PART-A
GENERAL INTELLIGENCE & REASONING

Directions (1–8) : In each of the following questions, select the related letters/word/number from the given alternatives.

1. ACEG : SUWY : : BDFH : ?
(1) TVZX
(2) RTZV
(3) TVXZ
(4) RTVZ

2. $\dfrac{M}{AC}$; $\dfrac{N}{AD}$: : $\dfrac{O}{AE}$: ?
(1) $\dfrac{P}{AF}$
(2) $\dfrac{Q}{AB}$
(3) $\dfrac{P}{AC}$
(4) $\dfrac{R}{AD}$

3. 5 : 27 : : 9 : ?
(1) 83
(2) 81
(3) 36
(4) 18

4. 6 : 11 : : 11 : ?
(1) 6
(2) 17
(3) 20
(4) 30

5. ABE : 8 : : KLO : ?
(1) 37
(2) 39
(3) 38
(4) 36

6. Sty : Pig : : Byre : ?
(1) Eagle
(2) Cow
(3) Tiger
(4) Hen

7. Patrol : Security : : Insurance : ?
(1) Money
(2) Policy
(3) Savings
(4) Risk

8. ADBC : EHFG : : ILJK : ?
(1) MOPN
(2) MPNO
(3) ORPQ
(4) MPON

Directions (9–14) : In each of the following questions, select the one which is different from the other three responses.

9. (1) 25, 36
(2) 144, 169
(3) 100, 121
(4) 9, 64

10. (1) Heat
(2) Light
(3) Bulb
(4) Electricity

11. (1) Wave
(2) Current
(3) Tide
(4) Storm

12. (1) X
(2) Y
(3) H
(4) D

13. (1) ZKXJ
(2) CMAL
(3) TGRF
(4) FRTK

14. (1) ABJNM
(2) QRTUZ
(3) IXYOQ
(4) WFGOP

15. Arrange the following words according to the dictionary ?
1. Inventory
2. Involuntary
3. Invisible
4. Invariable
5. Investigate
(1) 4, 2, 5, 3, 1
(2) 4, 5, 1, 3, 2
(3) 2, 5, 4, 1, 3
(4) 4, 1, 5, 3 2

16. Find the next two letters in the given series.
B C E H L ? ?
(1) XY
(2) MN
(3) QW
(4) OP

17. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?
a_b_a_ _n_bb_abbn
(1) abnabb
(2) bnbban
(3) bnbbna
(4) babban

18. Find out a set of numbers amongst the four sets of numbers given in the alternatives, which is the most similar to the numbers given in the question.
Given : (6, 30, 90)
(1) 6, 42, 86
(2) 7, 42, 218
(3) 6, 24, 70
(4) 8, 48, 192

19. Which one number is **wrong** in the given series ?
126, 98, 70, 41, 14
(1) 98
(2) 70
(3) 126
(4) 41

20. Arrange the following in the meaningful/logical order :
1. Exhaust
2. Night
3. Day
4. Sleep
5. Work
(1) 1, 3, 5, 2, 4
(2) 3, 5, 1, 4, 2
(3) 3, 5, 1, 2, 4
(4) 3, 5, 2, 1, 4

Directions (21–24) : In each of the following questions, a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

21. 3, 4, 7, 11, 18, 29, __?__
(1) 31
(2) 39
(3) 43
(4) 47

22. AGMSY, CIOUA, EKQWC, __?__, IOUAG, KQWCI
(1) GMSYE
(2) FMSYE
(3) GNSYD
(4) FMYES

23. 975, 864, 753, 642, __?__
(1) 431
(2) 314
(3) 531
(4) 532

24. 8, 24, 12, __?__, 18, 54
(1) 28
(2) 36
(3) 46
(4) 38

25. Ashok's mother was 3 times as old as Ashok 5 years ago. After 5 years she will be twice as old as Ashok. How old is Ashok today ?
(1) 10 years
(2) 15 years
(3) 20 years
(4) 25 years

26. M is the son of P. Q is the granddaughter of O who is the husband of P. How is M related to O ?
(1) Son
(2) Daughter
(3) Mother
(4) Father

27. In a row of boys, Srinath is 7th from the left and Venkat is 12th from the right. If they interchange their positions, Srinath becomes 22nd from the left. How many boys are there in the row ?
(1) 19
(2) 31
(3) 33
(4) 34

28. From the given alternative words, select the word which **cannot** be formed using the letters of the given word :
Given : IMPASSIONABLE
(1) IMPASSABLE
(2) IMPOSSIBLE
(3) IMPASSIVE
(4) IMPASSION

29. Only one meaningful word can be formed by rearranging the letter of the given jumbled word. Find out that word.
Given : MUSPOPAPOTIH
(1) METAMORPHIC
(2) PHILANTHROPIST
(3) HIPPOCAMPUS
(4) HIPPOPOTAMUS

30. Which number is **wrong in the** given series ?

    1, 9, 25, 50, 81

    (1) 1   (2) 25
    (3) 50   (4) 81

31. A bus leaves Delhi with half the number of women as men. At Meerut, ten men get down and five women get in. Now there are equal number of men and women. How many passengers boarded the bus initially at Delhi ?

    (1) 36   (2) 45
    (3) 15   (4) 30

32. If the day before yesterday was Sunday, what day will it be three days after the day after tomorrow ?

    (1) Sunday   (2) Monday
    (3) Wednesday   (4) Saturday

Directions (33) : In the following question, one statement is given followed by two assumptions I and II. You have to consider the statement to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given assumptions, if any, follow from the given statement.

33. **Statement** : Politicians become rich by the votes of the people.

    Assumptions :

    I. People vote to make politicians rich.

    II. Politicians become rich by their virtue.

    (1) Only I is implicit
    (2) Only II is implicit
    (3) Both I and II are implicit
    (4) Both I and II are not implicit

Directions (34) : In the following question, two statements P and Q are given followed by four conclusions I, II, III and IV. You have to consider the two statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follow the given statements.

34. **Statements :**

    P. All men are women.

    Q. All women are crazy.

    Conclusions :

    I. All men are crazy.

    II. All the crazy are men.

    III. Some of the crazy are men.

    IV. Some of the crazy are women.

    (1) None of the conclusions follows
    (2) All the conclusions follow
    (3) Only I, III and IV follow
    (4) Only II and III follow

35. If HOSPITAL is written as 32574618 in a certain code, how would POSTAL be written in that code ?

    (1) 752618   (2) 725618
    (3) 725188   (4) 745681

36. Find the missing number from the given responses.

    173 (24) 526
    431 (18) 325
    253 (?) 471

    (1) 22   (2) 42
    (3) 30   (4) 06

37. After interchanging + and ÷, 12 and 18, which one of the following equations becomes correct ?

    (1) (90 × 18) + 18 = 60
    (2) (18 + 6) ÷ 12 = 2
    (3) (72 ÷ 18) × 18 = 72
    (4) (12 + 6) × 18 = 36

38. If SPARK is coded as TQBSL, what will be the code for FLAME ?

    (1) GMBNF   (2) GNBNF
    (3) GMCND   (4) GMBMF

39. Find out the correct answer for the unsolved equation on the basis of the given equations.

    If   6 * 5 = 91
          8 * 7 = 169
         10 * 7 = 211
    then 11 * 10 = ?

    (1) 331   (2) 993
    (3) 678   (4) 845

40. A child is looking for his father. He went 90 metres in the east before turning to his right. He went 20 metres before turning to his right again to look for his father at his uncle's place 30 metres from this point. His father was not there. From here he went 100 metres to his north before meeting his father in a street. How far did the son meet his father from the starting point ?

    (1) 90 m   (2) 100 m
    (3) 260 m   (4) 140 m

41. In the following question, Δ stands for any of the mathematical signs at different places, which are given as choices under each question. Select the choice with the correct sequence of signs which when substituted makes the question as a correct equation.

    24 Δ 4 Δ 5 Δ 4

    (1) × + =   (2) = × +
    (3) + × =   (4) = + ×

42. What is the number missing from the third target ?

5	9	15
16	29	?
49	89	147

    (1) 45   (2) 48
    (3) 51   (4) 54

43. In a classroom, there are 5 rows, and 5 children A, B, C, D and E are seated one behind the other in 5 separate rows as follows :

    A is sitting behind C, but in front of B.

    C is sitting behind E. D is sitting in front of E.

    The order in which they are sitting from the first row to the last is

    (1) DECAB   (2) BACED
    (3) ACBDE   (4) ABEDC

44. Little wooden cubes each with a side of one inch are put together to form a solid cube with a side of three inches. This big cube is then painted red all over on the outside. When the big cube is broken up into the original little ones, how many cubes will have paint on two sides ?

    (1) 4   (2) 8
    (3) 12   (4) 0

45. K is a place which is located 2 km away in the north-west direction from the capital P. R is another place that is located 2 km away in the south-west direction from K. M is another place and that is located 2 km away in the north-west direction from R. T is yet another place that is located 2 km away in the south-west direction from M. In which direction is T located in relation to P ?

