

## GENERAL INTELLIGENCE AND REASONING

*Directions : In question no. 1 to 9, select the related letter/word/number from the given alternatives :*

1.  $8:9::56:?$   
(A) 90 (B) 73  
(C) 72 (D) 89
2. ACEG : ZXVT :: BDFH : ?  
(A) YVSP (B) IKMO  
(C) YUQM (D) YWUS
3. BCFG : HILM :: NORQ : ?  
(A) TXUW (B) TUXW  
(C) TVWX (D) TXWU
4. Affluent : Opulent :: Flourish : ?  
(A) Prosper (B) Flatter  
(C) Comprise (D) Outflow
5.  $25:37::49:?$   
(A) 56 (B) 60  
(C) 65 (D) 41
6. ABCD : ZYXW :: EFGH : ?  
(A) VUTS (B) EUTS  
(C) POTS (D) UOTS
7.  $7:32::28:?$   
(A) 128 (B) 126  
(C) 136 (D) 116
8. Gulp : Drink :: Rush : ?  
(A) Jump (B) Hop  
(C) Go (D) Run
9. Joy : Delight :: Gloomy : ?  
(A) Silent (B) Dull  
(C) Vague (D) Plain

*Directions : In question no. 10 to 18, find the odd number/letters/number pair from the given alternatives.*

10. (A) JQ (B) AT  
(C) HK (D) CF
11. (A) Mumbai (B) New Delhi  
(C) Kolkata (D) Chennai
12. (A) Tiger (B) Cheetah  
(C) Lion (D) Wolf
13. (A) OUT (B) FED  
(C) DIN (D) JOT
14. (A) 26 (B) 82  
(C) 15 (D) 65
15. (A) 27 (B) 37  
(C) 47 (D) 17
16. (A) CFI (B) DGJ  
(C) EHL (D) BEH
17. (A) 5 - 35 (B) 4 - 44  
(C) 6 - 64 (D) 3 - 30
18. (A) Disk (B) SIM  
(C) USB (D) Modem

*Directions : In questions no. 19 to 21, which of the following word will appear last in the dictionary ?*

19. (A) rhapsody (B) revolve  
(C) rheumatism (D) reward
20. (A) heart strings (B) heavy  
(C) health (D) heathen
21. (A) prize (B) prosecute  
(C) prompt (D) prostrate

**Directions :** In question no. 22 to 27, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

22. 2 6 12 20 30 ? 56  
 (A) 38 (B) 46  
 (C) 56 (D) 42

23. JkL AbC MnO DeF PqR Gh ?  
 (A) I (B) i  
 (C) S (D) s

24. 1, 4, 10, 19, 31, ?  
 (A) 43 (B) 46  
 (C) 50 (D) 55

25. RQOLH ?  
 (A) B (B) C  
 (C) D (D) A

26. YXHGWWFEUTDCSRB ?  
 (A) D (B) C  
 (C) I (D) A

27. 0, 6, 24, 60, 120, 210, .....  
 (A) 336 (B) 504  
 (C) 338 (D) 420

28. A husband and a wife had five married sons and each of them had four children. How many members are there in the family ?  
 (A) 32 (B) 36  
 (C) 30 (D) 40

29. In a certain code, if DEMOCRACY is written as YCARCOMED, how will the word PRESIDENT be coded as ?  
 (A) EIETPRSDN  
 (B) NDSRPTEIE  
 (C) TNEDISERP  
 (D) RSDNPEIET

From the given alternatives, select the word which cannot be formed using the letters of the given word.

30. 'Distribution'  
 (A) tribute (B) riot  
 (C) dust (D) disturb

31. If 'MOTHER' is coded as 'NPUIFS', select the appropriate code from the answer choices, for the word in capital letters : - ZENITH  
 (A) AFOGHJ (B) BGPKVJ  
 (C) AFOJUI (D) AFOGHI

32. If AEIOU is written as BCJMV, how XCKYB can be written in that code ?  
 (A) YALWC (B) ADNZE  
 (C) YELAC (D) YBLXC

33. Five persons (R, S, T, U and V) are in a queue facing a reservation counter. Immediately behind S is U. T is standing between R and V. In between R and U, no one is there. Then, where is S standing in the queue ?  
 (A) Last but one (B) First  
 (C) Second (D) Last

34. In the year 2003, some months have 31 days. How many months have 28 days ?  
 (A) 12 months  
 (B) Alternate months  
 (C) 6 months  
 (D) 1 month

35. In a team of five players, Vani is older than Rani. Sita is younger than Vani but older than Rani. Nita is younger than Mary and Rani. Rani is older than Mary. Whose age is middle of all the five in this team ?  
 (A) Mary (B) Vani  
 (C) Rani (D) Sita

36. In a certain code, SURFER is written as RUSREF. How is KNIGHT written in that code ?  
 (A) THGINK (B) GHTINK  
 (C) INKTHG (D) THINKG

**Directions :** In question no. 37 and 38, some equations are solved on the basis of certain system. Find out the correct answer for the unsolved equation on that basis :

37.

4	6	8
5	8	3
7	9	6
266	398	?

- (A) 544 (B) 445  
(C) 515 (D) 454

38.  $4 \times 6 \times 9 = 649$ ,  $9 \times 8 \times 4 = 894$ ,  $3 \times 7 \times 2 = ?$

- (A) 272 (B) 294  
(C) 732 (D) 813

39. Based on the given details, find out the number of postgraduates enrolled in a college for the year 1970.

1968	1969	1970	1971	1972
113	88	?	63	59

- (A) 63 (B) 79  
(C) 72 (D) 84

40. Two squads of soldiers A and B facing North and South respectively received the following commands - Right Turn, Left Turn, Left Turn, Left Turn. Which directions would the squads A and B face at the end ?

- (A) South, North (B) West, East  
(C) North, South (D) East, West

41. In a square-shaped hostel, there are 8 rooms on each side in every floor. Room No. 101 is the first room facing north in the first floor. The room numbers are continued clockwise. Which direction does Room No. 125 face ?

