Part – a

GENERAL INTELLIGENCE

Directions : In Question Nos. **1** to **7,** select the related word/letters/number from the given alternatives.

1. Brain : Nerves : : Computer : ?
(A) Calculator (B) Keyboard
(C) Mouse (D) CPU

2. a : One : : f : ?
(A) Quality (B) Fail
(C) E (D) Six

3. DARE : ADER : : REEK : ?
(A) EEKR (B) EKER
(C) ERKE (D) EERK

4. Paint : Brush : : ? : Nail
(A) Saw (B) Hammer
(C) Screw Driver (D) Plier

5. Silkworm : Silk Saree : : Cobra : ?
(A) Antidote (B) Poison
(C) Death (D) Fear

6. Hindu : Temple : : Jews : ?
(A) Church
(B) Gurudwara
(C) Mosque
(D) Synagogue

7. L × M : 12 × 13 as U × W : ?
(A) 21 × 31 (B) 21 × 22
(C) 21 × 23 (D) 21 × 25

Directions : In Question Nos. **8** to **14,** find the odd number/letters/word/number pair from the given alternatives.

8. (A) 135, 123 (B) 123, 111
(C) 111, 100 (D) 100, 88

9. (A) Cover (B) Enclose
(C) Bag (D) Annex

10. (A) Black Board (B) Duster
(C) Pen (D) Chalk

11. (A) Illusion (B) Delusion
(C) Identification (D) Hallucination

12. (A) Mercury (B) Moon
(C) Jupiter (D) Saturn

13. (A) 95 – 82 (B) 69 – 56
(C) 55 – 42 (D) 48 – 34

14. (A) $\frac{18}{72}$ (B) $\frac{21}{28}$
(C) $\frac{27}{36}$ (D) $\frac{60}{80}$

15. Find the 4th word after arranging the following words in the order in which they appear in the dictionary :
1. Postage
2. Post
3. Poster
4. Posterity
5. Posterior
(A) 2 (B) 3 (C) 4 (D) 5

16. Arrange the following in chronological order :
1. Lal Bahadur Shastri
2. Indira Gandhi
3. Jawaharlal Nehru
4. P.V. Narasimha Rao
5. V.P. Singh
(A) 1, 3, 4, 2, 5 (B) 3, 1, 2, 5, 4
(C) 3, 1, 2, 4, 5 (D) 3, 2, 1, 4, 5

17. Arrange the following words according to dictionary :
1. Inadequate
2. Institution
3. Inhospitable
4. Improvement
5. Incompetent
(A) 4, 2, 3, 5, 1 (B) 4, 1, 3, 5, 2
(C) 4, 1, 5, 3, 2 (D) 4, 1, 5, 2, 3

18. Identify the correct answer containing letters which will most appropriately fill in the blanks.
aba _ ab _ b _ ba _
(A) a, a, a, b (B) b, a, b, a
(C) b, a, a, b (D) a, b, b, b

19. What is the perimeter of a square whose area is 16 square metres ?
(A) 16 sq. metre (B) 16 metre
(C) 64 metre (D) 4 sq. metre

Directions : In Question Nos. **20** to **26,** select the missing letter/number from the given responses.

20. MN, KP, IR, ?
(A) JK (B) OX (C) GT (D) AI

21. ?, 187, 2057, 22627
(A) 25 (B) 27 (C) 15 (D) 17

22. C, F, I, L : ?, R, U, X
(A) A (B) Z (C) M (D) O

23. KLXWMNVUOPTSQ ?
(A) I (B) R (C) T (D) H

24. 16, 28, 52, ?, 196
(A) 101 (B) 102 (C) 100 (D) 104

25. 9, 16, 25, 36, ?, 64
(A) 43 (B) 47 (C) 49 (D) 53

26.

2	5	?
5	4	7
1	3	1
6	6	6

(A) 5 (B) 0 (C) 2 (D) 3

27. Which term of the following series is 320 ?
5, 8, 11, 14, ...
(A) 104^{th} (B) 105^{th} (C) 106^{th} (D) 64^{th}

28. Nikhil was facing East. He walked 6 km forward and then after turning to his right walked 2 km. Again he turned to his right and walked 6 km. After this, he turned back. Which direction he was facing at that time ?
(A) East
(B) West
(C) North
(D) North-South

29. Six boys are standing in such a manner that they form a circle facing the centre. Anand is to the left of Ravi. Shankar is in between Ajay and Vivek. Iswar is between Anand and Ajay. Who is to the left of Vivek ?
(A) Ravi (B) Iswar
(C) Ajay (D) Shankar

30. From the given alternatives, select the word which cannot be formed using the letters of the given word.
CONSIDERATION
(A) CONSIDER (B) CONCERN
(C) NATION (D) RATION

31. In the following series, how many R are preceded by P and followed by D ?
MPDRNOPRDUXRDPRDMNDRD
(A) 4 (B) 3 (C) 2 (D) 1

32. If EARN is written as GCTP, how NEAR can be written in that code ?
(A) CTGP (B) GPTC
(C) PGCT (D) PCGT

33. If $5 \times 4 = 15$, $7 \times 8 = 49$ and $6 \times 5 = 24$, what will 8×4 be ?
(A) 64 (B) 36 (C) 28 (D) 24

34. The given three equations follow some common property. Select the right option.
$98 - 64 = 14$, $86 - 23 = 27$, $40 - 11 = ?$
(A) 6 (B) 7 (C) 8 (D) 9

35. If AMPLIFY is written as YFILPMA in a certain code, how would NATIONAL be written in that code ?
(A) LANONATI (B) LANOITAN
(C) LANTANIO (D) LANTION

36. The population of a developing country is increasing year by year. Find out the current year population from the following information :

Year	2004	2005	2006	2007	2008	2009
Pop. in lacs	30	60	120	210	330	?