    (1) South-west   (2) North-west
    (3) West   (4) North

46. Find out which of the diagrams given in the alternatives correctly represents the relationship stated in the question.
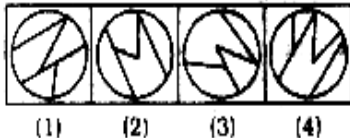
    Sharks, Whales, Turtles.

2
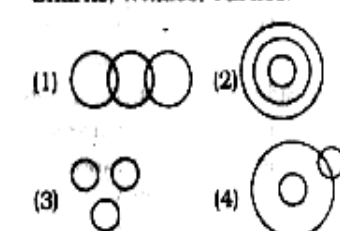
Directions (47) : In this question, among the four answer figures, which figure can be formed from the cut-pieces given below in the question figure.
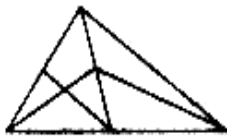
47. Question Figure

Answer Figure

(1) (2) (3) (4)

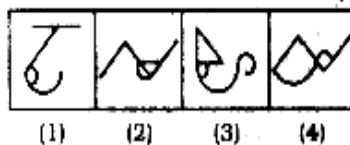**48.** How many triangles are there in the following figure ?

(1) 11 (2) 13
(3) 9 (4) 15

49. From the given answer figures, select the one in which the question figure is hidden/embedded in the same direction.
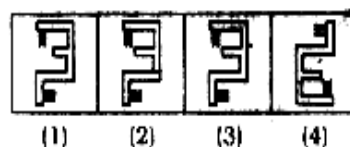
Question Figure

Answer Figures

(1) (2) (3) (4)

50. Which answer figure is the exact mirror image of the given question figure when the mirror is held from the right at PQ ?

Question figure

Answer figures

(1) (2) (3) (4)

PART-B
GENERAL AWARENESS

51. A concave lens always forms an image which is
(1) real and erect
(2) virtual and erect
(3) real and inverted
(4) virtual and inverted

52. A vitamin requires cobalt for its activity. The vitamin is
(1) Vitamin B_{12} (2) Vitamin D
(3) Vitamin B_2 (4) Vitamin A

53. One of the constituents of tear gas is
(1) Ethane (2) Ethanol
(3) Ether (4) Chloropicrin

54. The modulus of rigidity is the ratio of
(1) longitudinal stress to longitudinal strain
(2) Volume stress to volume strain
(3) shearing stress to shearing strain
(4) tensile stress to tensile strain

55. The propagation of sound waves in a gas involves
(1) adiabatic compression and rarefaction
(2) isothermal compression and rarefaction
(3) isochoric compression and rarefaction
(4) isobaric compression and rarefaction

56. An atomic clock is based on transitions in
(1) Sodium (2) Caesium
(3) Magnesium (4) Aluminium

57. Plasma membrane in eukaryotic cells is made up of
(1) Phospholipid
(2) Lipoprotein
(3) Phospholipo-protein
(4) Phospho-protein

58. Which one of the following is also called the 'power plants' of the cell ?
(1) Golgi body
(2) Mitochondrion
(3) Ribosome
(4) Lysosome

59. What is the chemical name of vinegar ?
(1) Citric acid (2) Acetic acid
(3) Pyruvic acid (4) Malic acid

60. Which of the following is not a property of heavy water ?
(1) Boiling point of heavy water is lower than that or ordinary water
(2) Density of heavy water is higher than that of ordinary water
(3) Freezing point of heavy water is higher than that of ordinary water
(4) It produces corrosion

61. In which of the following processes is energy released ?
(1) Respiration
(2) Photosynthesis
(3) Ingestion
(4) Absorption

62. Animals living in the three trunks are known as
(1) Arboreal (2) Volant
(3) Amphibious (4) Aquatic

63. Arrange the following in chronological order :
1. Tughlaqs 2. Lodis
3. Saiyids 4. Ilbari Turks
5. Khiljis
(1) 1, 2, 3, 4, 5 (2) 5, 4, 3, 2, 1
(3) 2, 4, 5, 3, 1 (4) 4, 5, 1, 3, 2

64. The book titled 'The Indian War of Independence' was written by
(1) Krishna Verma
(2) Madame Cama
(3) B.G. Tilak
(4) V.D. Savarkar

65. Who was the founder of the 'Servants of India Society' ?
(1) G.K. Gokhale
(2) M.G. Ranade
(3) B.G. Tilak
(4) Bipin Chandra Pal

66. The term 'Caste' was derived from
(1) Portuguese (2) Dutch
(3) German (4) English

67. The term "Greater India" denotes
(1) Political unity
(2) Cultural unity
(3) Religious unity
(4) Social unity

68. Formalised system of trading agreements with groups of countries is known as
(1) Trading blocks
(2) Trade ventures
(3) Trade partners
(4) Trade organisations

69. Mahatma Gandhi was profoundly influenced by the writings of
    (1) Bernard Shaw
    (2) Karl Marx
    (3) Lenin
    (4) Leo Tolstoy

70. Seismic sea waves which approach the coasts at greater force are known as
    (1) Tides (2) Tsunami
    (3) Current (4) Cyclone

71. Depression formed due to deflating action of winds are called
    (1) Playas (2) Yardang
    (3) Ventifacts (4) Sand dunes

72. The land of maximum biodiversity is
    (1) Tropical (2) Temperate
    (3) Monsoonal (4) Equatorial

73. If input frequency of a full wave rectifier be n, then output frequency would be
    (1) $\frac{n}{2}$ (2) n
    (3) $\frac{3n}{2}$ (4) $2n$

74. Heat transfer horizontally within the atmosphere is called
    (1) Conduction
    (2) Convection
    (3) Absorption
    (4) Advection

75. Indian Standard Time relates to
    (1) 75.5° E longitude
    (2) 82.5° E longitude
    (3) 90.5° E longitude
    (4) 0° longitude

76. Who is rightly called the "Father of Local Self Government" in India ?
    (1) Lord Mayo (2) Lord Ripon
    (3) Lord Curzon (4) Lord Clive

77. The Directive Principles of State Policy was adopted from the
    (1) British Constitution
    (2) Swiss Constitution
    (3) U.S. Constitution
    (4) Irish Constitution

78. Which is the second nearest star to the Earth after the Sun ?
    (1) Vega
    (2) Sirius
    (3) Proxima Centauri
    (4) Alpha Centauri

79. The two forms of democracy are
    (1) Parliamentary and Presidential
    (2) Direct and Indirect
    (3) Monarchical and Republican
    (4) Parliamentary and King

80. Which is an extra-Constitutional body ?
    (1) Language Commission
    (2) Planning Commission
    (3) Election Commission
    (4) Finance Commission

81. The Prime Minister of India is
    (1) Elected (2) Appointed
    (3) Nominated (4) Selected

82. Which is not an All India Service ?
    (1) Indian Administration Service
    (2) Indian Police Service
    (3) Indian Foreign Service
    (4) Indian Forest Service

83. The forest in Sunderban is called
    (1) Scrub jungle
    (2) Mangrove
    (3) Deciduous forest
    (4) Tundra

84. Noise is measured in
    (1) Watt (2) REM
    (3) Centigrade (4) Decibel

85. Who among the following captured his third consecutive National Billiards title in the year 2009 ?
    (1) Pankaj Advani
    (2) Devendra Joshi
    (3) Geet Sethi
    (4) Dhruv Sitawala

86. The Messenger Satellite launched by NASA is to study
    (1) Mercury (2) Venus
    (3) Saturn (4) Jupiter

87. What was the name of the ship that sank near the Paradip Port in September, 2009 causing an oil spill ?
    (1) Red Rose (2) Black Rose
    (3) White Rose (4) Green Rose

88. Who among the following has been honoured with the prestigious Dadasaheb Phalke Award for 2007?
    (1) Yash Chopra
    (2) Ustad Amjad Ali Khan
    (3) Manna Dey
    (4) A. Nageshwara Rao

89. An Intelligent terminal
    (1) has a microprocessor, but cannot be programmed by the user
    (2) can process small data processing jobs, with the use of a large CPU
    (3) interacts with the user in English
    (4) cannot take data from the user

90. Which one of the following is not a method of estimating National Income ?
    (1) Expenditure method
    (2) Product method
    (3) Matrix method
    (4) Income method

91. The monetary policy is India is formulated by
    (1) Central Government
    (2) Industrial Financial Corporation of India
    (3) Reserve Bank of India
    (4) Industrial Development Bank of India

92. A short-term government security paper is called
    (1) Share (2) Debenture
    (3) Mutual fund (4) Treasury bill

93. WTO basically promotes
    (1) Financial support
    (2) Global peace
    (3) Unilateral trade
    (4) Multilateral trade

94. Under which market condition do firms have excess capacity ?
    (1) Perfect competition
    (2) Monopolistic competition
    (3) Duopoly
    (4) Oligopoly

