PART I : GENERAL INTELLIGENCE

1. String : Violin :: ? : Piano
   (A) Music
   (B) Tune
   (C) Chord
   (D) Key

2. Frame : Picture :: ?
   (A) Box : Lid
   (B) Chair : Cushion
   (C) Cover : Book
   (D) Window : Screen

3. Bihu : Assam :: Onam : ?
   (A) Karnataka
   (B) Kerala
   (C) Jammu & Kashmir
   (D) Rajasthan

4. BDG : HJM :: NPS : ?
   (A) TVY
   (B) UVY
   (C) WXZ
   (D) TWZ

5. ABC : ZYX :: CBA : ?
   (A) BCA
   (B) XZY
   (C) YZX
   (D) XYZ

6. AEI : OUA :: IEA : ?
   (A) AOU
   (B) AUO
   (C) EOU
   (D) EUO

7. 7 : 42 :: 9 : ?
   (A) 64
   (B) 72
   (C) 46
   (D) 80

8. 121 : 12 :: 25 : ?
   (A) 1
   (B) 2
   (C) 6
   (D) 7

9. 0·16 : 0·0016 :: 1·02 : ?
   (A) 0·0102
   (B) 0·102
   (C) 1·020
   (D) 10·20

10. (A) Liver
    (B) Pituitary
    (C) Adrenal
    (D) Thyroid

11. (A) Fingers
    (B) Ears
    (C) Hands
    (D) Legs

12. (A) July
    (B) November
    (C) December
    (D) October

13. (A) A
    (B) B
    (C) U
    (D) E

14. (A) KM
    (B) DF
    (C) XZ
    (D) RU

15. (A) 38
    (B) 39
    (C) 40
    (D) 41

16. (A) 101
    (B) 121
    (C) 111
    (D) 131

17. (A) $\dfrac{10}{8}$
    (B) $\dfrac{8}{7}$
    (C) $\dfrac{5}{6}$
    (D) $\dfrac{7}{5}$

18. (A) Violet
    (B) Pink
    (C) Blue
    (D) Orange

19. (A) Red
    (B) Blue
    (C) Black
    (D) Green

20. Following words follow a logical progression :

ACE – TAB; COG – ADD; EAR – RAF;
GUT – UGH;

Which of these could be the next word ?

(A) KID – BAL

(B) IVY – TAJ

(C) BOY – DOC

(D) TOO – SUV

21. Which of the following sets contains correctly matched pairs ?

(A) (Pulitzer, Cinema), (Templeton, Journalism), (Phalke, Religion), (Kalinga, Science)

(B) (Pulitzer, Journalism), (Templeton, Religion), (Phalke, Science), (Kalinga, Cinema)

(C) (Pulitzer, Science), (Templeton, Religion), (Kalinga, Cinema)

(D) (Pulitzer, Journalism), (Templeton, Religion), (Phalke, Cinema), (Kalinga, Science)

Directions : In questions no. 22 to 26, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

22. ZYXABCWVDEU ?

(A) V

(B) F

(C) T

(D) E

23. BCZYDEWVFGUTH ?

(A) Q

(B) S

(C) J

(D) I

24. 8, 24, 40, 56, _?_ , 88

(A) 76

(B) 72

(C) 70

(D) 74

25. 1, 2, 6, 24, 120, _?_

(A) 360

(B) 720

(C) 600

(D) 640

26. 1, 8, 27, _?_

(A) 37

(B) 47

(C) 57

(D) 64

27. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

ab_aabb__bb_

(A) abbb

(B) abab

(C) baba

(D) baaa

28. If 1ˢᵗ March is Saturday, then 1ˢᵗ April will be

(A) Sunday

(B) Monday

(C) Tuesday

(D) Thursday

29. A father said to his son, "I was as old as you are at the present at the time of your birth." If the father's age is 52 years now, then the son's age 8 years back was

(A) 10 years

(B) 18 years

(C) 12 years

(D) 20 years

30. From the given alternative words, select the word which **cannot** be formed using the letters of the given word.

LOCALIZATION

(A) LOCAL

(B) ACTION

(C) NATION

(D) CAPTION

31. If DEAR is coded as 6-8-3-21, how will you code TRACK ?

(A) 22-21-3-6-11

(B) 22-21-3-6-13

(C) 22-21-4-5-10

(D) 20-21-3-6-17

32. In a certain code, REDIP is the code for PRIDE. Which is the word for AERDC in that code ?

(A) CADRE (B) CARED

(C) RACED (D) CEDAR

33. If $\dfrac{7 \times 8}{9} = 3$; $\dfrac{8 \times 9}{144} = 12$; $\dfrac{10 \times 11}{169} = 13$, then $\dfrac{12 \times 13}{441}$?