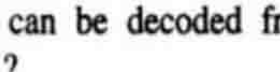
(A) 390 (B) 450 (C) 480 (D) 510

37. Gokul travelled 16 kms west ward, then he turned left and travelled 10 kms. Then he turned left and travelled 16 kms. How far was Gokul from the starting point ?
(A) 16 kms (B) 26 kms
(C) 10 kms (D) 6 kms

38. In a code language, the following code is used for the alphabets in a particular way

A B C D E H I J O P R S T

Which word can be decoded from



?

(A) LATCH (B) PATIO
(C) PATCH (D) LATER

39. Refer to the information provided below.
'M + N' means 'M' is father of 'N'
'M – N' means 'M' is daughter of 'N'
'M × N' means 'M' is son of N'
'M + N' means 'M' is wife of 'N'
How is D related to G in the expression D – F + G ?
(A) Wife (B) Son
(C) Sister (D) Daughter

40. A nuclear fuel disintegrates as shown with time
9.05 am – 32 g
9.35 am – 16 g
10.00 am – 8 g
10.25 am – 4 g and left at 11.40 am

_____.

(A) 2 g (B) 1g
(C) 500 mg (D) .5 mg

41. If '+' is written as '–', '–' is written as '+', '+' is written as '×', '×' is written as '+', then find the value of $100 + 60 - 6 + 2 \times 8$.
(A) 20 (B) 632 (C) 140 (D) 88

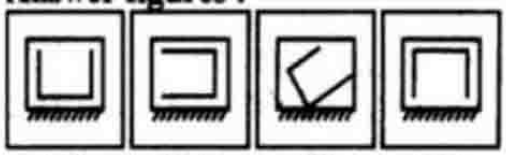
42. Find out the mirror image of the given figure.
Question figure :

Answer figures :

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

43. Which of the answer figures is the mirror image of the given figure if the mirror is held at AB ?
Question figure :

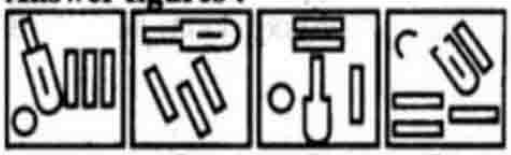
Answer figures :



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

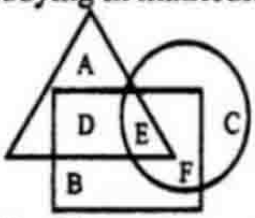
44. In which figure all the specified components of the key figure are found ?
Question figure :

Answer figures :



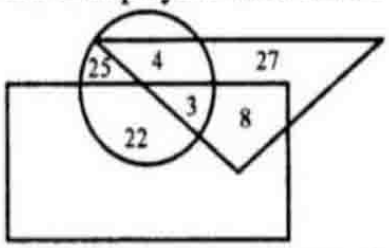
(A) (B) (C) (D)

45. In the given figure, the triangle represents girls studying in a girls school, square represents boys studying in boys school and circle represents students studying in matriculation school. The portion which represent girls and boys studying in matriculation school is



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

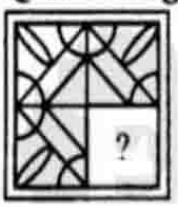
46. The triangle represents doctors. The circle represents players and rectangle represents artists. How many doctors are both players and artists ?



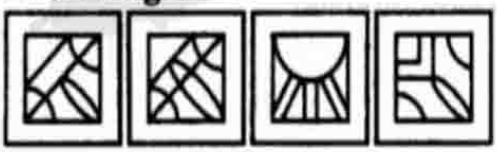
(A) 4 (B) 8
(C) 3 (D) 11

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

Question figure :



Answer figures :

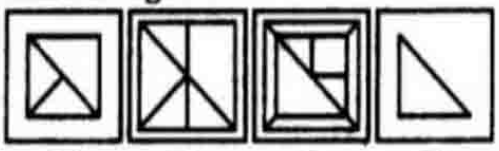


(A) (B) (C) (D)

48. Which of the answer figures is embedded in the question figure ?

Question figure :

Answer figures :

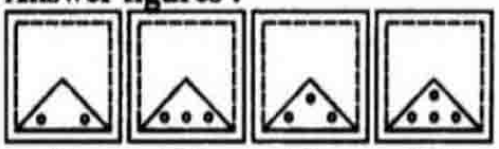


(A) (B) (C) (D)

49. A sheet of paper is folded in a particular manner, punched once and then unfolded. Punched, unfolded paper appears as in the given figure. Find out the manner in which the paper was folded and punched by choosing the correct answer 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 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., 'F' can be represented by 01, 13, etc., and 'P' can be represented by 66, 78, etc. Similarly, you have to identify the set for the word 'MEN'.

Matrix I

	0	1	2	3	4
0	E	F	G	H	I
1	H	I	E	F	G
2	F	G	H	I	E
3	I	E	F	G	H
4	G	H	I	E	F

Matrix II

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

(A) 56, 30, 69 (B) 55, 31, 95
(C) 75, 00, 95 (D) 76, 00, 88

FOR VISUALLY HANDICAPPED CANDIDATES ONLY

42. If D becomes A and P becomes M, what will K become in the English alphabet ?

(A) O (B) H

(C) L (D) J

43. If a female mosquito lays 200 eggs at a time of which 80% develops into larva. 60% of larva do not survive to adulthood. How many reproductive cycles produce 1000 adult mosquitos ?