95. Price theory is also known as
    (1) Macro Economics
    (2) Development Economics
    (3) Public Economics
    (4) Micro Economics

96. At present, India is following
    (1) Fixed exchange rate
    (2) Floating exchange rate
    (3) Pegged up exchange rate
    (4) Pegged down exchange rate

97. Who among the following won the 'ICC Cricketer of the Year Award' for the year 2009 ?
    (1) M.S. Dhoni
    (2) Gautam Gambhir
    (3) Mitchell Johnson
    (4) Tillakaratne Dilshan

98. The bats can fly in the dark because
    (1) they can see the objects in darkness

4

(2) they have weak legs and are likely to be attacked by predators

(3) they generate flashes of light

(4) they generate ultrasonic sound waves

99. What changes will happen to a bowl of ice and water kept at exactly zero degree Celsius ?
(1) All ice will melt
(2) All water will become ice
(3) No change will happen
(4) Only some ice will melt

100. National Income is the
(1) Net National Product at market price
(2) Net National Product at factor cost
(3) Net Domestic Product at market price
(4) Net domestic Product at factor cost

NUMERICAL APTITUDE

101. The H.C.F. and L.C.M. of two numbers are 8 and 48 respectively. If one of the numbers is 24, then the other number is
(1) 48 (2) 36
(3) 24 (4) 16

102. The greatest number, which when subtracted from 5834, gives a number exactly divisible by each of 20, 28, 32 and 35, is
(1) 1120 (2) 4714
(3) 5200 (4) 5600

103. The ninth term of the sequence 0, 3, 8, 15, 24, 35, ... is
(1) 63 (2) 70
(3) 80 (4) 99

104. $\dfrac{0.125 + 0.027}{0.25 - 0.15 + 0.09}$ is equal to
(1) 0.3 (2) 0.5
(3) 0.8 (4) 0.9

105. The sum of the series (1 + 0.6 + 0.06 + 0.006 + 0.0006 + ...) is
(1) $1\dfrac{2}{3}$ (2) $1\dfrac{1}{3}$
(3) $2\dfrac{1}{3}$ (4) $2\dfrac{2}{3}$

106. $\sqrt{\dfrac{0.009 \times 0.036 \times 0.016 \times 0.08}{0.002 \times 0.0008 \times 0.0002}}$ is equal to

(1) 34 (2) 36
(3) 38 (4) 39

107. A number, when divided by 114, leaves remainder 21. If the same number is divided by 19, then the remainder will be
(1) 1 (2) 2
(3) 7 (4) 17

108. The square root of 0.09 is
(1) 0.30 (2) 0.03
(3) 0.81 (4) 0.081

109. The number 0.121212.... in the form $\dfrac{p}{q}$ is equal to
(1) $\dfrac{4}{11}$ (2) $\dfrac{2}{11}$
(3) $\dfrac{4}{33}$ (4) $\dfrac{2}{33}$

110. If $\left(\dfrac{3}{5}\right)^{3}\left(\dfrac{3}{5}\right)^{-6} = \left(\dfrac{3}{5}\right)^{2x-1}$, then x is equal to
(1) −2 (2) 2
(3) −1 (4) 1

111. Two numbers are in the ratio 3 : 4. Their L.C.M. is 84. The greater number is
(1) 21 (2) 24
(3) 28 (4) 84

112. A drum of kerosene is $\dfrac{3}{4}$ full. When 30 litres of kerosene is drawn from it, it remains $\dfrac{7}{12}$ full. The capacity of the drum is
(1) 120 l (2) 135 l
(3) 150 l (4) 180 l

113. By what least number should 675 be multiplied so as to obtain a perfect cube number ?
(1) 3 (2) 5
(3) 24 (4) 40

114. $\left(1\dfrac{1}{2} + 11\dfrac{1}{2} + 111\dfrac{1}{2} + 1111\dfrac{1}{2}\right)$ is equal to
(1) 1236 (2) $1234\dfrac{1}{2}$
(3) 618 (4) 617

115. $0.\overline{001}$ is equal to
(1) $\dfrac{1}{1000}$ (2) $\dfrac{1}{999}$
(3) $\dfrac{1}{99}$ (4) $\dfrac{1}{9}$

116. $\dfrac{4.41 \times 0.16}{2.1 \times 1.6 \times 0.21}$ is simplified to
(1) 1 (2) 0.1
(3) 0.01 (4) 10

117. If a and b are two odd positive integers, by which of the following integers is $(a^4 - b^4)$ always divisible ?
(1) 3 (2) 6
(3) 8 (4) 12

118. If $a = 11$ and $b = 9$, then the value of $\left(\dfrac{a^2 + b^2 + ab}{a^3 - b^3}\right)$ is
(1) $\dfrac{1}{2}$ (2) 2
(3) $\dfrac{1}{20}$ (4) 20

119. $\dfrac{256 \times 256 - 144 \times 144}{112}$ is equal to
(1) 420 (2) 400
(3) 360 (4) 320

120. If a and b be positive integers such that $a^2 - b^2 = 19$, then the value of a is
(1) 19 (2) 20
(3) 9 (4) 10

121. If the ratio of cost price and selling price of an article be as 10 : 11, the percentage of profit is
(1) 8 (2) 10
(3) 11 (4) 15

122. A manufacturer marked an article at Rs. 50 and sold it allowing 20% discount. If his profit was 25% then the cost price of the article was
(1) Rs. 40 (2) Rs. 35
(3) Rs. 32 (4) Rs. 30

123. A shopkeeper earns a profit of 12% on selling a book at 10% discount on the printed price. The ratio of the cost price and the printed price of the book is
(1) 45 : 56 (2) 45 : 51
(3) 47 : 56 (4) 47 : 51

124. By selling a bicycle for Rs. 2,850, a shopkeeper gains 14%. If the profit is reduced to 8%, then the selling price will be
(1) Rs. 2,600 (2) Rs. 2,700
(3) Rs. 2,800 (4) Rs. 3,000

125. By selling an article, a man makes a profit of 25% of its selling price. His profit per cent is

(1) 20   (2) 25

(3) $16\frac{2}{3}$ (4) $33\frac{1}{3}$

126. If A's income is 50% less than that of B's, then B's income is what per cent more than that of A ?

(1) 125   (2) 100

(3) 75   (4) 50

127. 1.14 expressed as a per cent of 1.9 is

(1) 6%   (2) 10%

(3) 60%   (4) 90%

128. Two natural numbers are in the ratio 3 : 5 and their product is 2160. The smaller of the numbers is

(1) 36   (2) 24

(3) 18   (4) 12

129. If 60% of A = $\frac{3}{4}$ of B, then A : B is

(1) 9 : 20   (2) 20 : 9

(3) 4 : 5   (4) 5 : 4

130. Two successive price increases of 10% and 10% of an article are equivalent to a single price increase of

(1) 19%   (2) 20%

(3) 21%   (4) 22%

131. $\dfrac{\sqrt{3+x}+\sqrt{3-x}}{\sqrt{3+x}-\sqrt{3-x}} = 2$ then x is equal to

(1) $\dfrac{5}{12}$ (2) $\dfrac{12}{5}$

(3) $\dfrac{5}{7}$ (4) $\dfrac{7}{5}$

132. An equilateral triangle of side 6 cm has its corners cut off to form a regular hexagon. Area (in cm²) of this regular hexagon will be

(1) $3\sqrt{3}$ (2) $3\sqrt{6}$

(3) $6\sqrt{3}$ (4) $\dfrac{5\sqrt{3}}{2}$

133. The length (in metres) of the longest rod that can be put in a room of dimensions 10 m × 10 m × 5 m is

(1) $15\sqrt{3}$ (2) 15

(3) $10\sqrt{2}$ (4) $5\sqrt{3}$

134. If Rs. 1000 is divided between A and B, in the ratio 3 : 2, then A will receive

(1) Rs. 400   (2) Rs. 500

(3) Rs. 600   (4) Rs. 800

135. What must be added to each term of the ratio 7 : 11, so as to make it equal to 3 : 4 ?

(1) 8   (2) 7.5

(3) 6.5   (4) 5

136. A sum of money at compound interest doubles itself in 15 years. It will become eight times of itself in

(1) 45 years   (2) 48 years

(3) 54 years   (4) 60 years

137. Buses start from a bus terminal with a speed of 20 km/hr at intervals of 10 minutes. What is the speed of a man coming from the opposite direction towards the bus terminal if he meets the buses at intervals of 8 minutes ?

(1) 3 km/hr   (2) 4 km/hr

(3) 5 km/hr   (4) 7 km/hr

138. If the circumference of a circle is decreased by 50% then the percentage of decrease in its area is

(1) 25   (2) 50

(3) 60   (4) 75

139. At what rate per cent per annum will a sum of Rs. 1,000 amount to Rs. 1,102.50 in 2 years at compound interest ?

(1) 5   (2) 5.5

(3) 6   (4) 6.5

140. What annual payment will discharge a debt of Rs. 6,450 due in 4 years at 5% per annum simple interest ?

(1) Rs. 1,400   (2) Rs. 1,500

(3) Rs. 1,550   (4) Rs. 1,600

141. The average of the first 100 positive integers is

(1) 100   (2) 51

(3) 50.5   (4) 49.5

142. In a family, the average age of a father and a mother is 35 years. The average age of the father, mother and their only son is 27 years. What is the age of the son ?