(A) 196 (B) 225

(C) 144 (D) 21

34. Find the missing number.

3 * 4 = 64

2 * 3 = 9

3 * 2 = 8

9 * 2 = ?

(A) 216 (B) 512

(C) 128 (D) 1024

35.

3	2	1	5	3	4
35		126		?	

(A) 90 (B) 91

(C) 103 (D) 75

36.

9	5	7
4	7	?
7	8	3
252	280	126

(A) 8 (B) 3

(C) 2 (D) 6

37.

14	19	12
13	15	?
18	?	16

(A) 11, 17 (B) 17, 11

(C) 17, 19 (D) 19, 17

38. A man drives his car 6 km towards West, then turns left and drives 3 km and again turns left and drives 3 km. Find out the final direction of the man from his original position.

(A) South-West (B) North-West

(C) North-East (D) South-East

39. A tourist drives 10 km towards West and turns to left and takes a drive of another 4 km. He then drives towards East another 4 km and then turns to his right and drives 5 km. Afterwards he turns to his left and travels 6 km. In which direction is he from the starting point ?

(A) North (B) East

(C) West (D) South

SPACE FOR ROUGH WORK / रफ कार्य के लिए स्थान

40. Five people are sitting in a row facing you. Y is at the left of X, W is sitting at the right of Z. V is sitting at the right of X and W is sitting at the left of Y. If Z is sitting at one end of the row, then who is sitting in the middle ?
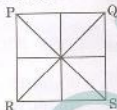
(A) V   (B) X

(C) Y   (D) Z

41. Which one of the following is true ?
1. All men and women are drivers.
2. All drivers are men.
3. All drivers are women.
4. Some drivers are women.

(A) 1   (B) 2

(C) 3   (D) 4

42. How many quadrilaterals are there in the following figure ?
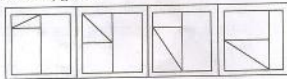

(A) 6   (B) 7

(C) 8   (D) 9

43. Among the four answer figures, which figure can be formed from the cut-pieces given below in the question figure ?

Question figure :

Answer figures :

  (A)   (B)   (C)   (D)

Directions : In questions no. 44 and 45, identify the diagram that best represents the relationship among the classes given below.

44. Children, Serious, Naughty

45. Teacher, Painter, Dramatist
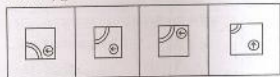

46. Which answer figure will complete the pattern in the question figure ?

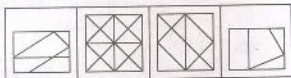*Question figure :*

Answer figures :

  (A)   (B)   (C)   (D)

47. From the given answer figures, select the one in which the question figure is hidden/embedded.

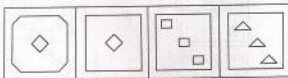Question figure :

Answer figures :

(A)   (B)   (C)   (D)

48. A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.
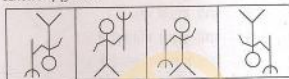
Question figures :

Answer figures :

(A)   (B)   (C)   (D)

49. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given question figure ?

Question figure :

Answer figures :

(A)   (B)   (C)   (D)

50. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in the two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, e.g., 'A' can be represented by 00, 21, etc., and 'S' can be represented by 58, 98, etc. Similarly, you have to identify the set for the word given below :

SLOW

Matrix I					
	0	1	2	3	4
0	A	E	F	G	L
1	H	B	I	J	K
2	M	A	C	B	C
3	D	E	F	D	L
4	H	I	J	K	E

Matrix II					
	5	6	7	8	9
5	N	S	R	S	T
6	Q	O	T	U	X
7	W	X	P	U	V
8	Y	Z	Y	Q	X
9	Z	W	R	S	R

(A) 58, 34, 66, 95   (B) 98, 04, 66, 96

(C) 58, 34, 66, 76   (D) 98, 04, 66, 95

    SPACE FOR ROUGH WORK / एफ कार्य के लिए स्थान

Directions : *In questions no. 42 to 45, select the related word / number from the given alternatives.*

Directions : *In questions no. 46 to 48, find the odd number from the given alternatives.*

42. Paper : Tear : : Cheese : ?

   (A) Break

   (B) Smash

   (C) Burst

   (D) Crumble

43. Thermometer : Temperature : : Seismograph : ?

   (A) Pressure

   (B) Earthquake

   (C) Blood pressure

   (D) Wind

44. 15 : 62 : : 2 : ?

   (A) 6

   (B) 10

   (C) 9

   (D) 15

45. Rice : Food : : Coconut : ?

   (A) Fruit

   (B) Drink

   (C) Stem

   (D) Root

46. (A) 42

   (B) 84

   (C) 120

   (D) 63

47. (A) 21

   (B) 14

   (C) 5

   (D) 17

48. (A) 11

   (B) 41

   (C) 52

   (D) 23

49. Choose the correct alternative from the given ones that will complete the series.

   A Z Y B X W C V U ?