- (A) South (B) North  
(C) West (D) East

Select the missing number from the given responses.

42.

9	6	7
8	?	3
3	5	8
216	900	168

- (A) 30 (B) 55  
(C) 60 (D) 70

43. If  $\times$  stands for  $+$ ,  $\div$  stands for  $-$  and  $+$  stands for  $\div$ , which one of the following is correct ?

- (A)  $11 \div 6 \div 4 + 2 = 64$   
(B)  $10 \div 5 \times 6 \div 2 = 54$   
(C)  $15 + 3 \times 4 \div 3 = 12$   
(D)  $12 + 4 \div 2 - 7 = 8$

**Directions :** In questions no. 44 and 45, two statements are given, followed by two conclusions I and II. You have to consider the 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 from the given statements.

44. **Statement :** 1. All scholars are eccentric.

**Statement :** 2. No woman is eccentric.

**Conclusion :** I No woman is scholar.

**Conclusion :** II All eccentric are men.

- (A) Only conclusion II follows  
(B) Neither conclusion I nor II follows  
(C) Both conclusions I and II follows  
(D) Only conclusion I follows

45. Statements : 1. All students are girls.

2. No girl is dull.

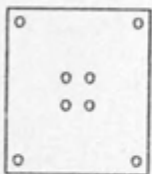
Conclusion : I. There are no boys in the class.

Conclusion : II. No student is dull.

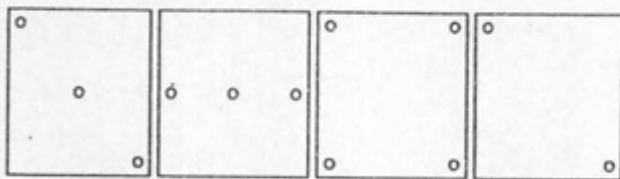
- (A) Only conclusion II follows  
 (B) Both conclusions I and II follow  
 (C) Neither conclusion I nor II follow  
 (D) Only conclusion I follows

Directions : In question no. 46, a piece of paper is folded and punched as shown below in the question figure. From the given answer figures, indicate how it will appear when opened ?

46. Question figure



Answer figures



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

Directions : (question no. 47) 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., P can be represented by 11, 23, etc., and K can be represented by 57, 65 etc. Similarly, you have to identify the set for the word MARS.

47.

Matrix I					
	0	1	2	3	4
0	P	A	I	V	R
1	I	P	R	A	V
2	A	R	V	P	I
3	V	I	P	R	A
4	R	V	A	I	P

Matrix II					
	5	6	7	8	9
5	S	L	K	M	E
6	K	M	S	E	L
7	M	E	L	K	S
8	L	K	E	S	M
9	E	S	M	L	K

MARS

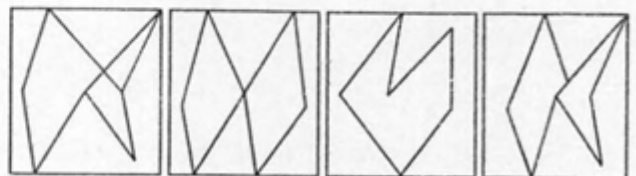
- (A) 66, 34, 21, 56 (B) 89, 20, 22, 79  
 (C) 97, 41, 33, 96 (D) 75, 13, 40, 67

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

Question figure



Answer figures



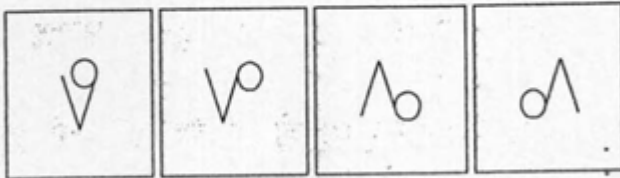
- (A) (B) (C) (D)

Directions: In question no. 49, if a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?

49. Question figure



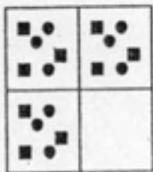
Answer figures



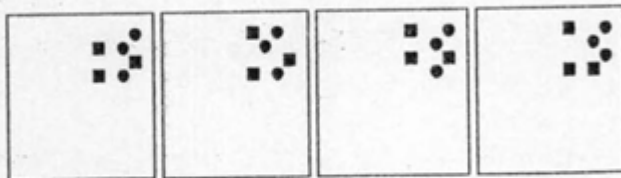
(A) (B) (C) (D)

Directions: In question no. 50, which answer figure will complete the question figure?

50. Question figure



Answer figures



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

## FOR VISUALLY HANDICAPPED CANDIDATES ONLY.

Directions: In question no. 46, from the given alternatives select the word which cannot be formed using the letters given in the word.

46. POWERHOUSE

- (A) USER (B) HORSE  
(C) PERUSE (D) SWEEPER

In question no. 47, find the odd word from the given alternatives.

47. (A) Cowdung (B) Mustard oil  
(C) Petrol (D) Coal

48. Choose the correct alternative that will continue the same pattern and fill in the blank space.

1, 6, 11, 18, 27, \_\_\_?

- (A) 38 (B) 48  
(C) 49 (D) 35

49. Sunday is to Friday as Wednesday is to

- (A) Tuesday (B) Sunday  
(C) Friday (D) Monday

50. Five boys are sitting in the first bench on the right-hand side of their classroom. Kumar has two boys on his left and two on his right. Abdul is sitting next to Kumar, but he (Abdul) is not adjacent to John or Dev. Sid is not sitting next to John. Then, who is/are sitting next to him (Sid)?