(A) 5 (B) 11

(C) 16 (D) 13

44. Find the missing term.

D G K _ V C

(A) L (B) N

(C) S (D) P

Directions : In Question Nos. **45** and **46,** find the odd number/word from the given alternatives.

45. (A) 3 – 975 (B) 4 – 960

(C) 5 – 990 (D) 6 – 986

46. (A) Gold

(B) Silver

(C) Diamond

(D) Platinum

47. If M A N E I K S T P R is written a
0 1 2 3 4 5 6 7 8 9, how wi
INTEREST be written ?

(A) 42739367

(B) 42379376

(C) 42377936

(D) 42377639

48. If "Dentist" is related to "teeth", the
"Dermatologist" is related to _____

(A) Eyes

(B) Ears

(C) Skin

(D) Lungs

49. A man is facing North West. H
turns 90° in the clockwise directio
then 180° in the anticlockwis
direction and then another 90° in th
same direction. Which direction is h
facing now ?

(A) West

(B) South

(C) South West

(D) South East

50. Give the next term of the series :

2, 11, 27, 52, 88, _____

(A) 104

(B) 99

(C) 137

(D) 169

Part – b

GENERAL AWARENESS

51. New Economic Policy was introduced in India in
(A) 1971 (B) 1981
(C) 1991 (D) 2001

52. Which of the following is NOT an instrument of credit control used by the Central Bank ?
(A) Bank rate
(B) Open market operations
(C) Selective credit controls
(D) Foreign exchange controls

53. In which type of economy National Income and Domestic Income is equal ?
(A) Closed Economy
(B) Open Economy
(C) Developed Economy
(D) Developing Economy

54. The term Capital Consumption Allowance (CCA) means
(A) A part of income used for consumption.
(B) Increase in the value of capital-assets.
(C) Depreciation value of capital goods.
(D) A fund used to purchase machinery for the production of consumption goods.

55. In the following, who is a self employed person ?
(A) Teacher teaching in a school
(B) Doctor appointed in hospital
(C) Railway employee
(D) Businessman

56. Who rules the State in the event of declaration of emergency under Article 356 ?
(A) Prime Minister
(B) Chief Minister
(C) Governor
(D) Chief Justice of the High Court

57. National Commission for Backward Classes was set up in
(A) 1991 (B) 1992
(C) 1993 (D) 1994

58. Official language of the Indian Union is
(A) Hindi in Devanagari script
(B) Hindi and English
(C) English
(D) Hindi, English and Urdu

59. Panchayatraj form of rural government was first adopted by
(A) Rajasthan & Madhya Pradesh
(B) Rajasthan & West Bengal
(C) Rajasthan & Andhra Pradesh
(D) Rajasthan & Uttar Pradesh

60. The Constitution of India provides for citizenship by
(A) Birth
(B) Residence
(C) Naturalization
(D) All of the above

61. Who assumed the title Muhammad-bin-Tuglak and became the ruler of Delhi in 1325 A.D ?
(A) Juna Khan
(B) Nasiruddin Shah
(C) Chengiz Khan
(D) Iltutmish

62. The Sikh Guru put to death by Aurangzeb was
(A) Arjun Singh
(B) Har Gobind
(C) Tegh Bahadur
(D) Har Kishan

63. The Home Rule Movement in India was started by
(A) S.N. Banerjee and W.C. Banerjee
(B) Annie Besant and Tilak
(C) Mahatma Gandhi and Motilal Nehru
(D) Annie Besant and Gokhale

64. Who among the following was responsible for the revival of Hinduism in 19th Century ?
(A) Swami Dayanand
(B) Swami Vivekanand
(C) Guru Shankaracharya
(D) Raja Ram Mohan Rai

65. "Give me blood, I will give you freedom." These words are attributed to
(A) Khudiram Bose
(B) Bhagat Singh
(C) Subhash Chandra Bose
(D) Veer Savarkar

66. India's northern most latitude is
(A) 36°6′N (B) 37°8′S
(C) 37°6′N (D) 8°4′N

67. The Bhabar plains have been developed by
(A) glacial deposit
(B) wind deposit
(C) river deposit
(D) deposition in the lakes

68. Subsistence type of farming is practised in
(A) Delta (B) Plateau
(C) Hill (D) Coast

69. Africa is separated from Europe by_____.
(A) Red Sea
(B) Mediterranean Sea
(C) Atlantic Ocean
(D) Persian Gulf

70. Which one of the following rivers is recharged by subsoil water ?
(A) Godavari (B) Damodar
(C) Narmada (D) Krishna

71. The dolphin is
(A) Fish (B) Reptile
(C) Mammal (D) Turtle

72. Animals which have a well marked digestive cavity are put under
(A) Metazoa (B) Bryozoa
(C) Parazoa (D) Enterozoa

73. Mushrooms are
(A) Fungi (B) Viruses
(C) Bacteria (D) Protozoans

74. Which one of the following is an endocrine as well as an exocrine gland ?
(A) Pituitary (B) Thyroid
(C) Pancreas (D) Parathyroid

75. Which one of the following is associated with kidney disorder ?
(A) Ventilator (B) Dialysis
(C) Pacemaker (D) Baropacing

76. Most important function of the food is to
(A) get energy
(B) satisfy hunger
(C) help growth of the body
(D) relish the taste