   (A) T

   (B) G

   (C) D

   (D) S

50. If $4 + 8 = -48$; $3 + 6 = -27$; $5 + 6 = -11$, then $4 + 5 = ?$

   (A) 16

   (B) 45

   (C) -9

   (D) -45

SPACE FOR ROUGH WORK / रफ़ कार्य के लिए स्थान

PART II : ENGLISH LANGUAGE

Directions : In questions no. 51 to 55, some parts of the sentences have errors and some are correct. Find out which part of a sentence has an error and blacken the oval (●) corresponding to the appropriate letter (A, B, C). If a sentence is free from errors, blacken the oval corresponding to (D) in the Answer Sheet.

51. A five-men / enquiry committee was appointed / to look into the matter. / No error.
(A) (B) (C) (D)

52. The crime rate increases inspite / formal moral education / given in schools. / No error
(A) (B) (C) (D)

53. As soon as they / entered the temple / they prayed to the gods on bent knees. / No error.
(A) (B) (C) (D)

54. Three-fourths of the men / has gone / to war. / No error.
(A) (B) (C) (D)

55. The conversation / we are having is completely / out of the main topic. / No error.
(A) (B) (C) (D)

Directions : In questions no. 56 to 60, 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 and indicate it by blackening the appropriate oval (●) in the Answer Sheet.

56. She was aware of what was going _____ her father's mind.
(A) through
(B) on
(C) in
(D) by

57. Most parents _____ love and affection on their children.
(A) pour
(B) pore
(C) poor
(D) pool

58. Then railway trains _____ the most popular and the cheapest means of transport.
(A) become
(B) became
(C) becomes
(D) becoming

59. If left unattended, even a small cut can turn into a _____ .
(A) soar
(B) sour
(C) sore
(D) ore

60. My neighbour is very _____ for he believes that nothing good will happen to him.
(A) reasonable
(B) forward-looking
(C) pessimistic
(D) optimistic

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61. Latent
    (A) Hidden
    (B) Expose
    (C) Obstruct
    (D) Confuse

62. Dwindle
    (A) Flourish
    (B) Grow
    (C) Increase
    (D) Decrease

63. Ameliorate
    (A) To appease
    (B) To improve
    (C) To humiliate
    (D) To make excuse

64. Ossify
    (A) Make or become like a stone
    (B) Make or become like a bone
    (C) Turn into plasma
    (D) Turn into iron

65. Spurious
    (A) Fictional
    (B) True
    (C) Particular
    (D) Fake

66. Release
    (A) Hide
    (B) Bury
    (C) Close
    (D) Confine

67. Clear
    (A) Implicit
    (B) Effulgent
    (C) Nebulous/opaque
    (D) Lucid

68. Discrimination
    (A) Bias
    (B) Equality
    (C) Motivation
    (D) Replenishment

69. Endangered
    (A) Protected
    (B) Livening up
    (C) Abundant
    (D) Blissful

70. Maverick
    (A) Dependable
    (B) Conventional
    (C) Redundant
    (D) Old

71. The two friends are now at daggers drawn over a petty issue.
    (A) angry
    (B) frustrated
    (C) enemies
    (D) competitors

72. His work seems to be a Penelope's web.
    (A) endless
    (B) difficult
    (C) declining
    (D) in his best form

73. Goods will be delivered if you pay on the nail.
    (A) pay within the given time
    (B) pay the full amount
    (C) pay promptly in cash
    (D) pay promptly

74. If people do not mend their ways, they are sure to go to the dogs.
    (A) to fight
    (B) to be ruined
    (C) to be united
    (D) to be rough

75. Despite the doctor's advice he still eats like a horse.
    (A) eats slowly
    (B) eats a lot of food
    (C) does not like to eat
    (D) swallows his food

76. The girl filled the pitcher for water.
    (A) in
    (B) of
    (C) with
    (D) No improvement

77. Walk carefully lest you do not fall.
    (A) lest you might not fall
    (B) lest you fall
    (C) lest you should not fall
    (D) No improvement

78. Please tell the story in a nutshell.
    (A) in nutshell
    (B) in the nutshell
    (C) in nutshells
    (D) No improvement

79. The housing problem in Mumbai becomes more serious.
    (A) is becoming
    (B) has become
    (C) become
    (D) No improvement

80. If he would have tried he would have succeeded.
    (A) had tried
    (B) is tried
    (C) was tried
    (D) No improvement

81. A policy that segregates people on the basis of race
    - (A) Chauvinism
    - (B) Theism
    - (C) Apartheid
    - (D) Partisan