- (A) Kumar (B) Kumar and Dev  
(C) Dev (D) Abdul

SPACE FOR ROUGH WORK

## PART - B

### GENERAL AWARENESS

51. Which of the following has recently produced the first cloned camel?  
 (A) DUBAI (B) IRAN  
 (C) SYRIA (D) U. S. A.
52. If all the plants of the world dies, all the animals would also die due to shortage of  
 (A) Cold air (B) Food  
 (C) Oxygen (D) Shelter
53. Chlorination is  
 (A) adding small amounts of chloride to contaminated water  
 (B) a chemical reaction in which chlorine is formed  
 (C) the formation of a salt containing chlorine  
 (D) a process of converting chlorides into chlorine
54. Who decides the disputes regarding election of President?  
 (A) The Supreme Court  
 (B) The Election Commission  
 (C) The Parliament  
 (D) Both Supreme Court and High Courts
55. The growth of bacteria is measured by  
 (A) hemacytometer  
 (B) spectrophotometer  
 (C) calorimeter  
 (D) auxanometer
56. For which one of the following, are honey bees used?  
 (A) Apiculture (B) Horticulture  
 (C) Pisciculture (D) Sericulture
57. Which one of the following is not an internal factor for industrial sickness?  
 (A) Diversion of funds  
 (B) Technological Obsolescence  
 (C) Wrong dividend policy  
 (D) Mismanagement
58. Who is the first Law Officer of the Government of India?  
 (A) Law Secretary  
 (B) Union Law Minister  
 (C) Attorney General of India  
 (D) The Chief Justice of India
59. The substance that causes the worst air pollution is  
 (A) sulphur dioxide  
 (B) carbon dioxide  
 (C) carbon monoxide  
 (D) smoke
60. Mammals form urea in the:  
 (A) Kidney (B) Spleen  
 (C) Bladder (D) Liver
61. Main cause for agitations for separate states in India is  
 (A) growing regional imbalances  
 (B) people's political consciousness  
 (C) social inequalities  
 (D) regionalism
62. Vikramshila University was founded by  
 (A) Kanishka  
 (B) Dharampala  
 (C) Pulakesin II  
 (D) Chandra Gupta Maurya
63. A government is classified as federal or unitary on the basis of  
 (A) Relations between the centre and states  
 (B) Relations between the executive and the legislature  
 (C) Relations between three organs of government  
 (D) None of the above
64. Choose the correct one from among the following:  
 (A) nirukta - metre  
 (B) jyotisha - phonetics  
 (C) vyakarana - grammar  
 (D) Siksha - astrology
65. The Newzealander's are also known as  
 (A) Kiwis (B) Arabs  
 (C) Orientals (D) Sams
66. Near which one of the following cities, the Palitana Temples are situated?  
 (A) Mount Abu (B) Mearke  
 (C) Ujjain (D) Bhav Nagar
67. Which one of the following is an essential ingredient of parliamentary government?  
 (A) A rigid constitution  
 (B) Political parties  
 (C) An Independent judiciary  
 (D) A written constitution

68. 'El Nino effect' is closely associated with  
 (A) Humboldt current  
 (B) Equatorial counter current  
 (C) Canaries current  
 (D) Gulf current
69. 'EVM' stands  
 (A) Electric Vending Machine  
 (B) Electronic Vending Machine  
 (C) Electronic Voting Machine  
 (D) None of the above
70. JDBC stands for  
 (A) Java Developer Connectivity  
 (B) Java Database Connectivity  
 (C) Java Developing Connectivity  
 (D) Java Data Base Conductivity
71. 'Milk of magnesia' is a suspension of  
 (A) Magnesium carbonate  
 (B) Magnesium hydroxide  
 (C) Magnesium chloride  
 (D) Magnesium sulphate
72. *Pila globosa* is used as biofilter in cleaning pollution of water by :  
 (A) Mercury (B) Arsenic  
 (C) Cadmium (D) Algal blooms
73. Find the odd one out :  
 (A) IDBI - Financial assistance to large industries  
 (B) SIDBI - Financial assistance to small industries  
 (C) FCI - Financial assistance to food-grains merchants  
 (D) EXIM Bank - Financial assistance to exporters and importers
74. The word 'Secular' is a part of the Preamble of the Constitution of India :  
 (A) after the 44<sup>th</sup> amendment  
 (B) after the 73<sup>rd</sup> amendment  
 (C) from the date of implementation  
 (D) after the 42<sup>nd</sup> amendment
75. Chemical name of Plaster of Paris is  
 (A) Hydrated calcium carbonate  
 (B) Calcium hydrate  
 (C) Calcium sulphate hemihydrate  
 (D) Calcium sulphate
76. The tributary of River Indus which flows through Himachal Pradesh is  
 (A) Sutlej (B) Beas  
 (C) Ravi (D) Hunza
77. Acidity of rain is measured by  
 (A) Hygrometer (B) Ammeter  
 (C) pH-meter (D) Barometer
78. Which revenue earned by Union Government is not distributed among State Governments ?  
 (A) Excise duty (B) Income tax  
 (C) Customs duty (D) None of these
79. The world's fastest growing water plant is  
 (A) Amazon water lily  
 (B) Water hyacinth  
 (C) Utricularia  
 (D) Water Chestnut
80. The contents of memory will not be lost, when the power goes off in \_\_\_\_\_.  
 (A) ROM (B) EPROM  
 (C) EEPROM (D) All the above
81. The Programme which is being implemented in all the districts of the country is :  
 (A) Rajiv Gandhi Gramin Vidyutikaran Yojna  
 (B) Sarva Shiksha Abhiyan  
 (C) M. G. N. R. E. G. Programme  
 (D) Navoday Vidyalaya
82. Who was the first envoy of the East India Company to meet Jahangir in 1608 A.D ?  
 (A) William Edwards  
 (B) Sir Thomas Roe  
 (C) Edward Terry  
 (D) William Hawkins
83. As per 2011 census, in India the number of females per thousand males is  
 (A) 940 (B) 934  
 (C) 933 (D) 972
84. Law of 'Use and disuse' was proposed by :  
 (A) Lederberg (B) Lamarck  
 (C) Darwin (D) Hugo De Vries
85. Which one of the following Cricketers has been declared by the ICC as 'Cricketer of the Twentieth Century' ?  
 (A) Sachin Tendulkar  
 (B) Kapil Dev  
 (C) Rahul Dravid  
 (D) Anil Kumble