77. A racing car is designed to have a broad base and low height such that its centre of gravity is
(A) very low
(B) in the middle
(C) raised
(D) outside the car

78. Energy transformation in a microphone is from
(A) sound to electrical
(B) electrical to sound
(C) sound to mechanical
(D) mechanical to sound

79. The time-period of a simple pendulum is independent of its
(A) length
(B) mass
(C) location on the Earth
(D) amplitude of vibration

80. What happens when some charge is placed on a soap bubble ?
(A) Its radius decreases
(B) Its radius increases
(C) The bubble collapses
(D) The bubble expands

81. The last three letters of the domain name describes the type of
(A) organization (B) connectivity
(C) server (D) protocol

82. A RAM
(A) is a random access memory.
(B) is a volatile memory.
(C) is either static or dynamic memory.
(D) has all of the above characteristics.

83. Naturally occurring heaviest element is
(A) aluminium (B) iron
(C) silicon (D) uranium

84. Which of the following has the highest density ?
(A) Charcoal (B) Coke
(C) Diamond (D) Graphite

85. When a gas expands to a region of low pressure, its temperature
(A) increases
(B) decreases
(C) remains same
(D) first increases, then decreases

86. Most of the explosions in mines occur due to the mixing of
(A) hydrogen with oxygen
(B) oxygen with acetylene
(C) methane with air
(D) carbon dioxide with ethane

87. Which of the following affects biodiversity ?
(A) Environmental pollution
(B) Ocean acidification
(C) Climate change
(D) All of the above

88. What was Montreal Protocol concerned with ?
(A) Checking global warming
(B) Checking ozone depletion
(C) Both (A) and (B)
(D) (A), (B) and protecting biodiversity

89. Formation of acid rain is due to
(A) Water pollution
(B) Noise pollution
(C) Land pollution
(D) Air pollution

90. Enormous population expansion has led to the problem of
(A) Rising levels of atmospheric CO_2
(B) Global warming
(C) Increase in pollution level
(D) All the above

91. Which of the following festivals is celebrated on Prophet Mohammed's birthday ?
(A) Id-ul-Zuha (B) Id-e-Milad
(C) Id-ul-Fitr (D) Muharram

92. The Nobel Peace Prize is awarded in which city ?
(A) Brussels (B) Geneva
(C) Oslo (D) Stockholm

93. Which one of the following pairs of cities have two Headquarters each of Indian Railway Zones ?
(A) Kolkata and Chennai
(B) Kolkata and Mumbai
(C) Mumbai and Secunderabad
(D) Mumbai and Chennai

94. Which one of the following has recently conferred the Honorary Degree of Doctor of Letters (D.Lit.) on U.N. Secretary General, Ban-Ki-Moon ?
(A) Jamia Millia Islamia University
(B) Lal Bahadur Shastri Sanskrit University
(C) G.G.S. Indraprastha University
(D) I.I.T., Delhi

95. Who amongst the following directed the award winning film "Tare Zamin Par" ?
(A) Madhur Bhandarkar
(B) Salman Khan
(C) Aamir Khan
(D) Sanjay Leela Bhansali

96. The hill famous for treating mentally depressed persons in Tamil Nadu is
(A) Nilgiri (B) Kutralam
(C) Javadi (D) Anaimalai

97. Who among the following was the first Indian to receive the Nobel Prize ?
(A) Dr. C.V. Raman
(B) V.S. Naipal
(C) Mother Teresa
(D) Rabindranath Tagore

98. Which of the following Twin city is correct ?
(A) Cochin - Ernakulam
(B) Bangalore - Mysore
(C) Mumbai - Pune
(D) Chennai - Chingleput

99. Who said, "Inflation is unjust but deflation is inexpedient. Of the two, deflation is worse" ?
(A) J.M. Keynes
(B) Amartya Sen
(C) J.G. Gurlay
(D) J.N. Bhagwati

100. The civilian award bestowed by the President of India to persons for rendering exceptional and distinguished service in any field is
(A) Bharat Ratna
(B) Padma Shri
(C) Padma Vibhushan
(D) Padma Bhushan

Part – c

QUANTITATIVE APTITUDE

101. $\left(\frac{1}{10}\right)^{th}$ of $\left(\frac{2}{4}\right)^{th}$ of a number is 240. What is the number ?

(A) 12 (B) 1200
(C) 4800 (D) 48

102. If $\sqrt{15 - x\sqrt{14}} = \sqrt{8} - \sqrt{7}$, then the value of x is

(A) 2 (B) $\sqrt{2}$
(C) 4 (D) 7

103. The next term of the series 325, 259, 204, 160, 127, 105,..... is

(A) 95 (B) 94
(C) 102 (D) 101

104. The simplified form of $\frac{17 + 12\sqrt{2}}{3 + 2\sqrt{2}}$ is

(A) $11\frac{2}{3}$ (B) 19
(C) $3 + 2\sqrt{2}$ (D) $3 - 2\sqrt{2}$

105. The least number which must be subtracted from 2361 to make it a perfect square is

(A) 77 (B) 67
(C) 57 (D) 47

106. A and B can together do a piece of work in 6 days. If B can do the work by himself in 8 days, how many days will A take to do the work independently ?