(1) 12 years   (2) 11 years

(3) 10.5 years   (4) 10 years

143. If 5 men or 7 women can earn Rs. 5,250 per day, how much would 7 men and 13 women earn per day ?

(1) Rs. 11,600   (2) Rs. 11,700

(3) Rs. 16,100   (4) Rs. 17,100

144. If A and B together can complete a piece of work in 15 days and B alone in 20 days, in how many days can A alone complete the work ?

(1) 60   (2) 45

(3) 40   (4) 30

145. By walking at $\frac{3}{4}$ of his usual speed, a man reaches his office 20 minutes later than his usual time. The usual time taken by him to reach his office is

(1) 75 minutes   (2) 60 minutes

(3) 40 minutes   (4) 30 minutes

146. A can complete a piece of work in 18 days, B in 20 days and C in 30 days. B and C together start the work and are forced to leave after 2 days. The time taken by A alone to complete the remaining work is

(1) 10 days   (2) 12 days

(3) 15 days   (4) 16 days

147. A train, 300m long, passed a man, walking along the line in the same direction at the rate of 3 km/hr in 33 seconds. The speed of the train is
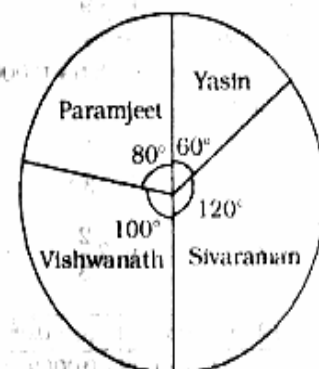
(1) 30 km/h

(2) 32 km/h

(3) $32\dfrac{8}{11}$ km/h

(4) $35\dfrac{8}{11}$ km/h

Directions (148–150) : The pie chart, given here, represents the number of valid votes obtained by four students who contested election for school leadership. The total number of valid votes polled was 720.

Observe the chart and answer the questions based on it.

148. What was the minimum number of votes obtained by any candidate ?
(1) 100   (2) 110
(3) 120   (4) 130

149. What was the winner ?
(1) Sivaraman (2) Paramjeet
(3) Yasin   (4) Vishwanath

150. By how many votes did the winner defeat his nearest rival ?
(1) 40   (2) 45
(3) 48   (4) 50

PART-D
ENGLISH COMPREHENSION

Directions (151-155) : In the following questions, some of the sentences have errors and some have none. Find out which part of a sentence has an error. The number of that part is your answer. Your answer is (4) i.e., No error.

151. He is a university professor (1)/ but of his three sons (2)/ neither has any merit. (3)/ No error (4)

152. After knowing truth, (1)/ they took the right decision (2)/ in the matter. (3)/ No error (4)

153. It is time you (1)/ decide on your next (2)/ course of action. (3)/ No error (4)

154. He who has suffered most (1)/ for the cause, (2)/ let him speak. (3)/ No error (4)

155. A cup of coffee (1)/ is an excellent complement (2)/ to smoked salmon. (3)/ No error (4)

Directions (156 - 160) : Sentences are given with blanks to be filled in with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four.

156. The hotel was not too expensive, ____
(1) was it ?   (2) wasn't it ?
(3) is it ?   (4) isn't it ?

157. Like humans, zoo animals must have a dentist ____ their teeth.
(1) fill   (2) filled
(3) filling   (4) to be filled

158. It was very kind of you to do the washing-up, but you ____ it.
(1) didn't have to do
(2) hadn't to do
(3) mightn't have done
(4) mustn't have done

159. He went ____ sea alone.
(1) in   (2) to
(3) into   (4) on

160. The ____ of our civilization from an agricultural society to today's complex industrial world was accompanied by war.
(1) adjustment
(2) migration
(3) route
(4) metamorphosis

Directions (161 - 165) : In the following questions choose the word opposite in meaning to the given word.

161. FLORID
(1) Weak   (2) Pale
(3) Monotonous (4) Ugly

162. VERITY
(1) Sanctity (2) Reverence
(3) Falsehood (4) Rarity

163. PERSPICUITY
(1) Vagueness (2) Dullness
(3) Unfairness (4) Unwillingness

164. FERVENT
(1) Inexcitable
(2) Enduring
(3) Dispassionate
(4) Subdued

165. MEANDERING
(1) Sliding   (2) Sloping
(3) Strained (4) Straight

Directions (166 - 170) : In the following questions out of the four alternatives, choose the one which best expresses the meaning of the given word.

166. LUXURIANT
(1) Luxury-loving
(2) Lovely
(3) Rich
(4) Abundant

167. CANTANKEROUS
(1) Cancerous
(2) Ferocious
(3) Quarrelsome
(4) Fissiparous

168. ONUS
(1) Sadness
(2) Happiness
(3) Responsibility
(4) Criticism

169. DERISION
(1) Humiliation
(2) Embarrassment
(3) Ridicule
(4) Condemnation

170. TRITE
(1) Commonplace
(2) Clever
(3) Brief
(4) Impudent

Directions (171 - 175) : In the following questions a part of the sentence is **bold**. Below are given alternatives to the **bold** part at (1), (2) and (3) which may improve the sentence. Choose the correct alternative. In case no improvement is needed, your answer is (4).

171. Obviously he isn't **cut up** to be a good teacher.
(1) cut out
(2) cut in
(3) cut for
(4) No improvement

172. Power got with money is the most **craved for** today.
(1) sought after
(2) wished for
(3) welcomed for
(4) No improvement

173. The brown shirt **wants washing**.
(1) has to wash
(2) is in need of a wash
(3) requires a wash
(4) No improvement

174. You are asked to copy this letter **word by word**.
(1) word for word
(2) word with word
(3) word to word
(4) No improvement

175. The weak man is a slave to his **sensuous** pleasures.
(1) sensory
(2) sensual
(3) secondary
(4) No improvement

Directions (176 - 180) : In the following questions, out of the four alternatives, choose the one which can be substituted for the given words/sentence.

176. An underhand device resorted to in order to justify misconduct
(1) Subterfuge (2) Manoeuvre
(3) Stratagem   (4) Complicity

177. Impossible to describe
(1) Miraculous
(2) Ineffable
(3) Stupendous
(4) Appalling

178. One who criticises popular beliefs which he thinks is mistaken or unwise
    (1) Philistine   (2) Iconoclast
    (3) Imposter   (4) Cannibal

179. Detaining and confining someone
    (1) Interruption
    (2) Interrogation
    (3) Interment
    (4) Internment

180. Science of the races of mankind
    (1) Genealogy   (2) Epistemology
    (3) Ethnology   (4) Sociology

Directions (181-185) : In the following questions, groups of four words are given. In each group, one word is correctly spelt. Find the correctly spelt word.

181. (1) collaborate   (2) comemorate
    (3) colate   (4) choclate

182. (1) circuiteous   (2) clairvoyant
    (3) chivelery   (4) cavelcade

183. (1) severety   (2) sovereignity
    (3) superiorty   (4) serenity

184. (1) cummulative
    (2) comemmorative
    (3) accummulative
    (4) accommodative

185. (1) benidiction
    (2) besmerch
    (3) beneficient
    (4) benevolence

Directions (186 – 190) : In the following questions, the 1st and the last sentences of the passage are numbered 1 and 6. 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.

186. 1. Education in India had a glorious beginning.
    P. But after the British rule, it faced many changes.
    Q. It went on for centuries with the same glory.
    R. English as the medium of instruction had a very great response.
    S. One of the changes was the introduction of English as the medium of instruction.
    6. As the Britishers left we had a complexity of opinions regarding English

(1) PQRS   (2) QPSR
(3) PQSR   (4) SRPQ

187. 1. It is easy to criticize the people at the helm, for the slow progress in every field.
    P. We are well aware that the intellectuals are leaving our country for better employment opportunities.
    Q. Then question remains unanswered because our country cannot show opportunities to the intellectuals.
    R. Then, what about their obligation to the Motherland ?
    S. First, we should ask ourselves as to what is happening to the young intellectuals in India.
    6. This situation of 'Brain-Drain' leads to a variety of problems.

(1) PSQR   (2) RPSQ
(3) PSRQ   (4) SPRQ

188. 1. It is the responsibility of parents to teach the young moral values in life.
    P. Many children take advantage of their parents' busy schedule.
    Q. This results in children's ignorance of social values.
    R. The reason behind it is that parents are quite busy nowadays.
    S. Nowadays parents spend very meagre time with children.
    6. As such, the society is going away from the value system.