86. The rocket which gives us information about Mars is :  
 (A) Discovery (B) Insat 4  
 (C) Atlas 5 (D) Cassinie
87. Wanchoo Committee dealt with  
 (A) Agricultural Taxation  
 (B) Direct Taxes  
 (C) Monopolies and Trade Practices  
 (D) Agricultural Prices
88. Carbohydrates are compounds of  
 (A) Carbon, oxygen and hydrogen  
 (B) Carbon, nitrogen and hydrogen  
 (C) Carbon and nitrogen  
 (D) Carbon and hydrogen
89. If a bacterium cell divides in every 20 minutes, how many bacteria will be formed in two hours ?  
 (A) 16 (B) 8  
 (C) 64 (D) 4
90. The International agreement to reduce greenhouse gases between 2008 - 2012 is known as :  
 (A) Rule of 70 (B) Rio Protocol  
 (C) Kyoto Protocol (D) Agenda 21
91. A person opens his mouth on hearing a thunder in order to  
 (A) equalise pressure of air on both sides of the ear drum  
 (B) receive more sound  
 (C) allow air to come out of the mouth  
 (D) over come fear
92. When ice is heated from  $0^{\circ}\text{C}$  to  $10^{\circ}\text{C}$ , the volume of water  
 (A) Decreases steadily  
 (B) First increases then decreases  
 (C) First decreases then increases  
 (D) Increases steadily
93. Through which states does the river Chambal flows ?  
 (A) M.P., Gujarat, U.P.  
 (B) Rajasthan, M.P., Bihar  
 (C) Gujarat, M.P., Chhattisgarh  
 (D) U.P., M.P., Rajasthan
94. As per the 2011 population census, the most populous state in the country is  
 (A) Madhya Pradesh  
 (B) Uttar Pradesh  
 (C) West Bengal  
 (D) Rajasthan
95. The state of Jhansi was made a part of the British empire in India through the :  
 (A) Doctrine of Lapse  
 (B) Policy of Subsidiary alliance  
 (C) War against Rani Lakshmi Bai  
 (D) None of these
96. The famous book "A Better India, A better world" has been written by :  
 (A) Azim Prem Ji  
 (B) N. R. Narayana Murthy  
 (C) Praveen Mahapatra  
 (D) Rajiv Sikri
97. Simple Goitre is a disease affecting :  
 (A) Tear glands (B) Liver  
 (C) Thyroid glands (D) Gums
98. Two bodies of the same mass are thrown with equal speed from the top of a tower simultaneously. One body (x) is thrown vertically downwards. The other (y) is thrown horizontally.  
 (A) Both reaches ground with same Kinetic energy  
 (B) x reaches ground with greater Kinetic energy  
 (C) y reaches ground with greater Kinetic energy  
 (D) Both x and y reaches ground simultaneously
99. An apparatus used for locating submerged objects is known as :  
 (A) sonar (B) quasar  
 (C) pulsar (D) radar
100. Which of the following are **wrongly** matched ?  
 (i) Tropic of Cancer -  $23\frac{1}{2}^{\circ}\text{N}$  latitude  
 (ii) Tropic of Capricorn -  $66\frac{1}{2}^{\circ}\text{N}$  latitude  
 (iii) International Date line -  $0^{\circ}$  longitude  
 (iv) Antarctic Circle -  $66\frac{1}{2}^{\circ}\text{S}$  latitude  
 (A) (i)  
 (B) (ii) and (iii)  
 (C) (i), (ii) and (iv)  
 (D) None of these



## PART - C

### QUANTITATIVE APTITUDE

101. The average of  $1^2, 2^2, 3^2, 4^2, 5^2, 6^2, 7^2, 8^2, 9^2, 10^2$  is :  
 (A) 42.5 (B) 46.5  
 (C) 50.5 (D) 38.5
102. The distance between the points (0, 0) and the intersecting point of the graphs of  $x=3$  and  $y=4$  is :  
 (A) 4 unit (B) 3 unit  
 (C) 2 unit (D) 5 unit
103. A certain number when divided by 899 leaves the remainder 65. When the same number is divided by 31, the remainder is :  
 (A) 2 (B) 3  
 (C) 4 (D) 1
104. If G is the centroid and AD, BE, CF are three medians of  $\Delta ABC$  with area  $72 \text{ cm}^2$ , then the area of  $\Delta BDG$  is :  
 (A)  $12 \text{ cm}^2$  (B)  $16 \text{ cm}^2$   
 (C)  $24 \text{ cm}^2$  (D)  $8 \text{ cm}^2$
105. If  $a+b=6, a-b=2$ , then the value of  $2(a^2+b^2)$  is :  
 (A) 20 (B) 30  
 (C) 40 (D) 10
106. The odd element in the sequence 3, 7, 13, 21, 33, 43, 57, \_\_\_\_\_ is  
 (A) 21 (B) 33  
 (C) 43 (D) 7
107. The tangents drawn at the points A and B of a circle centred at O meet at P. If  $\angle AOB = 120^\circ$  then  $\angle APB : \angle APO$  is :  
 (A) 2 : 5 (B) 3 : 2  
 (C) 4 : 1 (D) 2 : 1
108. From the top of a cliff 90 m. high, the angles of depression of the top and bottom of a tower are observed to be  $30^\circ$  and  $60^\circ$  respectively. The height of the tower is :  
 (A) 45 m (B) 60 m  
 (C) 75 m (D) 30 m
109. The least positive integer which is a perfect square and also divisible by each of 21, 36 and 66 is :  
 (A) 186624 (B) 213444  
 (C) 254016 (D) 156816
110. The value of  $x$  when 5% of  $\sqrt{2x}$  is 0.01 will be :  
 (A) 0.03 (B) 0.02  
 (C) 0.01 (D) 0.05
111. If  $\sqrt{\frac{x-a}{x-b}} + \frac{a}{x} = \sqrt{\frac{x-b}{x-a}} + \frac{b}{x}$ ,  $b \neq a$ , then the value of  $x$  is :  
 (A)  $\frac{b}{a+b}$  (B)  $\frac{ab}{a+b}$   
 (C) 1 (D)  $\frac{a}{a+b}$
112. If  $x = \frac{2\sqrt{24}}{\sqrt{3} + \sqrt{2}}$ , then the value of  $\frac{x+\sqrt{8}}{x-\sqrt{8}} + \frac{x+\sqrt{12}}{x-\sqrt{12}}$  is :  
 (A) 1 (B) 2  
 (C) 0 (D) -2
113. If  $a = \frac{2+\sqrt{3}}{2-\sqrt{3}}$  and  $b = \frac{2-\sqrt{3}}{2+\sqrt{3}}$ , then the value of  $(a^2+b^2+ab)$  is :  
 (A) 185 (B) 195  
 (C) 200 (D) 175