(A) 24 days (B) 14 days
(C) 2 days (D) 22 days

107. A does half as much work as B, and C does half as much work as A and B together. If C alone can finish the work in 40 days, then all together will finish the work in

(A) $13\frac{1}{3}$ days (B) 15 days
(C) 20 days (D) 30 days

108. A dealer buys a table listed at ₹ 1,500 and gets successive discounts of 20% and 10%. He spends ₹ 20 on transportation and sells it at a profit of 20%. The selling price of the table is

(A) ₹ 1,320 (B) ₹ 1,350
(C) ₹ 1,360 (D) ₹ 1,380

109. A pair of articles was bought for ₹ 37.40 at a discount of 15%. What must be the marked price of each of the articles ?

(A) ₹ 11 (B) ₹ 44
(C) ₹ 33 (D) ₹ 22

110. In a relief camp of 550 men, the food was enough for 28 days. If 150 more people joined in the camp, the same amount of food will be enough for

(A) 22 days (B) 35 days
(C) 25 days (D) 10 days

111. A bag contains ₹ 121 in the form of 1 rupee, 50 paise and 25 paise coins in the ratio 1 : 2 : 3. Find the number of each type of coins (1Re, 50P, 25P respectively).

(A) 40, 92, 140 (B) 42, 92, 132
(C) 45, 90, 132 (D) 44, 88, 132

112. There were 984 mangoes on 12 trees of a mango-garden. What will be the average number of mangoes per tree after taking down 26 mangoes in average from 5 trees and 38 mangoes in average from 7 trees ?

(A) 53 (B) 49 (C) 45 (D) 39

113. The average age of a class is 15.8 years. The average age of the boys in the class is 16.4 years, while that of the girls is 15.4 years. What is the ratio of boys to girls in the class ?
(A) 1 : 2 (B) 3 : 4
(C) 3 : 5 (D) None of these

114. A man sells an article at a profit of 25%. If he had bought it at 20% less and sold it for ₹ 10.50 less, he would have gained 30%. Find the cost price (in rupees) of the article.
(A) 50 (B) 20 (C) 25 (D) 35

115. Rahul had 200 mangoes. He sold 30 mangoes at 25% gain, 40 mangoes at 20% gain, 60 mangoes at 10% gain and 70 mangoes at 10% loss. His net gain/loss percentage is
(A) 7% gain (B) 7% loss
(C) $7\frac{1}{4}$% gain (D) $7\frac{1}{4}$% loss

116. 13% of a number exceeds 5% of the same by 16. The number is
(A) 500 (B) 450 (C) 300 (D) 200

117. If A's salary is $33\frac{1}{3}$% less than B's salary, by how much percentage is B's salary more than A's ?
(A) 20 (B) 25 (C) 50 (D) $16\frac{2}{3}$

118. An aeroplane covers a certain distance at a speed of 240 km/hr in 5 hours. To cover the same distance in $1\frac{2}{3}$ hours, it must travel at a speed (in km/hr) of
(A) 300 (B) 360 (C) 600 (D) 720

119. ₹ 25,000 is borrowed at compound interest at the rate of 3% for the first year, 4% for the second year and 5% for the third year. The amount to be paid after 3 years is
(A) ₹ 28,119 (B) ₹ 29,118
(C) ₹ 28,129 (D) ₹ 28,117

120. If the diameter of a circle is increased by 100%, its area is increased by
(A) 300% (B) 400%
(C) 100% (D) 200%

121. The perimeter of an isosceles triangle is 18 cm. Its lateral side and the base are in the ratio 7 : 4. The area of the triangle is
(A) $8\sqrt{5}$ cm^2 (B) $6\sqrt{5}$ cm^2
(C) $4\sqrt{5}$ cm^2 (D) $10\sqrt{5}$ cm^2

122. Areas of three adjacent faces of a rectangular parallelepiped are 12 sq.m., 15 sq.m. and 20 sq.m. The volume (in cu.m.) of the parallelepiped is
(A) 80 (B) 30 (C) 40 (D) 60

123. If the volumes of two cones are in the ratio 1 : 4 and the diameters of their bases are in the ratio 4 : 5, then the ratio of their heights is
(A) 1 : 25 (B) 25 : 16
(C) 16 : 125 (D) 25 : 64

24. The length of a hollow thick cylindrical metallic pipe is 6 cm and its total surface area including the surface at the ends is 98 π sq. cm. If the outer diameter is 8 cm, then the inner diameter in cm is
(A) 6.5 (B) 7 (C) 5 (D) 6

125. An open box is made of wood 3 cm thick. Its external dimensions are 1.36 m, 1.06 m and 8.3 dm. The cost of painting the inner surface of the box at 50 paise per 100 sq. cm (in ₹) is
(A) 232 (B) 246 (C) 249 (D) 256

126. A spherical ball of lead 3 cm in diameter is melted and recast into three spherical balls. The diameter of two of these are 1.5 cm and 2 cm respectively. The diameter of the third ball is
(A) 1.4 cm (B) 1.8 cm
(C) 2.1 cm (D) 2.5 cm

127. If $x = 2 + \sqrt{3}$, then the value of $x^2 - 4x + 2$ is

(A) 1 (B) 2 (C) 3 (D) 4

128. The circumradius of the triangle formed by the straight line $3x + 4y = 12$ and the coordinate axes is

(A) 5/2 (B) 3/2 (C) 2 (D) 6

129. If $x\left(3 - \frac{2}{x}\right) = \frac{3}{x}$, then value of $x^2 + \frac{1}{x^2}$ is

(A) $1\frac{1}{9}$ (B) $2\frac{4}{9}$ (C) $3\frac{5}{9}$ (D) $4\frac{7}{9}$

130. If $a^2 + b^2 - c^2 = 0$, then the value of $\frac{a^6 + b^6 - c^6}{a^2b^2c^2}$ is

(A) 0 (B) 3 (C) –3 (D) 1

131. If a, b, c, d are four non-negative real numbers and $a + b + c + d = 1$, then the maximum value of $ab + bc + cd$ is