(1) SRPQ   (2) PQRS
(3) SQRP   (4) SPQR

189. 1. The man who does his duty without any selfish desire for fruit may be called a sanyasi as well as yogi.
    P. The man who has achieved much evenness of temper will be serene, because his mere thoughts are changed with the strength of action.
    Q. He would practise yoga. i.e., evenness of temper, and cannot but perform action.
    R. The root of the matter is that one should not allow his mind to flit from object of desire to another and from that to a third.
    S. But he who abstains from action altogether is only an idler.

6. A yogi is one who is not attached to his objects of sense or to action and whose mind has ceased to roam restlessly.

(1) SRQP   (2) RQPS
(3) QRSP   (4) PRSQ

190. 1. This was an important day for Al at took.
    P. It was a cold day, but Alatook would be warm.
    Q. For the first time he was going to hunt seals alone.
    R. First he put on his fur-lined jacket.
    S. Then he put on mittens and boots of deerskin to protect his hands and feet from the cold.
    6. Finally he picked up the gun he had cleaned so carefully the day before.

(1) PQRS   (2) QPRS
(3) PRSQ   (4) QRPS

Directions (191 – 195) : In the following questions, a sentence has been given in Active Voice/Passive Voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/Active Voice.

191. They have made a film based on this novel.
    (1) A film was based on this novel and made.
    (2) A film have been made based on this novel.
    (3) A film, based on this novel, has been made
    (4) A film has been based and made on this novel.

192. The people couldn't move me to the hospital and the doctor operated on me at home.
    (1) I couldn't be moved to the hospital and was operated on at home by the doctor.
    (2) I couldn't be moved to the hospital and I had to be operated on at home.
    (3) I couldn't be moved to the hospital and I was operated at home by the doctor.
    (4) I couldn't be moved to the hospital by the people and operated on at home.

193. Why did he deprive you of the membership ?
    (1) Why you were deprived of the membership ?

(2) Why were you deprived of his membership by him ?

(3) Why was he deprived of his membership

(4) Why were you deprived of your membership by him ?

194. The news has been brought to us by him.

(1) He brought us the news.

(2) He has brought us the news.

(3) He was brought the news to us.

(4) We brought the news to him.

195. Not a word was spoken by the criminal in self-defence.

(1) The criminal spoke not a word in self-defence.

(2) The criminal in self-defence spoke no word.

(3) The criminal did not speak a word in self-defence.

(4) The criminal spoke in self-defence not a word.

Directions (196–200) : In the following passage, you have one brief passage with 5 questions following the passage. Read the passage carefully and choose the best answer to each question out of the four alternatives.

PASSAGE

Every profession or trade, every art and every science has its technical vocabulary, the function of which is partly to designate things or processes which have no names in ordinary English and partly to secure greater exactness in nomenclature. Such special dialects or jargons are necessary in technical discussion of any kind. Being universally understood by the devotees of the particular science or art, they have the precision of a mathematical formula. Besides, they save time, for it is much more economical to name a process than to describe it. Thousands of these technical terms are very properly included in every large dictionary, yet, as a whole, they are rather on the outskirts of the English language than actually within its borders.

Different occupations, however, differ widely in the character of their special vocabularies. In trades and handicrafts and other vocations like farming and fishing that have occupied great numbers of men from remote times, the technical vocabulary is very old. An average man now uses these in his own vocabulary. The special dialects of law, medicine, divinity and philosophy have become familiar to cultivated persons.

196. Special words used in technical discussion

(1) may become part of common speech

(2) never last long

(3) should resemble mathematical formula

(4) should be confined to scientific fields

197. The writer of this article is

(1) a scientist

(2) a politician

(3) a linguist

(4) a businessman

198. This passage is primarily concerned with

(1) various occupations and professions

(2) technical terminology

(3) scientific undertakings

(4) a new language

199. It is true that

(1) various professions and occupations often interchange words

(2) there is always a non-technical word that may be substituted for the technical word

(3) the average man often uses in his own vocabulary what was once technical language not meant for him

(4) everyone is interested in scientific findings

200. In recent years, there has been a marked increase in the number of technical terms in the nomenclature of
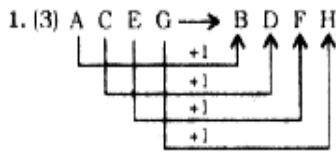
(1) Farming
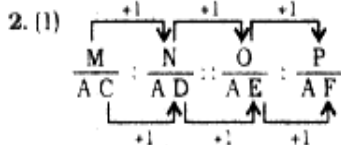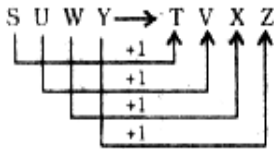
(2) Fishing

(3) Sports

(4) Government

ANSWERS

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

EXPLANATIONS

1. (3) A C E G → B D F H (each +1)

Similarly,

S U W Y → T V X Z (each +1)

2. (1)
$$\frac{M}{AC} \quad \frac{N}{AD} \quad \frac{O}{AE} \quad \frac{P}{AF}$$
(+1 each)

3. (1) $5 \times 5 + 2 = 27$
Similarly, $9 \times 9 + 2 = 83$

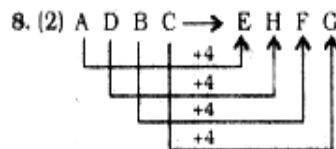4. (3) $6 \times 2 - 1 = 11$
Similarly, $11 \times 2 - 2 = 20$

5. (3) $A + B + E \Rightarrow 1 + 2 + 5 = 8$
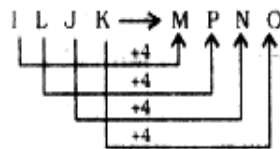Similarly,
$K + L + O \Rightarrow 11 + 12 + 15 = 38$

6. (2) The resting place of pig is called Sty. Similarly, the resting place of cow is called Byre.

7. (4) In order to ensure security, police or defence personnel patrol the area. Similarly, to cover risk, insurance is done.

8. (2) A D B C → E H F G (+4 each)

Similarly,

I L J K → M P N O (+4 each)

9. (4) Except the number pair 9, 64 in all others perfect squares of two consecutive numbers are given.

25	36
↓	↓
$(5)^2$	$(6)^2$
144	169
↓	↓
$(12)^2$	$(13)^2$
100	121
↓	↓
$(10)^2$	$(11)^2$

But,

9	64
↓	↓
$(3)^2$	$(8)^2$

10. (3) Bulb is an item while all others are phenomena.

11. (3) Except Tide, all other terms are related to both air and water. But tide is a regular rise and fall in the level of sea, caused by the attraction of the moon and sun.

12. (2) The position number of Y in the English alphabet is an odd number.
X ⇒ 24,   Y ⇒ 25,
H ⇒ 8,   D ⇒ 4

13. (4)
Z K X J → C M A L (−2)
T G R F → F R T K (−2)
(−1, −7, −14)
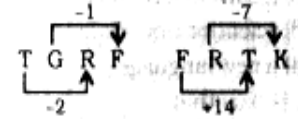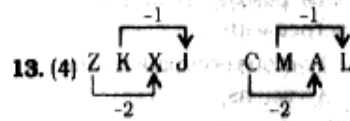
14. (3) Except in letter group IXYOQ, in all others there is only one Vowel.
In the letter group IXYOQ, there are two Vowels.

15. (4) Arrangement of words according to the Dictionary :
(4) Invariable
↓
(1) Inventory
↓
(5) Investigate
↓
(3) Invisible
↓
(2) Involuntary

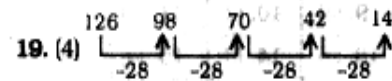16. (3) $B \xrightarrow{+1} C \xrightarrow{+2} E \xrightarrow{+3}$
$H \xrightarrow{+4} L \xrightarrow{+5} Q \xrightarrow{+6} W$

17. (2) a [b] b [n] / a [bb] n / [a]
bb [n] / abbn

18. (4) $6 \times 5 = 30$, $30 \times 3 = 90$
$8 \times 6 = 48$, $48 \times 4 = 192$

19. (4)
126 98 70 42 14
(−28, −28, −28, −28)

Therefore, the number 41 is wrong in the series.