82. Something which lasts forever
    - (A) Eternal
    - (B) Youthful
    - (C) Mortal
    - (D) Infallible

83. The schedule of travel
    - (A) Itinerary
    - (B) Time-table
    - (C) Travelbook
    - (D) Guidebook

84. Poem in short stanzas narrating a popular story
    - (A) Ballet
    - (B) Epic
    - (C) Ballad
    - (D) Sonnet

85. Design made by putting together coloured pieces of glass or stones
    - (A) Tracery
    - (B) Mosaic
    - (C) Relief
    - (D) Oleograph

86. (A) excesive (B) excessive
    (C) ekcessive (D) exsessive

87. (A) coreograph (B) erradicate
    (C) retrieve (D) exasperrate

88. (A) accomodate (B) accommodate
    (C) acommodate (D) accommodat

89. (A) Machiavilian (B) Machiavellian
    (C) Machisvelian (D) Machaivelian

90. (A) vetarinary (B) veterinary
    (C) veretinary (D) vetarinary

Superstition is a __91__ in __92__, which __93__ be explained by the __94__ of nature and also not by religion. For __95__ a superstitious person believes that a black cat __96__ his path will bring him __97__. In Brazil, for instance, many people believe that a person can be harmed or even killed by __98__ needles in a puppet which __99__ the person to be harmed. This is called 'voodoo-magic'. People who do not believe in __100__ things consider them superstition.

91. (A) belief (B) believe
    (C) believer (D) believes

92. (A) anything (B) something
    (C) nothing (D) everything

93. (A) will (B) will not
    (C) can (D) cannot

94. (A) methods (B) ways
    (C) laws (D) means

95. (A) instant (B) insistent
    (C) instance (D) insistence

96. (A) crossing (B) cross
    (C) crosses (D) crossed

97. (A) fortune (B) misfortune
    (C) luck (D) properties

98. (A) pushing (B) drawing
    (C) sticking (D) pulling

99. (A) represents (B) represent
    (C) points (D) pointing

100. (A) such (B) thus
     (C) this (D) just

101. The number between 3000 and 4000 which is exactly divisible by 30, 36 and 80 is

(A) 3625   (B) 3250

(C) 3500   (D) 3600

102. The greatest number of the following

$$\frac{4}{9}, \sqrt{\frac{9}{49}}, 0\cdot4\ddot{7}, (0\cdot7)^2$$

is

(A) $\frac{4}{9}$ (B) $\sqrt{\frac{9}{49}}$

(C) $0\cdot4\ddot{7}$ (D) $(0\cdot7)^2$

103. $2\frac{1}{3} + 3\frac{1}{6} + 4\frac{1}{2} + 5\frac{2}{3}$ is equal to

(A) $15\frac{2}{3}$ (B) $15\frac{1}{3}$

(C) $14\frac{2}{3}$ (D) $14\frac{1}{3}$

104. The sum of (16% of 24·2) and (10% of 2·42) is

(A) 4·114   (B) 41·14

(C) 411·4   (D) 0·4114

105. The next number of the sequence 3, 5, 9, 17, 33, ... is

(A) 65   (B) 60

(C) 50   (D) 49

106. A certain number of men complete a piece of work in 60 days. If there were 8 men more, the work could be finished in 10 days less. The number of men originally were

(A) 30   (B) 40

(C) 32   (D) 36

107. 3 men and 7 women can do a piece of work in 32 days. The number of days required by 7 men and 5 women to do a piece of work twice as large is

(A) 19   (B) 21

(C) 27   (D) 36

108. If the radius of the base of a cone is 7 cm and its curved surface area is 550 sq. cm, then the volume of the cone is

(A) 1232 cu. cm   (B) 1024 cu. cm

(C) 1132 cu. cm   (D) 1324 cu. cm

109. If one diagonal of a rhombus of side 13 cm is 10 cm, then the other diagonal is

(A) 24 cm   (B) 20 cm

(C) 16 cm   (D) 28 cm

110. Two successive discounts of 10% and 20% equals a single discount of

(A) 30%   (B) 25%

(C) 28%   (D) 29%

111. After allowing a discount of 10% on marked price a trader makes a profit of 15%. The ratio of the marked price to the cost price is

(A) 23 : 9   (B) 23 : 10

(C) 23 : 18   (D) 23 : 19

112. 80 litres of a mixture contain milk and water in the ratio of 27 : 5. How much more water is to be added to get a mixture containing milk and water in the ratio of 3 : 1 ?

(A) 5 litres   (B) 10 litres

(C) 15 litres   (D) 20 litres

113. In what ratio must 25% hydrochloric acid be mixed with 60% hydrochloric acid to get a mixture of 40% hydrochloric acid ?