SPACE FOR ROUGH WORK

114. If  $\sec\theta - \operatorname{cosec}\theta = 0$ , then the value of  $(\sec\theta + \operatorname{cosec}\theta)$  is:

- (A)  $\frac{\sqrt{3}}{2}$  (B)  $\frac{2}{\sqrt{3}}$   
 (C) 0 (D)  $2\sqrt{2}$

115. A and B can separately do a piece of work in 20 and 15 days respectively. They worked together for 6 days after which B was replaced by C. The work was finished in next 4 days. The number of days in which C alone could do the work is:

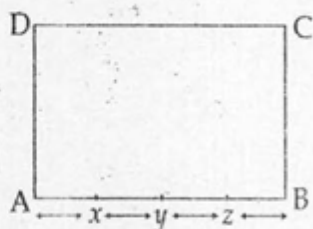
- (A) 35 days (B) 30 days  
 (C) 45 days (D) 40 days

116. If  $x = \frac{2\sqrt{6}}{\sqrt{3}+\sqrt{2}}$  then the value of  $\frac{x+\sqrt{2}}{x-\sqrt{2}} + \frac{x+\sqrt{3}}{x-\sqrt{3}}$  is

- (A)  $\sqrt{2}$  (B)  $\sqrt{3}$   
 (C)  $\sqrt{6}$  (D) 2

117. Side AB of rectangle ABCD is divided into four equal parts by points  $x, y, z$ . The ratio of the

$\frac{\text{area } (\Delta XYC)}{\text{Area (Rectangle ABCD)}}$  is



- (A)  $\frac{1}{7}$  (B)  $\frac{1}{6}$   
 (C)  $\frac{1}{9}$  (D)  $\frac{1}{8}$

118. If the length of a chord of a circle, which makes an angle  $45^\circ$  with the tangent drawn at one end point of the chord, is 6 cm, then the radius of the circle is:

- (A)  $6\sqrt{2}$  cm (B) 5 cm  
 (C)  $3\sqrt{2}$  cm (D) 6 cm

119. A man buys one table and one chair for ₹ 500. He sells the table at a loss of 10% and the chair at a gain of 10%. He still gains ₹ 10 on the whole. The cost price of the chair is:

- (A) ₹ 250 (B) ₹ 300  
 (C) ₹ 350 (D) ₹ 200

120. The three medians AD, BE and CF of  $\Delta ABC$  intersect at point G. If the area of  $\Delta ABC$  is 60 sq. cm., then the area of the quadrilateral BDGF is:

- (A) 10 sq. cm. (B) 15 sq. cm  
 (C) 20 sq. cm (D) 30 sq. cm

121. The rate of simple interest at which a sum of money becomes three times in 25 years is:

- (A) 6% (B) 8%  
 (C) 5% (D) 4%

122. If  $P \sin\theta = \sqrt{3}$  and  $P \cos\theta = 1$ , then the value of P is:

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

123. ABCD is a trapezium, such that  $AB = CD$  and  $AD \parallel BC$ .  $AD = 5$  cm,  $BC = 9$  cm. If area of ABCD is 35 sq. cm, then CD is:

- (A)  $\sqrt{29}$  cm (B) 5 cm  
 (C) 6 cm (D)  $\sqrt{21}$  cm

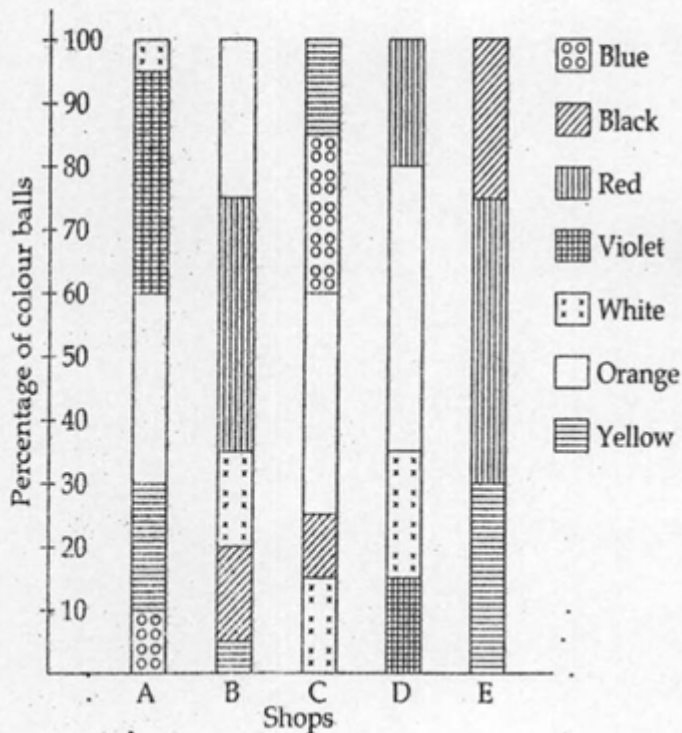
124. If  $x\sin^3\theta + y\cos^3\theta = \sin\theta\cos\theta \neq 0$  and  $x\sin\theta - y\cos\theta = 0$ , then value of  $(x^2 + y^2)$  is:  
 (A) 1 (B)  $\sin\theta - \cos\theta$   
 (C)  $\sin\theta + \cos\theta$  (D) 0
125. If  $\sqrt{4x-9} + \sqrt{4x+9} = 5 + \sqrt{7}$  then the value of  $x$  is:  
 (A) 4 (B) 5  
 (C) 7 (D) 3
126. If  $u_n = \cos^n \alpha + \sin^n \alpha$ , then the value of  $2u_6 - 3u_4 + 1$  is:  
 (A) 1 (B) 4  
 (C) 6 (D) 0
127. The value of  $\sqrt{-\sqrt{3} + \sqrt{3+8\sqrt{7+4\sqrt{3}}}}$  is:  
 (A) 2 (B) 3  
 (C) 4 (D) 1
128. P and Q are the middle points of two chords (not diameters) AB and AC respectively of a circle with centre at a point O. The lines OP and OQ are produced to meet the circle respectively at the points R and S. T is any point on the major arc between the points R and S of the circle. If  $\angle BAC = 32^\circ$ ,  $\angle RTS = ?$   
 (A)  $32^\circ$  (B)  $74^\circ$   
 (C)  $106^\circ$  (D)  $64^\circ$
129. A container has 80 L of milk. From this container 8 L of milk was taken out and replaced by water. The process was further repeated twice. The volume of milk in the container after that is:  
 (A) 85.32 L (B) 58.23 L  
 (C) 85.23 L (D) 58.32 L
130. The radius of a circle is 13 cm and  $xy$  is a chord which is at a distance of 12 cm from the centre. The length of the chord is:  
 (A) 15 cm (B) 12 cm  
 (C) 10 cm (D) 20 cm
131. Two angles of a triangle are  $\frac{1}{2}$  radian and  $\frac{1}{3}$  radian. The measure of the third angle in degree (taking  $\pi = \frac{22}{7}$ ) is:  
 (A)  $132\frac{1}{11}^\circ$  (B)  $132\frac{2}{11}^\circ$   
 (C)  $132\frac{3}{11}^\circ$  (D)  $132^\circ$
132. Two equal circles pass through each other's centre. If the radius of each circle is 5 cm, what is the length of the common chord?  
 (A) 5 (B)  $5\sqrt{3}$   
 (C)  $10\sqrt{3}$  (D)  $\frac{5\sqrt{3}}{2}$
133. A grain dealer cheats to the extent of 10% while buying as well as selling by using false weights. His total profit percentage is:  
 (A) 20% (B) 21%  
 (C) 23% (D) 25%
134. Consider  $\triangle ABD$  such that  $\angle ADB = 20^\circ$  and C is a point on BD such that  $AB = AC$  and  $CD = CA$ . Then the measure of  $\angle ABC$  is:  
 (A)  $40^\circ$  (B)  $45^\circ$   
 (C)  $60^\circ$  (D)  $30^\circ$

SPACE FOR ROUGH WORK

135. If  $\sin(x+y) = \cos[3(x+y)]$ , then the value of  $\tan[2(x+y)]$  is :
- (A)  $\sqrt{3}$  (B) 1  
(C) 0 (D)  $\frac{1}{\sqrt{3}}$
136. The diameter of a garden roller is 1.4 meter and it is 2 m long. The area covered by the roller in 5 revolution is :
- (A)  $8.8 \text{ m}^2$  (B)  $4.4 \text{ m}^2$   
(C)  $44 \text{ m}^2$  (D)  $16.8 \text{ m}^2$
137. A person travels 285 km in 6 hr. In the first part of the journey, he travels at 40 km/hr by bus. In the second part, he travels at 55 km/hr by train. The distance travelled by train is :
- (A) 156 km (B) 165 km  
(C) 615 km (D) 561 km
138. The average of the runs made by Raju, Shyam and Hari is 7 less than that made by Shyam, Hari and Kishore. If the number of Kishore's run is 35, what is Raju's run ?
- (A) 14 (B) 21  
(C) 35 (D) 7
139. The value of  $(1 + \sec 20^\circ + \cot 70^\circ)(1 - \operatorname{cosec} 20^\circ + \tan 70^\circ)$  is :
- (A) 0 (B) -1  
(C) 2 (D) 1
140. If  $0 \leq \alpha \leq \frac{\pi}{2}$  and  $2 \sin \alpha + 15 \cos^2 \alpha = 7$ , then the value of  $\cot \alpha$  is :
- (A)  $\frac{1}{2}$  (B)  $\frac{5}{4}$   
(C)  $\frac{3}{4}$  (D)  $\frac{1}{4}$
141. The marked price of a shop keeper for an article is 30% higher than the cost price. If he sells the article allowing 10% discount to customers, then the gain percent will be :
- (A) 17% (B)  $16\frac{2}{3}\%$   
(C)  $12\frac{1}{2}\%$  (D) 15%
142. If  $\sin 2\theta = \frac{1}{2}$ , then the value of  $\cos(75^\circ - \theta)$  is :
- (A) 1 (B)  $\frac{1}{2}$   
(C)  $\frac{\sqrt{3}}{2}$  (D)  $\frac{1}{\sqrt{2}}$
143. A triangle is formed by the  $x$ -axis and the lines  $2x + y = 4$  and  $x - y + 1 = 0$  as three sides. Taking the side along  $x$ -axis as its base, the corresponding altitude of the triangle is :
- (A) 2 unit (B) 3 unit  
(C)  $\sqrt{5}$  unit (D) 1 unit
144. If  $x = \frac{1}{2+\sqrt{3}}$ ,  $y = \frac{1}{2-\sqrt{3}}$  then the value of  $\frac{1}{x+1} + \frac{1}{y+1}$  is :
- (A)  $\frac{1}{2}$  (B)  $\sqrt{3}$   
(C) 1 (D)  $\frac{1}{\sqrt{3}}$
145. A starts business with ₹ 7000 and after 5 months, B joined as a partner. After a year the profit is divided in the ratios 2 : 3. The capital of B is :
- (A) ₹ 9,000 (B) ₹ 10,000  
(C) ₹ 6,500 (D) ₹ 18,000

Q. No. 146 to 150.

The following Bar Diagram shows the percentage of 7 coloured balls sold in 5 shops A, B, C, D and E. Study the graph and answer all the questions 146 to 150.