20. (3) Meaningful order of the words :
3. Day → 5. Work → 1. Exhaust → 2. Night → 4. Sleep

21. (4) $3 + 1 = 4$: $3 + 4 = 7$:
$4 + 7 = 11$: $7 + 11 = 18$
$11 + 18 = 29$: $18 + 29 = \boxed{47}$

22. (1)
$A \xrightarrow{+2} C \xrightarrow{+2} E \xrightarrow{+2} G \xrightarrow{+2} I \xrightarrow{+2} K$
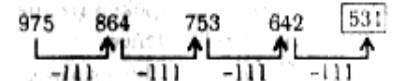$G \xrightarrow{+2} I \xrightarrow{+2} K \xrightarrow{+2} M \xrightarrow{+2} O \xrightarrow{-2} Q$
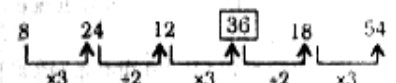$M \xrightarrow{+2} O \xrightarrow{+2} Q \xrightarrow{+2} S \xrightarrow{+2} U \xrightarrow{-2} W$
$S \xrightarrow{+2} U \xrightarrow{+2} W \xrightarrow{+2} Y \xrightarrow{+2} A \xrightarrow{-2} C$
$Y \xrightarrow{+2} A \xrightarrow{+2} C \xrightarrow{+2} E \xrightarrow{+2} G \xrightarrow{-2}$

23. (3)
975 864 753 642 $\boxed{531}$
(−111, −111, −111, −111)

24. (2)
8 24 12 $\boxed{36}$ 18 54
(×3, ÷2, ×3, ÷2, ×3)

25. (2) Suppose the present age of Ashok is x years and that of his mother is y years.
5 years ago
$3(x - 5) = (y - 5)$
$\Rightarrow 3x - 15 = y - 5$
$\Rightarrow 3x - y = 10$ ....(i)
5 years hence,
$2(x + 5) = (y + 5)$
$\Rightarrow 2x + 10 = y + 5$
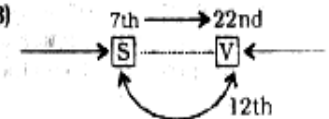$\Rightarrow 2x - y = -5$ ....(ii)
From equations (i) and (ii)
$x = 15$ years

26. (1) O is the husband of P. M is the son of P.
Therefore, M is the son of O.

27. (3)
7th ——→ 22nd
→ [S] ---- [V] ←
12th
Total number of boys in the row
$= 22 + 12 - 1 = 33$

28. (3) There is no 'V' letter in the given word.

29. (4)
Meaningful word ⇒ HIPPOPOTAMUS

30. (3)
1 9 25 49 81
↓ ↓ ↓ ↓ ↓
$(1)^2$ $(3)^2$ $(5)^2$ $(7)^2$ $(9)^2$

Therefore, the number 50 is wrong in the series.

31. (2) Suppose the number of women boarded the bus at Delhi is x.

10

Therefore, the number of men
$= 2x$

According to question,

$2x - 10 = x + 5$

$\Rightarrow 2x - x = 10 + 5$

$\therefore x = 15$

Total number of passengers boarded the bus initially $= 3x$

$= 3 \times 15 = 45$

32. (1) Day before yesterday was Sunday.

Therefore, today is Tuesday.

Day after tomorrow will be Thursday.

Thursday + 3 = Sunday

33. (4) The statement implies that politicians win elections by the votes of people. Therefore, neither of the assumptions is implicit in the statement.

34. (3) Both the Premises are Universal Affirmative (A-type).

All men are women.

All women are crazy.

A + A ⇒ A – type of Conclusion.

"All men are crazy".

This is Conclusion I.

Conclusion III is the Converse of it.

Conclusion IV is the Converse of Statement Q.

35. (2)
H O S P I T A L
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
3 2 5 7 4 6 1 8

Therefore,

P O S T A L
↓ ↓ ↓ ↓ ↓ ↓
7 2 5 6 1 8

36. (1) $1 + 7 + 3 + 5 + 2 + 6 = 24$

$4 + 3 + 1 + 3 + 2 + 5 = 18$

Therefore,

$2 + 5 + 3 + 4 + 7 + 1 = 22$

37. (4) $(12 + 6) \times 18 = 36$

$\Rightarrow (18 \div 6) \times 12 = 36$

$\Rightarrow 3 \times 12 = 36$

38. (1) SPARK → TQBSL

Similarly,

FLAME → GMBNF
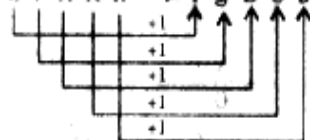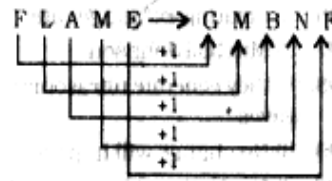
39. (1) $6 \times 5 = 30$

$30 \times 3 + 1 = 91$

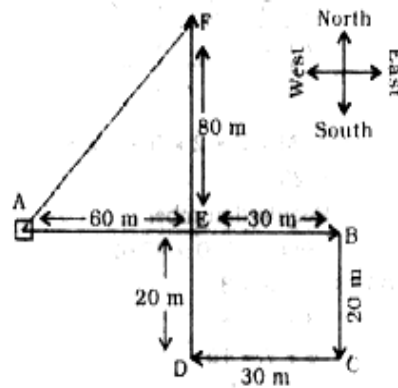$8 \times 7 = 56$

$56 \times 3 + 1 = 169$

$10 \times 7 = 70$

$70 \times 3 + 1 = 211$

Similarly,

$11 \times 10 = 110$

$110 \times 3 + 1 = 331$

40. (2)

Required distance = AF

$= \sqrt{(80)^2 + (60)^2}$

$\sqrt{6400 + 3600} = \sqrt{10000} = 100m$

41. (*) Option (2)

$24 = 4 \times 5 + 4$

$\Rightarrow 24 = 20 + 4$

Option (4)

$24 = 4 + 5 \times 4$

$\Rightarrow 24 = 4 + 20$

Both options (2) and (4) are correct.

42. (2) $5 \times 3 + 1 = 16$

$16 \times 3 + 1 = 49$

$9 \times 3 + 2 = 29$

$29 \times 3 + 2 = 89$

Therefore,

$15 \times 3 + 3 = \boxed{48}$
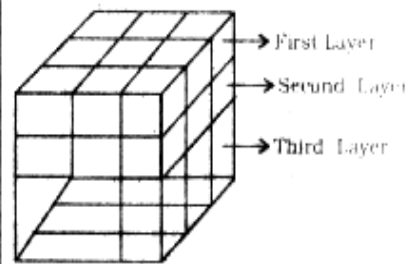
$48 \times 3 + 3 = 147$

43. (1) 1st Row ⇒ D
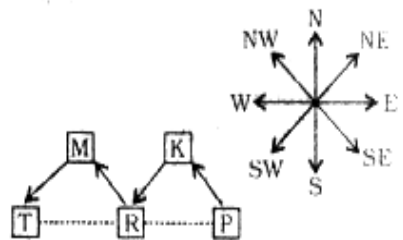
2nd Row ⇒ E

3rd Row ⇒ C

4th Row ⇒ A

5th Row ⇒ B

44. (2)

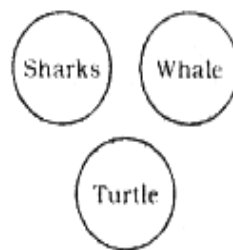4 cubes each of the first and third layers will have paint on two sides only.

Therefore, total number of cubes having paint on two sides

$= 4 \times 2 = 8$

45. (3)

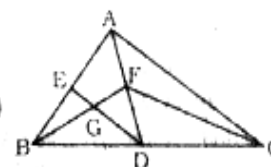It is clear that T is located to the West of P.

46. (3) Sharks belong to class pisces. Whale is a mammal and Turtle belongs to class reptilia.
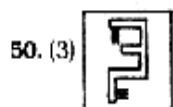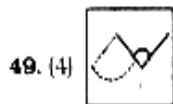

47. (3)

48. (2)

The triangles are :

ΔABC ; ΔABD ; ΔADC ; ΔAFC
ΔFDC ; ΔAFB ; ΔFDB ; ΔFBC
ΔGBD ; ΔADE ; ΔGBE ; ΔFDG
ΔDBE ;

49. (4)

50. (3)

51. (2) virtual and erect

52. (1) Vitamin B_{12}

53. (4) Chloropicrin

54. (2) Volume stress to volume strain

55. (1) adiabatic compression and rarefaction

56. (2) Caesium

57. (1) Phospholipid

58. (2) Mitochondrion

59. (2) Acetic acid

60. (1) Boiling point of heavy water is lower than that or ordinary water

61. (1) Respiration

62. (1) Arboreal

63. (4) 4, 5, 1, 3, 2

64. (4) V.D. Savarkar

65. (1) G.K. Gokhale

66. (1) Portuguese

67. (2) Cultural unity

68. (1) Trading blocks

69. (4) Leo Tolstoy

70. (2) Tsunami

71. (2) Yardang

72. (1) Tropical

73. (4) 2n

74. (2) Convection

75. (2) 82.5° E longitude

76. (2) Lord Ripon

77. (4) Irish Constitution

78. (3) Proxima Centauri

79. (1) Parliamentary and Presidential

80. (2) Planning Commission

81. (2) Appointed

82. (3) Indian Foreign Service

83. (2) Mangrove

84. (4) Decibel

85. (1) Pankaj Advani

86. (1) Mercury

87. (1) Red Rose

88. (3) Manna Dey

89. (1) has a microprocessor, but cannot be programmed by the user

90. (3) Matrix method

91. (3) Reserve Bank of India

92. (4) Treasury bill

93. (4) Multilateral trade

94. (2) Monopolistic competition

95. (4) Micro Economics

96. (2) Floating exchange rate

97. (3) Mitchell Johnson

98. (4) they generate ultrasonic sound waves

99. (3) No change will happen

100. (2) Net National Product at factor cost

101. (4) First number × second number
= HCF × LCM
⇒ 24 × second number = 8 × 48
∴ Second number = $\dfrac{8 \times 48}{24} = 16$