(A) 5 : 12   (B) 4 : 3

(C) 3 : 4   (D) 12 : 5

SPACE FOR ROUGH WORK / एक कार्य के लिए स्थान

114. Sriya with her family travelled from Bolpur to Suri by car at a speed of 40 km/hr and returned to Bolpur at a speed of 50 km/hr. The average speed for the whole journey is

    (A) $44\frac{4}{9}$ km/hr

    (B) 45 km/hr

    (C) $45\frac{1}{2}$ km/hr

    (D) 44·78 km/hr

115. Three years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is the same today. The present age of the baby (in year/s) is

    (A) 1   (B) $1\frac{1}{2}$

    (C) 2   (D) 3

116. A shopkeeper purchases an article for ₹ 3,550 and spends ₹ 50 on it for its repair. If he then sold the article for ₹ 3,816, the percent of profit is

    (A) 6%   (B) 6·08%

    (C) 7·38%   (D) 7·49%

117. A table is sold at ₹ 1,800 at a loss of 10%. At what price should it be sold to earn a profit of 15% ?

    (A) ₹ 2,070   (B) ₹ 1,890

    (C) ₹ 2,000   (D) ₹ 2,300

118. What percent of 15 hours is 18 seconds ?

    (A) 30%   (B) $\frac{1}{30}$%

    (C) 36%   (D) $\frac{1}{36}$%

119. If x% of y% of 80 is the same as 25% of 900, then the value of xy is

    (A) 30100

    (B) 32500

    (C) 28125

    (D) 34200

120. A journey takes 4 hours 30 minutes at a speed of 60 km/hr. If the speed is 15 m/s, then the journey will take

    (A) 5 hours

    (B) 5 hours 30 minutes

    (C) 6 hours

    (D) 6 hours 15 minutes

121. Mohan lends ₹ 500 to John and a certain sum to Tom at the same time at a simple interest of 8% per annum. If in 4 years, he altogether receives ₹ 210 as interest from the two, then the sum of money he lent to Tom was

    (A) ₹ 144·75

    (B) ₹ 148

    (C) ₹ 156·25

    (D) ₹ 165·50

122. If the ratio of the altitudes of two triangles be 3 : 4 and the ratio of their corresponding areas be 4 : 3, then the ratio of their corresponding lengths of bases is

    (A) 1 : 1   (B) 16 : 9

    (C) 1 : 2   (D) 2 : 1

123. Let A be the area of a square whose sides are 10 cm. Let B be the area of a square whose diagonals are 14 cm. Then A – B is equal to

    (A) 0   (B) 1

    (C) 2   (D) 4

124. PQRS is a square with side 10 cm. A, B, C and D are mid-points of PQ, QR, RS and SP respectively. Then the perimeter of the square ABCD so formed is

(A) $10\sqrt{2}$ cm   (B) $20\sqrt{2}$ cm

(C) $25\sqrt{2}$ cm   (D) $15\sqrt{2}$ cm

125. The sum of all internal angles of a regular polygon whose one external angle is 20° is

(A) 6400°   (B) 3200°

(C) 2880°   (D) 1440°

126. Two sides of a parallelogram are 20 cm and 25 cm. If the altitude corresponding to the sides of length 25 cm is 10 cm, then the altitude corresponding to the other pair of sides is

(A) 10·5 cm   (B) 12 cm

(C) 12·5 cm   (D) 10 cm

127. If $x + \dfrac{1}{x} = 0$, then the value of $x^5 + \dfrac{1}{x^5}$ is

(A) 2   (B) −1

(C) 1   (D) 0

128. If $a^2 + b^2 + c^2 - ab - bc - ca = 0$, then

(A) $a = b = c$ (B) $a \neq b = c$

(C) $a = b = c$ (D) $a \neq b \neq c$

129. If $x^4 + \dfrac{1}{x^4} = 119$, then the values of $x^3 + \dfrac{1}{x^3}$ are

(A) $\pm 10\sqrt{13}$

(B) $\pm \sqrt{13}$

(C) $\pm 16\sqrt{13}$

(D) $\pm 13\sqrt{13}$

130. If $a^2 + b^2 + c^2 = 2(a - b - c) - 3$, then the value of $a + b + c$ is

(A) 0   (B) 1

(C) −1   (D) 2

131. If $x + \dfrac{1}{x} = \sqrt{3}$, then the value of $x^{30} + x^{24} + x^{18} + x^{12} + x^{6} + 1$ is

(A) $\sqrt{3}$ (B) $-\sqrt{3}$

(C) 1   (D) 0

132. In Δ ABC, BD and CE are perpendicular to AC and AB respectively. If BD = CE, then Δ ABC is

(A) Equilateral   (B) Isosceles

(C) Right-angled   (D) Scalene

133. In Δ ABC, ∠ BAC = 90° and D is the mid-point of BC. Then which of the following relations is true ?

(A) AD = BD = CD

(B) AD = BD = 2CD

(C) AD = 2BD = CD

(D) 2AD = BD = CD

134. In Δ ABC, ∠ B = 60°, ∠ C = 40°, AD is the bisector of ∠ A and AE is drawn perpendicular on BC from A. Then the measure of ∠ EAD is