146. In shop A, the ratio of percentage of violet balls and yellow balls is :

- (A) 2 : 7 (B) 7 : 4  
(C) 6 : 1 (D) 2 : 4

147. The shops having equal percentage of white balls are :

- (A) A and C (B) C and E  
(C) B and C (D) A and B

148. What fraction of the total percentage of colour balls is to the percentage of total yellow balls ?

- (A)  $\frac{7}{50}$  (B)  $\frac{3}{20}$   
(C)  $\frac{4}{25}$  (D)  $\frac{13}{100}$

149. The difference between total number of % of violet balls and total number of % of blue balls is :

- (A) 10 (B) 15  
(C) 25 (D) 40

150. The ratio of total percentage of Red balls and total percentage of orange balls is :

- (A) 1 : 1 (B) 4 : 5  
(C) 9 : 11 (D) 7 : 9

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146. The area, perimeter and diagonal of a square are

$a, b, c$  respectively. Then the value of  $\frac{bc}{a}$  is :

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

147. The compound interest on ₹ 1000 at 10% per annum is ₹ 464.10. The period of years is

- (A) 3 (B) 4  
(C) 5 (D) 2

148. A certain sum of money is distributed to A and B in the ratio 12 : 13. If A received ₹ 600, what is the total amount ?

- (A) 1500 (B) 1750  
(C) 1250 (D) 1000

149. A person sells an article for ₹ 660 gaining  $\frac{1}{10}$  of its cost price. Find gain % :

- (A) 6.6 (B) 10  
(C) 12 (D) 11

150. Walking  $\frac{5}{6}$  of his usual rate, a man is 20 minutes late. Find the usual time.

- (A) 120 min (B) 150 min  
(C) 180 min (D) 100 min

SPACE FOR ROUGH WORK

## PART - D

### ENGLISH COMPREHENSION

*Directions : In question no. 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 rectangle [■] corresponding to the appropriate letter (A, B, C). If a sentence is free from error, blacken the rectangle [■] corresponding to (D) in the Answer Sheet.*

151. Our history can be seen as a long evolutionary dialectical development /  
 (A)  
in which there have been /  
 (B)  
a painstaking forging of rational and moral self/  
 (C)  
No error  
 (D)
152. Our knowledge of history does not come to /  
 (A)  
 Our help and some times we even fail to /  
 (B)  
 remember who invented America / No Error.  
 (C) (D)
153. My grandfather owns /fifty acre /of wet land /  
 (A) (B) (C)  
No error  
 (D)
154. Belgiun chocolate is considered /  
 (A)  
by many to be finer /  
 (B)  
than any others in the World / no error  
 (C) (D)
155. Indian scientists are in no way / inferior than /  
 (A) (B)  
any other scientist in the world / No Error  
 (C) (D)

*Directions : In question no. 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 rectangle [■] in the Answer Sheet.*

156. We didn't \_\_\_\_\_ the programme to be such a huge success.  
 (A) except (B) expect  
 (C) access (D) accept
157. We should \_\_\_\_\_ opportunities as they arise.  
 (A) cease (B) size  
 (C) sneeze (D) seize
158. The student's aren't prepared \_\_\_\_\_ the examination.  
 (A) to listen (B) to work  
 (C) to take (D) to give
159. The government, in a bid to make Bihar, a preferred investment destination, has \_\_\_\_\_ major schemes to create infrastructure at different stages.  
 (A) opposed (B) opened  
 (C) pushed (D) launched
160. I suffer from no \_\_\_\_\_ about my capabilities.  
 (A) doubts (B) hallucinations  
 (C) imaginations (D) illusions

*Directions : In question no. 161 to 165, out of the four alternatives, choose the one which best expresses the meaning of the given word and mark it in the Answer Sheet.*

161. Inadvertent  
 (A) Unexpected (B) Unintentional  
 (C) Undisturbed (D) Ignorant
162. Fortitude  
 (A) Courage (B) Protection  
 (C) Safety (D) Similarity
163. Duplicity  
 (A) artlessness (B) deceit  
 (C) cleverness (D) repetition

164. Fidelity  
 (A) Resourcefulness (B) Strength  
 (C) Weakness (D) Faithfulness

165. Vanguard  
 (A) Officer  
 (B) Flag bearer  
 (C) Pioneer  
 (D) Race driver

**Directions :** In question no. 166 to 170, choose the word opposite in meaning to the given word and mark it in the Answer Sheet.

166. Taciturn  
 (A) silent (B) talkative  
 (C) immense (D) judge

167. Artisan  
 (A) skilled sculptor  
 (B) learned person  
 (C) ignorant villager  
 (D) unskilled labour

168. Amicable  
 (A) friendly (B) haughty  
 (C) unpleasant (D) hostile

169. Mitigate  
 (A) aggravate (B) allay  
 (C) alleviate (D) abate

170. Aversion  
 (A) awareness (B) hatred  
 (C) liking (D) avoidance

**Directions :** In question no. 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 and mark it in the Answer Sheet.

171. He was out of spirits for a few days after his defeat.  
 (A) gloomy (B) sober  
 (C) lifeless (D) uninvolved

172. When the family in the next house packed off at midnight, I began to smell a rat.  
 (A) to suspect a trick  
 (B) to misunderstand  
 (C) to see hidden meaning  
 (D) to smell a bad smell

173. At first, there was a show of resistance to the new rule issued by the Government, but the movement had no backbone and speedily collapsed.