(A) 3 (B) 1 (C) $\frac{1}{2}$ (D) $\frac{1}{4}$

132. If P and Q are the middle points of the sides AB and AC respectively of a triangle ABC, X is any point on BC and AX meets PQ at O, then the length AO is equal to

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

(C) PQ (D) AP

133. ABCD is a parallelogram with AB = 10 cm, AD = 6 cm. The bisector of $\angle A$ meets DC in E, and is extended to meet BC produced at F. CF is

(A) 4 cm (B) 2 cm
(C) 6 cm (D) 8 cm

134. The radius of a circle is 13 cm and AB is a chord which is at a distance of 12 cm from the centre. Then the length of the chord is

(A) 16 cm (B) 10 cm
(C) 8 cm (D) 15 cm

135. Radius of the incircle of an equilateral ΔABC of sides $\sqrt{3}$ units is

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

(C) $\frac{3}{4}$ units (D) $\frac{1}{4}$ units

136. Radii of two circles are 7 cm and 3 cm. If one of these lies wholly inside the other, then the distance between their centres is

(A) 4 cm (B) more than 5 cm
(C) less than 4 cm (D) none of these

137. The sum of two angles is 135° and their difference is $\frac{\pi}{2}$. The value of the greater angle in radian is

(A) $5\frac{\pi}{8}$ (B) $\frac{\pi}{2}$ (C) $3\frac{\pi}{8}$ (D) $\frac{\pi}{8}$

138. A guard observes an enemy boat, from an observation tower at a height of 180 metre above sea level, to be at an angle of depression of 60°. The distance of the boat from the foot of the observation tower is

(A) 180 metre (B) $180\sqrt{3}$ metre
(C) $60\sqrt{3}$ metre (D) 60 metre

139. If $\tan 22\frac{1}{2}^\circ = x$, then the value of $\cos 67\frac{1}{2}^\circ$ is

(A) $\frac{x}{\sqrt{x^2+1}}$ (B) $\frac{1}{\sqrt{x^2+1}}$

(C) $\frac{x}{\sqrt{x^2-1}}$ (D) $\frac{1}{\sqrt{x^2-1}}$

140. If $\cos x = \sin y$ and $\cot(x - 40°) = \tan(50° - y)$, then the values of x and y are

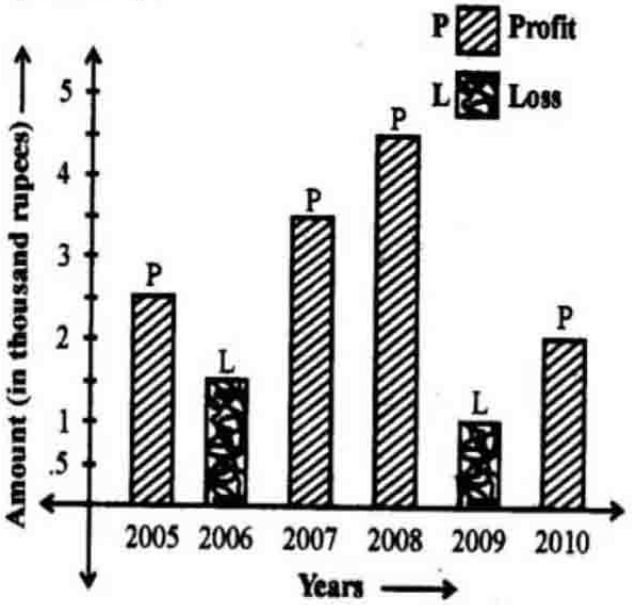
(A) 70°, 20° (B) 85°, 5°
(C) 80°, 10° (D) 60°, 30°

141. If $f(x) = \cos^2 x + \sec^2 x$, then the minimum value of $f(x)$ is

(A) 1 (B) –1 (C) –2 (D) 2

The following graph shows the Profits and Losses, (in thousand rupees) in a business for the years 2005-2010.

Study the graph and answer questions (**142-145**) :



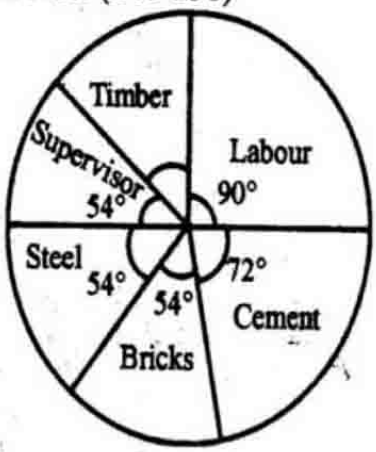
142. The amount of maximum profit as seen from the diagram is
(A) 2 thousand rupees
(B) 1.5 thousand rupees
(C) 1 thousand rupees
(D) 4.5 thousand rupees

143. The amount of total loss incurred during 2005-2010 is
(A) 3 thousand rupees
(B) 2.5 thousand rupees
(C) 1.5 thousand rupees
(D) 2 thousand rupees

144. The ratio of the maximum profit earned to the minimum loss suffered is
(A) 4 : 3 (B) 3 : 4
(C) 9 : 2 (D) 2 : 9

145. If the loss is x % of the profit for the years under study, then x is
(A) 15 (B) 25
(C) 20 (D) 19

The pie-graph given below shows the break-up of the cost of construction of a house. Assuming that the total cost of construction is ₹ 6,00,000, answer the Question Nos. (**146-150**)