(A) 40°   (B) 30°

(C) 10°   (D) 80°

135. Chords AB and CD of a circle intersect at E. If AE = 9 cm, BE = 12 cm and CE = 3DE, then the length of DE (in cm) is

(A) $\dfrac{9}{4}$ (B) 4

(C) 6   (D) 7

136. Let O be the centre of a circle. A, B, C and D are any four points on the circumference of the circle in the given order, such that ∠ AOC = 130°. Then the measure of ∠ ABC and ∠ ADC are respectively

(A) 65°, 115° (B) 65°, 65°

(C) 115°, 65° (D) 115°, 115°

137. If $\cos^4 \theta - \sin^4 \theta = \frac{2}{3}$, then the value of $1 - 2\sin^2 \theta$ is

(A) $\frac{2}{3}$ (B) $\frac{3}{2}$

(C) 1 (D) 0

138. The value of $\dfrac{\cot 30° - \cot 75°}{\tan 15° - \tan 60°}$ is equal to

(A) − 1 (B) 0

(C) 1 (D) 2

139. If $\sin \theta + \cos \theta = p$ and $\sec \theta + \csc \theta = q$, then the value of $q\,(p^2 - 1)$ is
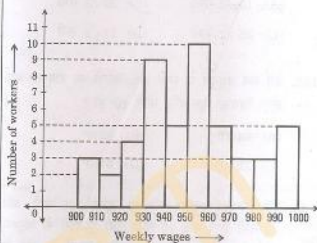
(A) 1 (B) p

(C) 2p (D) 2

140. If $\sin (3\alpha - \beta) = 1$ and $\cos (2\alpha + \beta) = \frac{1}{2}$, then the value of $\tan \alpha$ is

(A) 0 (B) $\frac{1}{\sqrt{3}}$

(C) 1 (D) $\sqrt{3}$

141. The angle of elevation of the top of a tower of height $100\sqrt{3}$ m from a point at a distance of 100 m from the foot of the tower on a horizontal plane is

(A) 45° (B) 60°

(C) 30° (D) $22\frac{1}{2}$°

Directions : Study the histogram of wage distribution of different number of workers and answer questions no. 142 to 146.

142. Number of workers who earn more than ₹ 950 is

(A) 40 (B) 31

(C) 26 (D) 16

143. Number of workers who earn less than ₹ 950 is

(A) 23 (B) 26

(C) 16 (D) 31

144. Total number of workers surveyed is

(A) 44 (B) 40

(C) 49 (D) 39

145. The number of workers earning more than ₹ 940 but less than ₹ 960 is

(A) 15 (B) 16

(C) 23 (D) 26

146. The percentage of workers who earn between ₹ 950 to ₹ 960 is

(A) 25·5% (B) 20·4%

(C) 17·6% (D) 13·25%

Production of Scooters by a Company during first half of 1992

Month \ Type	Jan.	Feb.	Mar.	April	May	June
X	25	25	18	40	20	15
Y	25	27	50	45	30	20
Z	25	27	15	25	30	20
T	25	26	25	0	30	35
Total	100	105	108	110	110	90

147. In which month, was the production of all types of scooters the lowest ?
   (A) January (B) February
   (C) March (D) June

148. In which month, did the company produce equal number of all types of scooters ?
   (A) January (B) March
   (C) May (D) June

149. The total number of scooters produced by the company, during the first half of 1992 is
   (A) 90 (B) 143
   (C) 623 (D) 197

150. In which two months, was the number of scooters produced by the company the same ?
   (A) January, February
   (B) April, May
   (C) January, March
   (D) January, May

142. Which one of the following numbers is divisible by 15 ?
   (A) 53120 (B) 12345
   (C) 567890 (D) 10203

143. Which of the following ratios is the greatest ?
   3 : 5, 2 : 7, 5 : 7, 4 : 5
   (A) 2 : 7 (B) 3 : 5
   (C) 5 : 7 (D) 4 : 5

144. The simple interest on ₹ 4,000 for 8 months and 15 days at 9% per annum is
   (A) ₹ 2,550 (B) ₹ 255
   (C) ₹ 2,650 (D) ₹ 265

145. In an examination, A obtains 48% of full marks and B obtains 33%. If they together get 567 marks, then the full marks is
   (A) 810 (B) 800
   (C) 1000 (D) 700