102. (2)

2	20,	28,	32,	35
2	10,	14,	16,	35
5	5,	7,	8,	35
7	1,	7,	8,	7
	1,	1,	8,	1

∴ LCM = 2 × 2 × 5 × 7 × 8
= 1120
∴ Required number
= 5834 − 1120 = 4714

103. (3) 0 + 3 = 3
3 + 5 = 8
8 + 7 = 15
15 + 9 = 24
24 + 11 = 35
35 + 13 = 48
48 + 15 = 63
63 + 17 = $\boxed{80}$

104. (3) [Tricky approach]

If 0.5 = a and 0.3 = b then,

Expression = $\dfrac{a^3 + b^3}{a^2 - ab + b^2}$

$= \dfrac{(a+b)(a^2 - ab + b^2)}{a^2 - ab + b^2} = a + b$

= 0.5 + 0.3 = 0.8

105. (1) [Tricky approach]

1 + 0.6 + 0.06 + 0.006 + 0.0006
+ ... = 1.666 .... = $1.\overline{6}$

$= 1\dfrac{6}{9} = 1\dfrac{2}{3}$

106. (2) Expression

$= \sqrt{\dfrac{0.009 \times 0.036 \times 0.016 \times 0.08}{0.002 \times 0.0008 \times 0.0002}}$

$= \sqrt{\dfrac{9 \times 36 \times 16 \times 8}{2 \times 8 \times 2}}$

= 3 × 2 × 3 × 2 = 36

107. (2) [Tricky approach]

If the first divisor is a multiple of second divisor, then the remainder in second case = remainder obtained by dividing the first remainder by the second divisor.
∴ Remainder = 21 ÷ 19 = 2

108. (1) $\sqrt{0.09} = \sqrt{0.3 \times 0.3} = 0.3$

109. (3) [Tricky approach]

$0.121212 .... = 0.\overline{12} = \dfrac{12}{99} = \dfrac{4}{33}$

110. (3) $\left(\dfrac{3}{5}\right)^3 \left(\dfrac{3}{5}\right)^{-6} = \left(\dfrac{3}{5}\right)^{2x-1}$

$\Rightarrow \left(\dfrac{3}{5}\right)^3 \left(\dfrac{3}{5}\right)^{-3} \left(\dfrac{3}{5}\right)^{-3} = \left(\dfrac{3}{5}\right)^{2x-1}$

$\Rightarrow \left(\dfrac{3}{5}\right)^0 \left(\dfrac{3}{5}\right)^{-3} = \left(\dfrac{3}{5}\right)^{2x-1}$

$\Rightarrow 2x - 1 = -3$
$\Rightarrow 2x = -3 + 1 = -2$
$\Rightarrow x = -1$

111. (3) Let the numbers be $3x$ and $4x$.
∴ Their LCM = $12x$
∴ $12x = 84$
$\Rightarrow x = \dfrac{84}{12} = 7$
∴ Larger number
= $4x = 4 \times 7 = 28$

112. (4) [Tricky approach]

Let the capacity of the drum be x litres.

∴ $\dfrac{3x}{4} - 30 = \dfrac{7x}{12}$

$\Rightarrow \dfrac{3x}{4} - \dfrac{7x}{12} = 30$

$\Rightarrow \dfrac{9x - 7x}{12} = 30$

$\Rightarrow \dfrac{x}{6} = 30$

= $x = 6 \times 30 = 180$ litres

12

113. (2) $675 = 5 \times 5 \times 3 \times 3 \times 3$

∴ Required number = 5

114. (1) $1\frac{1}{2} + 11\frac{1}{2} + 111\frac{1}{2} + 1111\frac{1}{2}$

$= 1236$

115. (2) $0.\overline{001} = \frac{1}{999}$

116. (1) $\frac{4.41 \times 0.16}{2.1 \times 1.6 \times 0.21}$

$= \frac{441 \times 16}{21 \times 16 \times 21} = 1$

117. (3) $a^4 - b^4 = (a^2 + b^2)(a + b)(a - b)$

∴ Required number

$= (3 + 1)(3 - 1) = 8$

118. (1) [Tricky approach]

$\frac{a^2 + b^2 + ab}{a^3 - b^3}$

$= \frac{a^2 + b^2 + ab}{(a - b)(a^2 + b^2 + ab)}$

$= \frac{1}{a - b}$

$= \frac{1}{11 - 9} = \frac{1}{2}$

119. (2) [Tricky approach]

If $256 = a$ and $144 = b$, then

Expression $= \frac{a^2 - b^2}{a - b}$

$[a - b = 256 - 144 = 112]$

$= \frac{(a + b)(a - b)}{(a - b)} = a + b$

$= 256 + 144 = 400$

120. (4) [Tricky approach]

$a^2 - b^2 = 19$

$\Rightarrow 10^2 - 9^2 = 19$

$\Rightarrow a = 10$

121. (2) Gain $= 11x - 10x = $ Rs. x

∴ Gain % $= \frac{\text{Gain} \times 100}{\text{Cost price}} \times 100$

$= \frac{x}{10x} \times 100 = 10$

122. (3) Marked price = Rs. 50

S.P. after discount = 80% of 50

= Rs. 40

If the CP of article be Rs. x, then

$\frac{125 \times x}{100} = 40$

$\Rightarrow x = \frac{40 \times 100}{125} = $ Rs. 32

123. (1) Let the CP be Rs. 100.

∴ SP = Rs. 112

If the marked price be Rs. x, then

90 % of $x = 112$

$\Rightarrow x = \frac{112 \times 100}{90} = $ Rs. $\frac{1120}{9}$

∴ Required ratio

$= 100 : \frac{1120}{9}$

$= 900 : 1120 = 45 : 56$

124. (2) [Tricky approach]

C.P. of bicycle

$= \frac{100}{114} \times 2850 = $ Rs. 2500

S.P. for a profit of 8%

$= \frac{108}{100} \times 2500 = $ Rs. 2700

125. (4) If the S.P. of article be Rs. x,

then its CP $= x - \frac{x}{4} = $ Rs. $\frac{3x}{4}$

∴ Gain % $= \frac{\frac{x}{4}}{\frac{3x}{4}} \times 100$

$= \frac{100}{3} = 33\frac{1}{3}$%

126. (2) [Tricky approach]

Required precentage

$= \frac{50}{100 - 50} \times 100$

$= 100\%$

127. (3) Required percentage

$= \frac{1.14}{1.9} \times 100 = 60\%$

128. (1) Let the numbers be $3x$ and $5x$.

∴ $3x \times 5x = 2160$

$\Rightarrow x^2 = \frac{2160}{3 \times 5} = 144 = 12 \times 12$

$\Rightarrow x = 12$

∴ Smaller number

$= 3x = 3 \times 12 = 36$

129. (4) $\frac{A \times 60}{100} = B \times \frac{3}{4}$

$\Rightarrow A \times \frac{3}{5} = B \times \frac{3}{4}$

$\Rightarrow \frac{A}{B} = \frac{3}{4} \times \frac{5}{3} = 5 : 4$

130. (3) [Tricky approach]

Single equivalent percentage increase in price

$= \left(10 + 10 + \frac{10 \times 10}{100}\right)\% = 21\%$

131. (2) [Tricky approach]

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

By componendo and dividendo,

$\Rightarrow \frac{2\sqrt{3 + x}}{2\sqrt{3 - x}} = \frac{2 + 1}{2 - 1} = 3$
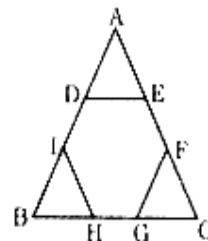
Squaring on both sides, we get

$\frac{3 + x}{3 - x} = 9$

$\Rightarrow 3 + x = 27 - 9x$

$\Rightarrow 9x + x = 27 - 3 = 24$

$\Rightarrow x = \frac{24}{10} = \frac{12}{5}$

132. (3) [Tricky approach]

Side of the regular hexagon

$= \frac{1}{3} \times 6 = 2$ cm

∴ Area of the hexagon $= \frac{3\sqrt{3}}{2} a^2$

$= \frac{3\sqrt{3}}{2} \times 2 \times 2$

$= 6\sqrt{3}$ sq. cm.

133. (2) Tricky approach

Length of the longest rod

$= \sqrt{10^2 + 10^2 + 5^2}$

$= \sqrt{225} = 15$ metre

134. (3) Tricky approach

A's share

$= \text{Rs. } \left(\dfrac{3}{5} \times 1000\right) = \text{Rs. } 600$

135. (4) Let the required number be x.