146. The amount spent on cement is
(A) ₹ 2,00,000 (B) ₹ 1,60,000
(C) ₹ 1,20,000 (D) ₹ 1,00,000

147. The amount spent on labour exceeds the amount spent on steel by
(A) 5% of the total cost
(B) 10% of the total cost
(C) 12% of the total cost
(D) 15% of the total cost

148. The amount spent on cement, steel and supervision is what percent of the total cost of construction ?
(A) 40% (B) 45%
(C) 50% (D) 55%

149. The amount spent on labour exceeds the amount spent on supervision by
(A) ₹ 2,00,000 (B) ₹ 16,000
(C) ₹ 1,20,000 (D) ₹ 60,000

150. The amount spent on Timber is
(A) ₹ 60,000 (B) ₹ 90,000
(C) ₹ 1,20,000 (D) ₹ 36,000

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142. A, B and C started a business with ₹ 3 lacs, ₹ 5 lacs and ₹ 6 lacs respectively. A remained in the business throughout the year. After 6 months, B invested ₹ 4 lacs more and C left the business 2 months before the end of the year. If the total profit was ₹ 3 lacs, then how much more profit did B get than C ? (in ₹)

(A) ₹ 40,000 (B) ₹ 80,000
(C) ₹ 20,000 (D) ₹ 1,60,000

143. 22 big lemons bought at the rate of ₹ 10 for 11 and 33 small lemons bought at the rate of ₹ 5 for 11 are mixed and sold at ₹ 12 for 10. The total loss or gain in this transaction is

(A) Profit of ₹ 31 (B) Loss of ₹ 11
(C) Profit of ₹ 21 (D) Loss of ₹ 21

144. In an examination, 72% of the students passed in Mathematics and 78% passed in Bengali. If none failed in both the subjects, then what percent of the students passed in both the subjects ?

(A) 55% (B) 60%
(C) 45% (D) 50%

145. A and B can do a piece of work in 18 days; B and C in 24 days; A and C in 36 days. In what time can they do it all working together ?

(A) 12 days (B) 13 days
(C) 16 days (D) 26 days

146. Find the difference between the simple and compound interest on ₹ 10,000 for 2 years at 4% per annum.

(A) ₹ 16 (B) ₹ 18
(C) ₹ 19 (D) ₹ 31

147. If $\tan\theta = \cos 30° + \sin 60°$, then the value of θ is

(A) 45° (B) 60°
(C) 30° (D) 15°

148. Manoj covers two-third of a certain distance at 4 km/hr and the remaining at 5 km/hr. If he takes 42 minutes in all to cover the total journey, the distance in km is

(A) 4 (B) 4.6
(C) 2.5 (D) 3

149. ABCD is a cyclic trapezium and AD||BC, $\angle ABC = 80°$, the measure of $\angle BCD$ is

(A) 80° (B) 100°
(C) 60° (D) 110°

150. A shopkeeper is giving 6 kg of tomatoes at the rate of price ₹ 5 per kg. What should be the mark up on cost price if he wants to make a profit of 20% ?

(A) 25% (B) 50%
(C) 44% (D) 20%

Part – d

ENGLISH LANGUAGE

Directions : In Question Nos. **151** to **155**, some parts of the sentences have errors and some have none. 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 error, blacken the oval corresponding to (D).

151. While we love nature in its peaceful and (A) / pleasant moments / we find it hardly (B) / to love its furies and wildness. (C) / No error. (D)

152. Umbrella is (A) / of no avail (B) / against a thunderstorm. (C) / No error. (D)

153. I shall return the book (A) / when you will (B) / arrive / here. (C) / No error. (D)

154. The old man saw (A) / that the bird (B) / is circling again. (C) / No error. (D)

155. Our manager doesn't mind (A) / to pay handsome salary (B) / as long as the employees are competent enough to (C) / meet the deadlines. / No error. (D)

Directions : In Question Nos. **156** to **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 and indicate it by blackening the appropriate oval [●] in the Answer Sheet.

156. What are you going to do _____ school today ?

(A) from (B) until
(C) after (D) before

157. That small dictionary is all right, but a big one would be _____.

(A) important (B) easy
(C) expensive (D) useful

158. _____ large city Mumbai has become in last twenty years.

(A) What (B) What a
(C) How (D) How a

159. All his statements duly testify _____ his truthfulness and honesty.

(A) about (B) of
(C) to (D) in

160. The accused _____ having committed the theft.

(A) disagreed (B) declined
(C) denied (D) refused

Directions : In Question Nos. **161** to **165**, out of the four alternatives, choose the one which best expresses the meaning of the given word.

161. flimsy
(A) filmy (B) weak
(C) firm (D) fly

162. mingle
(A) blend (B) jingle
(C) join (D) diminish

163. commence
(A) commit (B) start
(C) convince (D) communicate

164. endeavours
(A) plans (B) activities
(C) efforts (D) programmes

165. motive
(A) design (B) reason
(C) impulse (D) urge

Directions : In Question Nos. **166** to **170**, choose the word opposite in meaning to the given word.

166. refinement
(A) rudeness (B) coarseness
(C) anger (D) foolishness

167. belated
(A) premature (B) outdated
(C) delayed (D) deferred

168. reverence
(A) contempt
(B) astonishment
(C) firmness
(D) displeasure

169. quieten
(A) to soothe (B) to settle
(C) to rouse (D) to lull

170. impulsive
(A) cautious (B) hasty
(C) reckless (D) spontaneous

Directions : In Question Nos. **171** to **175**, four alternatives are given for the Idiom\Phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the Idiom\Phrase.