146. If $3x - \dfrac{1}{3x} = 9$, then the value of $x^2 + \dfrac{1}{81x^2}$ is
   (A) $9\dfrac{1}{9}$ (B) $9\dfrac{2}{9}$
   (C) $9\dfrac{1}{3}$ (D) $9\dfrac{1}{2}$

147. If $\dfrac{a}{3} = \dfrac{b}{4} = \dfrac{c}{7}$, find the value of $\dfrac{a+b+c}{c}$.
   (A) 2 (B) 3
   (C) 4 (D) 2·5

148. The sides of a triangle are 4 cm, 5 cm and 7 cm. Its semiperimeter would be
   (A) 8 cm (B) 6 cm
   (C) 16 cm (D) 20 cm

149. $\dfrac{2\sin^2 61° + 2 + 2\sin^2 29°}{5\cos^2 13° - 1 - 5\cos^2 77°}$ is equal to
   (A) $\dfrac{1}{\sqrt{2}}$ (B) 2
   (C) 1 (D) 0

150. If $2\cot\theta = 5$, then the value of $\dfrac{10\sin\theta + 4\cos\theta}{2\cos\theta - \sin\theta}$ is
   (A) 4 (B) 5
   (C) 3 (D) 6

151. What is meant by 'Capital Gain' ?

    (A) Part of profits added to the capital

    (B) Appreciation in the money value of assets

    (C) Additions to the capital invested in a business

    (D) None of these

152. Which of the following listed is *not* a feature of organic farming ?

    (A) The non-use of chemical fertilizers and pesticides

    (B) Soil is nurtured for future use by maintaining micro-organisms

    (C) Use of synthetic fertilizers

    (D) Very less energy consumption

153. Which of the schemes of the Government of India makes Indian cities free from slums ?

    (A) Indira Awas Yojana

    (B) Central Rural Sanitation Programme

    (C) Rajiv Awas Yojana

    (D) Antyodaya

154. Indian economy is a

    (A) Mixed economy

    (B) Communistic economy

    (C) Capitalistic economy

    (D) Centralised economy

155. Who is called the 'Father of Economics' ?

    (A) Max Muller

    (B) Karl Marx

    (C) Adam Smith

    (D) Alfred Marshall

156. Universal adult franchise shows that India is a country which is

    (A) Secular   (B) Socialist

    (C) Democratic   (D) Sovereign

157. How many fundamental duties are there in our Indian Constitution ?

    (A) 11   (B) 9

    (C) 12   (D) 8

158. In which year was Anti-Defection Bill passed by the Indian Parliament ?

    (A) 1980   (B) 1985

    (C) 1990   (D) 1995

159. The World Trade Organisation (W.T.O.) came into effect in

    (A) 1990   (B) 1993

    (C) 1995   (D) 1997

160. Which Article of the Constitution enjoins the State to establish Village Panchayat ?

    (A) Article 32   (B) Article 40

    (C) Article 44   (D) Article 57

161. The word 'Buddha' means

    (A) A Conqueror

    (B) A Liberator

    (C) An Enlightened one

    (D) A Wanderer

162. 1917 is known for

    (A) Battle of Trafalgar

    (B) Battle of Waterloo

    (C) End of the World War I

    (D) The Russian Revolution

163. Who built the famous Vaikunta Perumal temple at Kanchipuram?

(A) Narasimha Varman II

(B) Parameshvara Varman II

(C) Nandi Varman II

(D) Aparajita Varman

164. U.N.O. was founded in the year

(A) 1945　　　　(B) 1946

(C) 1950　　　　(D) 1953

165. The first to invade India were the

(A) Aryans　　　(B) Greeks

(C) Persians　　　(D) Arabs

166. Niyamgiri hill is located in Kalahandi district of

(A) Orissa　　　(B) West Bengal

(C) Punjab　　　(D) Kerala

167. A cyclone occurs when

(A) there is low pressure all around

(B) there is a high pressure in the centre and low pressure around

(C) there is a low pressure in the centre and high pressure around

(D) the pressure in the centre is equal to the pressure around

168. The previous name of Zaire was

(A) Benin　　　(B) Liberia

(C) Congo　　　(D) Sierra Leone

169. The largest fresh water lake in India is

(A) Dal Lake

(B) Bhimtal Lake

(C) Wular Lake

(D) Nainital Lake

170. The longest river in the world is

(A) Ganga　　　(B) Nile

(C) Brahmaputra　(D) Amazon

171. The main function of palisade parenchyma in leaf is

(A) Transpiration　(B) Conduction

(C) Respiration　　(D) Photosynthesis

172. The harmful substances produced by the microbes are known as

(A) Antibiotics

(B) Pollutants

(C) Hormones

(D) Toxins

173. For immediate energy production in cells, one should take

(A) Glucose

(B) Proteins

(C) Vitamin C

(D) Sucrose

174. In human body, ligaments are made up of