$\dfrac{7+x}{11+x} = \dfrac{3}{4}$

$\Rightarrow 28 + 4x = 33 + 3x$

$\Rightarrow x = 33 - 28 = 5$

136. (1) Tricky approach

$A = P\left(1 + \dfrac{R}{100}\right)^T$

$2 = 1\left(1 + \dfrac{\text{Rate}}{100}\right)^{15}$

Cubing on both sides, we have

$8 = 1\left(1 + \dfrac{\text{Rate}}{100}\right)^{45}$

Required time = 45 years

137. (3) Distance covered in 10 minutes at 20kmph = distance covered in 8 minutes at $(20 + x)$ kmph

$\Rightarrow 20 \times \dfrac{10}{60} = \dfrac{8}{60}(20 + x)$

$\Rightarrow 200 = 160 + 8x$

$\Rightarrow 8x = 40$

$\Rightarrow x = \dfrac{40}{8} = 5$ kmph

138. (2) Tricky approach

Circumference $= 2\pi r$ (one variable)

∴ The decrease in area = 50%

139. (1) $A = P\left(1 + \dfrac{R}{100}\right)^T$

$\Rightarrow \dfrac{1102.50}{1000} = \left(1 + \dfrac{r}{100}\right)^2$

$\Rightarrow \dfrac{11025}{10000} = \left(1 + \dfrac{r}{100}\right)^2$

$\Rightarrow \left(\dfrac{105}{100}\right)^2 = \left(1 + \dfrac{r}{100}\right)^2$

$\Rightarrow 1 + \dfrac{r}{100} = \dfrac{105}{100}$

$\Rightarrow \dfrac{r}{100} = \dfrac{5}{100}$

$\Rightarrow r = 5\%$

140. (2) Let the annual instalment be Rs. x

$\therefore \left(x + \dfrac{x \times 3 \times 5}{100}\right)$

$+ \left(x + \dfrac{x \times 2 \times 5}{100}\right) + \left(x + \dfrac{x \times 1 \times 5}{100}\right) + x$

$= 6450$

$\Rightarrow \dfrac{115x}{100} + \dfrac{110x}{100} + \dfrac{105x}{100} + x$

$= 6450$

$\Rightarrow 115x + 110x + 105x + 100x$

$= 6450 \times 100$

$\Rightarrow 430x = 6450 \times 100$

$\therefore x = \dfrac{6450 \times 100}{430} = \text{Rs. } 1500$

141. (3) Tricky approach

$1 + 2 + 3 + \ldots + n = \dfrac{n(n+1)}{2}$

∴ Average of these numbers

$= \dfrac{n+1}{2}$

∴ Required average

$= \dfrac{100+1}{2} = 50.5$

142. (2) Father + mother

$= 2 \times 35 = 70$ years

Father + mother + son

$= 27 \times 3 = 81$ years

∴ Son's age $= 81 - 70 = 11$ years

143. (4) 5 men = 7 women

∴ 7 men $= \dfrac{7}{5} \times 7 = \dfrac{49}{5}$ women

∴ 7 men + 13 women

$= \dfrac{49}{5} + 13 = \dfrac{114}{5}$ women

Now,

∵ 7 women = Rs. 5250

∴ $\dfrac{114}{5}$ women

$= \dfrac{5250}{7} \times \dfrac{114}{5} = \text{Rs. } 17100$

144. (1) Tricky approach

(A + B)'s 1 day's work $= \dfrac{1}{15}$

B's 1 day's work $= \dfrac{1}{20}$

∴ A's 1 day's work

$= \dfrac{1}{15} - \dfrac{1}{20} = \dfrac{4-3}{60} = \dfrac{1}{60}$

∴ A alone will do the work in 60 days.

145. (2) Tricky approach

$\dfrac{4}{3}$ of usual time = Usual time + 20 minutes

∴ $\dfrac{1}{3}$ rd of usual time

= 20 minutes

∴ Usual time = 20×3

= 60 minutes

146. (3) (B + C)'s 2 days' work

$= 2\left(\dfrac{1}{20} + \dfrac{1}{30}\right) = 2\left(\dfrac{3+2}{60}\right)$

$= \dfrac{1}{6}$ part

Remaining work $= 1 - \dfrac{1}{6} = \dfrac{5}{6}$ part

∴ Time taken by A to complete this part of work

$= \dfrac{5}{6} \times 18 = 15$ days

147. (4) If the speed of the train be x kmph, then relative speed

$= (x - 3)$ kmph.

$= (x - 3) \times \dfrac{5}{18}$ m/sec

$\therefore \dfrac{300}{(x-3) \times \dfrac{5}{18}} = 33$

$\Rightarrow 5400 = 33 \times 5 (x - 3)$

$\Rightarrow 360 = 11(x - 3)$

$\Rightarrow 11x - 33 = 360$

$\Rightarrow x = \dfrac{393}{11} = 35\dfrac{8}{11}$ kmph

148. (3) Yasin got the minimum votes.

∵ $360° = 720$

∴ $60° = \dfrac{720}{360} \times 60 = 120$

14

149. (1) Sivaraman got the maximum votes. i.e.

$$\frac{720}{360} \times 120 = 240 \text{ votes}$$

He was the winner.

150. (1) Angle of the difference of votes of the winner and the nearest rival = 120 – 100 = 20°

$\therefore 360° = 720$

$$\therefore 20° = \frac{720}{360} \times 20 = 40$$

151. (3) Neither is used for two things. For more than two things, none should be used.

152. (1) **After knowing the truth** will be a correct usage.

153. (2) It is time/It is high time is followed by the clause in simple past that shows present time. Hence, **decided on your next** should be used.

154. (3) Replace **let him speak** by **should be allowed to speak**.

155. (4) No error

156. (1) was it ?

157. (1) fill

158. (4) mustn't have done

159. (2) to

160. (4) metamorphosis

161. (2) The word **Florid (Adjective)** means : rosy; gaudy; ornate; red; having too much decoration or detail.

The word **Pale (Adjective)** means : light in colour; not strong or bright; having skin that is almost white because of illness.

Hence, the words **florid** and **pale** are antonymous.

162. (3) The word **Verity (Noun)** means : a belief or principle about life that is accepted as true; truth).

Hence, the words **verity** and **falsehood** are antonymous.

163. (1) The word **Perspicuity (Noun)** means : clarity.

The word **Vagueness (Noun)** means : no clarity in a person's mind.

Hence, the words **perspicuity** and **vagueness** are antonymous.

164. (3) The word **Fervent (Adjective)** means : having or showing very strong and sincere feelings about something; ardent.

The word **Dispassionate (Adjective)** means : not influenced by emotion; impartial.

Hence, the words **fervent** and **dispassionate** are antonymous.

165. (4) The word **Meandering (Adjective)** means : not straight; curved; a course that does not follow a straight path.

Hence, the words **meandering** and **straight** are antonymous.

166. (4) The word **Luxuriant (Adjective)** means : growing thickly and strongly; rich in something that is pleasant or beautiful; abundant.

167. (3) The word **Cantankerous (Adjective)** means : bad tempered and always complaining.

Hence, the words **cantankerous** and **quarrelsome** are synonymous.

168. (3) The word **Onus (Noun)** means : the responsibility for something.

Look at the sentence :

The onus is on employers to follow health and safety laws.

169. (3) The word **Derision (Noun)** means : ridicule; mockery; a strong feeling that somebody/ something is ridiculous and not worth considering seriously.

170. (1) The word **Trite (Adjective)** means : dull and boring because it has been expressed so many times before; not original; banal; very ordinary and containing nothing that is interesting or important.

Hence, the words **trite** and **commonplace** are synonymous.

171. (1) Phrase **'cut out'** means : to have the qualities and abilities needed for something.

172. (4) No improvement

173. (3) requires a wash

174. (1) **word for word** means : in exactly the same words or when translated exactly equivalent words.

175. (2) The word **sensual (Adjective)** means : connected with your physical feelings; giving pleasure to your physical senses, especially to sexual pleasures.

176. (2) Manoeuvre

177. (2) Ineffable

178. (2) Iconoclast

179. (4) Internment

180. (3) Ethnology

181. (1) Correct spellings of other words are : commemorate, chocolate and chocolate

182. (2) Correct spellings of other words are : circuitous, chivalry and cavalcade

183. (4) Correct spellings of other words are : severity, sovereignty and superiority

184. (4) Correct spellings of other words are : cumulative, commemorative and accumulative

185. (4) Correct spellings of other words are : benediction, besmirch and beneficent.

186. (2) QPSR

187. (4) SPRQ

188. (1) SRPQ

189. (1) SRQP

190. (2) QPRS

191. (3) A film, based on this novel has been made

192. (1) I couldn't be moved to the hospital and was operated on at home by the doctor.

193. (4) Why were you deprived of your membership by him ?

194. (2) He has brought the news to us.

195. (3) The criminal did not speak a word in self-defence.

196. (3) should resemble mathematical formula

197. (3) a linguist

198. (2) technical terminology

199. (3) the average man often uses in his own vocabulary what was once technical language not meant for him

200. (4) Government