171. I have a feeling that she is <u>taking you for a ride.</u>
(A) taking you in the car
(B) trying to push you
(C) pulling you along
(D) trying to trick you

172. It is a <u>far cry</u> from Delhi to Athens.
(A) a long way off
(B) an emotional journey
(C) a boring journey
(D) not too long a way

173. Their opinions in the meeting <u>fell flat</u>.
(A) did not inspire others
(B) did not produce the desired effect
(C) were not goal-oriented
(D) left everyone awestruck

174. At the end of the argumentation, <u>he got the better of me.</u>
(A) he thought I was good
(B) he got defeated
(C) I understood him better
(D) he overcame me

175. Please <u>look through</u> this chapter before the examinations.
(A) turn the pages of
(B) study
(C) omit
(D) get an explanation of

Directions : In Question Nos. **176** to **180**, a part of the sentence is underlined. Below are given alternatives to the underlined part at (A), (B) and (C) which may improve the sentence. Choose the correct alternative. In case no improvement is needed, your answer is (D).

176. He was rich by sheer accident of birth.
(A) chance
(B) coincidence
(C) incidence
(D) No improvement

177. John recollects me of a boy I used to know.
(A) recalls
(B) reminds
(C) remembers
(D) No improvement

178. The street is infested by rats.
(A) to
(B) from
(C) with
(D) No improvement

179. Remember that examinations never start late, they always start in time.
(A) on time
(B) by the clock
(C) in the nick of time
(D) No improvement

180. If I were you, I will buy this book.
(A) might
(B) shall
(C) would
(D) No improvement

Directions : In Question Nos. **181** to **185**, out of the four alternatives choose the one which can be substituted for the given words/sentence.

181. Enter a country as an enemy
(A) defeat (B) spy
(C) invade (D) overcome

182. Plants of a region
(A) fauna (B) flora
(C) nursery (D) forest

183. Expressions no longer in current use
(A) artistic (B) archaic
(C) ancient (D) modern

184. A talk between two persons
(A) prologue (B) monologue
(C) dialogue (D) speech

185. A person who cannot be corrected
(A) illegible (B) impossible
(C) incorrigible (D) invulnerable

Directions : In Question Nos. **186** to **190**, there are four words out of which one is correctly spelt. Find the correctly spelt word and indicate it by blackening the appropriate oval [●].

186. (A) allaince (B) alliance
(C) allianse (D) allianns

187. (A) labirinthine (B) labyrinthine
(C) labirrinthine (D) labyrynthine

188. (A) substansial (B) substancial
(C) substantial (D) substancal

189. (A) exagerate (B) exaggerate
(C) exhaggerate (D) exaggirate

190. (A) accomodate
(B) acomodate
(C) accommodate
(D) accommodete

Directions : In Question Nos. **191** to **200,** you have a passage with 10 questions following the passage. Read the passage carefully and choose the best answer to each question out of the four alternatives.

Animals do not know worry. What bird could raise a family if it worried about the problems to be overcome, the impossible number of feeding trips in a day to keep those clamouring mouths stilled with food ? That is not the way birds or animals respond to life. Nature says "Feed them !" and the mother bird goes ahead and does it. Between dawn and sunset a tiny wren must make hundreds of such round trips to feed her brood.

An animal doesn't know what brotherhood means, but when it hears the call "Help !" it answers instinctively. If a prairie dog is shot, the others in the prairie dog village come tumbling out, not worried about gunfire and pull their wounded fellow underground. Big-game hunters have seen elephants, disregarding danger, lift a wounded elephant to his feet with their tusks and by supporting him with one member of the herd on each side, help him walk to the forest depths.

191. A bird makes innumerable trips to collect food to
(A) feed its mate
(B) feed itself and its mate
(C) feed its young in the nest
(D) store food for the winter

192. The mother bird feeds the brood
(A) when it sees them hungry
(B) when her instinct tells her to do so
(C) when they cry
(D) after it feeds itself and its mate

193. When an animal hears the call for help,
(A) it doesn't bother
(B) it rushes to the spot
(C) it gets scared and runs away
(D) it responds instinctively

194. If a prairie dog is shot, the others
(A) go underground
(B) chase away their enemy
(C) pull the wounded dog to safety
(D) start barking together

195. Elephants lift a wounded fellow elephant to his feet
(A) with their tusks
(B) with their trunks
(C) with their feet
(D) by pushing on his side

196. Which of the following statement is true in the context of the passage ?
(A) Animals worry about raising a family.
(B) Animals often behave sensibly.
(C) Animals do not know what brotherhood means.
(D) Animals make several feeding trips in a day to collect food for their young ones.

197. As used in the passage, the word 'stilled' means
(A) calmed (B) supplied
(C) provided (D) filled

198. The author's tone in the passage can best be described as
(A) sentimental (B) biased
(C) critical (D) informative

199. The author is primarily concerned with
(A) expressing the beauty of birds and animals.
(B) discussing how birds and animals evolved.
(C) explaining that birds and animals are free from worry.
(D) explaining that birds and animals respond to life instinctively.

200. The expression 'tumbling out' in one of the sentences in the passage means
(A) reacting aggressively
(B) flowing out hurriedly and confusedly
(C) moving out steadily
(D) attacking the enemy collectively

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