- (A) justification (B) impact  
 (C) strength (D) support

174. The cops were on their toes throughout the day

- (A) eager (B) alert  
 (C) harried (D) quick

175. The minister assured the agitating employees that he would look into their demands sympathetically.

- (A) discuss (B) watch  
 (C) grant (D) examine

**Directions :** In question no. 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. The prolific writer's work is published every year.

- (A) exquisite (B) didactic  
 (C) great (D) no improvement

177. Those plucking flowers are liable for punishable.

- (A) are liable for punishable  
 (B) are liable for punishing  
 (C) are liable to be punished  
 (D) are viable for punishment

178. His lust for power brought about his downfall.

- (A) Intense desire  
 (B) Desire for power  
 (C) Desire for sex  
 (D) No improvement

179. I'll meet the raging of the skies, but not an angry father.

- (A) sunshine (B) rain  
 (C) anger (D) no improvement

180. When we see black smoke near the wing of the plane, we were certain that disaster was imminent.

- (A) When we were seeing  
 (B) When we saw  
 (C) When we had seen  
 (D) No improvement

**Directions :** In question no. 181 to 185, out of the four alternative choose the one which can be substituted for the given words/sentence.

181. Government by a small group of all powerful persons  
 (A) Monarchy (B) democracy  
 (C) Anarchy (D) Oligarchy
182. One indifferent to art and literature is  
 (A) critic (B) philistine  
 (C) scholar (D) aromatic
183. "Open to injury or Criticism"  
 (A) Vulnerable (B) Naive  
 (C) Sensitive (D) Invincible
184. One who collects coins as a hobby  
 (A) ornithologist (B) statistician  
 (C) numismatist (D) philatelist
185. A narrow piece of land connecting two large masses of land  
 (A) isthmus (B) continent  
 (C) gulf (D) peninsula

**Directions :** In question no. 186 to 190, there are four different words out of which one is correctly spelt. Find the correctly spelt word and indicate it by blackening the appropriate rectangle [■] in the Answer Sheet.

186. (A) benefical (B) beneficial  
 (C) benifical (D) benificial
187. (A) avericious (B) avaricious  
 (C) avarisious (D) averisious
188. (A) internaly (B) coldly  
 (C) fortunetely (D) uniquely
189. (A) affectionately (B) afectionately  
 (C) affectionality (D) affactionately
190. (A) apprehension (B) apprihension  
 (C) aprihension (D) apprehenson

**Directions :** In question no. 191 to 200, you have two brief passages with 5 questions following each passage. Read the passages carefully and choose the best answer to each question out of the four alternatives and mark it in the Answer-Sheet.

**Passage - I Question No. 191-195**

If this is so, if to read a book as it should be read calls for the rarest Qualities of imagination, insight and judgement. You may perhaps conclude that literature is a very complex art and that it is unlikely that we shall be able, even after a life time of reading, to make any valuable contribution to its criticism. We must remain readers, we shall not put on the further glory that belongs to those rare beings who are also critics.

191. What is the opinion of most of the people about literature?  
 (A) That it is not an easy one to contribute anything  
 (B) That it is to some extent difficult to understand  
 (C) That no contribution is necessary for literature  
 (D) That it is very easy to understand
192. The antonym of conclude is  
 (A) commence (B) exclude  
 (C) end (D) include
193. According to the author  
 (A) It is not possible for most of us to contribute anything for criticism  
 (B) It is possible to do something  
 (C) It is not even easy to understand literature  
 (D) Most of the people can contribute to criticism of literature
194. The author feels that we cannot have the greatness of  
 (A) writers (B) critics  
 (C) publishers (D) readers
195. What are the Qualities required for reading a book?  
 (A) proper judgement  
 (B) imagination  
 (C) imagination, insight and judgement  
 (D) none of the above



Passage - II Question No. 196-200

These days not even many politicians deny that the oceans are ill. Protecting the health of coastal waters is now a matter of national policy in dozens of countries including the U.S., and world leaders are beginning to prescribe a revolutionary remedy that conservationists have been promoting for years : marine planning and zoning.

The idea is a natural extension of management policies that have guided the development of cities and landscapes for nearly a century. Zoning advocates envision a mosaic of regional maps in which every watery space on the planet is designated for a particular purpose. Drilling and mining would be allowed only in certain parts of the ocean; fishing in others. The most critically threatened areas would be virtually off-limits.

Whereas people can easily find maps telling them what they can do where on land, the marine realm is a hodge-podge of rules emanating from an army of agencies, each one managing a single use or symptom.

196. Marine planning and zoning is a \_\_\_\_\_ to protect the coastal waters.
- (A) conservationists' discovery
  - (B) marine project
  - (C) revolutionary remedy
  - (D) national policy of the US
197. These days \_\_\_\_\_ that the oceans are not in good health.
- (A) most of the politicians agree
  - (B) all politicians agree
  - (C) nobody agrees
  - (D) everybody agrees
198. 'Marine realm' is a hodge-podge of rules means \_\_\_\_\_.
- (A) seas need to be cleaned
  - (B) there are no uniform laws governing the seas.
  - (C) there is total anarchy
  - (D) coastal areas are not being looked after properly.

199. Seazoning is all about \_\_\_\_\_.

- (A) drilling and sea mining
- (B) conserving the environment
- (C) banning fishing in the sea
- (D) dividing watery space for specific purposes

200. 'Conservationist' means \_\_\_\_\_.

- (A) a marine engineer
- (B) one who looks after others
- (C) one who prevents 'something from destruction
- (D) a proficient speaker