(A) white fibres and some yellow elastic fibres

(B) white fibres only

(C) yellow fibres only

(D) yellow fibres and muscle fibres

175. Which one of the following types of malaria is pernicious malaria?

(A) Vivax　　　(B) Relapse

(C) Tertian　　　(D) Malignant

176. Who wrote the book 'Systema Naturae'?

(A) Lamarck　　(B) Buffon

(C) Darwin　　　(D) Linnaeus

177. A metal ball and a rubber ball, both having the same mass, strike a wall normally with the same velocity. The rubber ball rebounds and the metal ball does not rebound. It can be concluded that

(A) The rubber ball suffers greater change in momentum

(B) The metal ball suffers greater change in momentum

(C) Both suffer the same change in momentum

(D) The initial momentum of the rubber ball is greater than that of the metal ball

178. If the phase difference between two points is 120° for a wave with velocity of 360 m/s and frequency 500 Hz, then path difference between the two points is

(A) 1 cm   (B) 6 cm

(C) 12 cm   (D) 24 cm

179. If a body moves with a constant speed in a circle

(A) no work is done on it

(B) no force acts on it

(C) no acceleration is produced in it

(D) its velocity remains constant

180. The waves used in sonography are

(A) Micro waves

(B) Infra-red waves

(C) Sound waves

(D) Ultrasonic waves

181. Fifth Generation Computers are

(A) Data Processors

(B) Knowledge Processors

(C) Data Interpreters

(D) Data Controllers

182. The Indian Supercomputer built by CRL, Pune which ranked fourth fastest in the world and most powerful in Asia is called

(A) Virgo   (B) Param

(C) EKA   (D) SAGA

183. A solution is

(A) a homogenous mixture of two or more substances

(B) a solid dissolved in a liquid

(C) a solid dissolved in water

(D) a mixture of two liquids

184. The first organic compound synthesised in the laboratory was

(A) Urea

(B) Uric acid

(C) Lactic acid

(D) Glucose

185. The buffer action of blood is due to the presence of

(A) HCl and NaCl

(B) Cl^- and CO_3^{2-}

(C) Cl^- and HCO_3^-

(D) HCO_3^- and H_2CO_3

186. Which one of the following contains maximum percentage of carbon ?

(A) Cast iron

(B) Stainless steel

(C) Wrought iron

(D) High speed steel

187. Which of the following appeared to be with a significant potential for accumulation through food chains ?

(A) DDT   (B) Parathion

(C) Lindane   (D) Carbaryl

188. An earthquake is also known as
- (A) Teacher
- (B) Tremor
- (C) Temper
- (D) None of these

189. Our atmosphere is divided into _____ layers.
- (A) Two
- (B) Three
- (C) Four
- (D) Five

190. Lungs of a plant are
- (A) Leaves
- (B) Stems
- (C) Flowers
- (D) Roots

191. Who has authored the book titled 'Narendra Modi : A Political Biography' ?
- (A) Andy Marino
- (B) David Irving
- (C) Jeffrey Dell
- (D) Kingsley Amis

192. Who invented the electric bulb ?
- (A) Thomas More
- (B) Thomas Alva Edison
- (C) James Watt
- (D) None of these

193. Who invented aeroplane ?
- (A) Edison
- (B) Stevenson
- (C) Hoffman
- (D) Wright Brothers

194. Who is called Rawalpindi Express ?
- (A) Sachin Tendulkar
- (B) Shoaib Akhtar
- (C) Rahul Dravid
- (D) Imran Khan

195. Name the oldest Indian civilization.
- (A) Indus Valley civilization
- (B) Mesopotamian civilization
- (C) Egyptian civilization
- (D) None of these

196. Who is the author of 'A Suitable Boy' ?
- (A) Vikram Seth
- (B) Arundhati Roy
- (C) Khushwant Singh
- (D) None of these

197. Who was awarded the first Rajiv Gandhi National Sadbhavana Award ?
- (A) J.R.D. Tata
- (B) Mother Teresa
- (C) Morarji Desai
- (D) None of these

198. International Literacy Day is observed on which one of the following days every year ?
- (A) 8th September
- (B) 18th March
- (C) 28th March
- (D) 18th September

199. Who among the following Mughal rulers has been called the 'Prince of Builders' ?
- (A) Akbar
- (B) Jahangir
- (C) Shah Jahan
- (D) Babur

200. Name the American film cartoonist who created Mickey Mouse and Donald Duck.
- (A) Warner Brothers
- (B) Walt Disney
- (C) Steven Spielberg
- (D) Hanna Barbera