister Narendra Modi will launch Pradhan Mantri Grameen Awas Yojna, an ambitious housing scheme for rural poor, in Agra on November 20, 2016. Mr Modi will also give away the allotment letters to 50 beneficiaries of the scheme that aims to provide about 3 crore new housing units countrywide.

117. (d) New Delhi, A special counter-terror unit of NSG commandos conducted a three-hour-long mock drill at a Delhi Metro station located on the airport express line on November 19, 2016. The mock drill was named 'intervention of rail coaches and countering of terrorist elements'.

118. (a) China, China has launched a 712-km quantum communication line, on November 20, 2016. This quantum communication line is the world's longest secure telecommunications network, with ultra-high security which makes it impossible to tap, intercept or crack the information transmitted through them. The new quantum communication line will connect Hefei, capital of Anhui province, to Shanghai, the China's financial hub.

119. (b) Al Nahyan

120. (b) Ravichandran Ashwin