

GENERAL INTELLIGENCE & REASONING

Directions: In question No. 1-6 find the related word/number from the given alternatives

- Video : Cassette :: computer : ?
(a) Files (b) Floppy (c) Bits (d) Adit
- Glucometer : Blood Sugar :: Sphygomanometer : ?
(a) Earthquake (b) Blood Pressure
(c) Atmospheric Pressure (d) Specific Gravity
- Behaviour : Psychology :: Plant : ?
(a) Plant (b) Botany (c) Zoology (d) Physiology
- Mitochondria : Energy :: DNA : ?
(a) Genes (b) Reproduction
(c) Locomotion (d) Immunity
- Desert : Mirage :: Ocean : ?
(a) EL-Nino (b) Whale (c) Blizard (d) Hail
- 525 : 25 :: 315 : ?
(a) 10 (b) 15 (c) 5 (d) 25

Directions : In questions No. 7-12, find the odd word/ number /letters /number pair from the given alternatives.

- (a) 3/7 (b) 7/2 (c) 4/13 (d) 13/16
- (a) Marine (b) ocean (c) Navigation (d) Sea
- (a) ZYX (b) FED (c) NML (d) GHI
- (a) XZY (b) MON (c) PRQ (d) EAC
- (a) 1-5 (b) 4-20 (c) 5-65 (d) 7-35
- (a) 46-10 (b) 42-33 (c) 20-38 (d) 91-12

Directions : In question No. 13-14, arrange the given words in a meaningful and ascending order the select the option indicating the correct order.

1. Venus 2. Earth 3. Mars 4. Mercury 5. Jupiter
(a) 4,2,1,3,5 (b) 4,2,1,5,3 (c) 4,1,2,3,5 (d) 4,1,2,5,3
1. Pages 2. Book rack 3. Library 4. Books 5. catalogue
(a) 2,5,4,3,1 (b) 1,5,4,3,2 (c) 1,4,2,5,3 (d) 1,2,4,5,3
- Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?
ab_babc_ab_b_bcb_b
(a) cbcaa (b) cabac (c) abcba (d) acaca
- A series is given, with one term missing. Choose the correct alternative from the given ones.
ABEF, IJMN, ?
(a) QRVU (b) QRUV (c) QRVW (d) QSVU

Directions : In question No. 17-21 find the missing number from the given responses.

- 0, 6, 24, 60, ?, 210
(a) 117 (b) 119 (c) 120 (d) 153

18.

49	81	64
4	49	9
25	16	36
10	?	11

- (a) 6 (b) 4 (c) 9 (d) 16

19.

2	14	21	28
3	21	28	35
4	?	35	?

- (a) 35 and 49 (b) 28 and 42 (c) 21 and 42 (d) 49 and 28

20.

2	3	4
24	39	?
20	30	40

- (a) 44 (b) 49 (c) 50 (d) 56

21.

7	3	2
4	9	6
2	1	5
39	65	?

- (a) 91 (b) 68 (c) 56 (d) 104
- x goes 15 metres North, then turns right and walks 20 metres, then again turns right and walks 10 metres then again turns right and walks 20 metres. How many meters is he from his original position ?
(a) 5 (b) 10 m (c) 15 m (d) 20 m
 - A watch reads 7.30. If the minute hand points West, then in which direction will the hour hand point ?
(a) North (b) North-West (c) North-East (d) South -East

Directions : In question No. 24 to 26, from the given alternative words, select the word which cannot be formed using the letters of the given word.

- PENULTIMATE
(a) PEANUT (b) MINUTE (c) ELIMINATE (d) LIME-TEA
- PROCRASTINATE
(a) PATTERN (b) TRACTOR (c) PRINTED (d) PAINTER
- ADOLESCENT
(a) ENCLOSE (b) DONATE (c) SECRET (d) LEAST
- If SPANK is coded as PSNAK, then THROW is coded as
(a) HTWOR (b) HTWRO (c) HTROW (d) HTORW
- If ANCIENT is coded as 2516859 and NATURE is coded as 529048, then TRAIN will be coded as
(a) 94285 (b) 92456 (c) 94265 (d) 94168
- If BLUE is written as EUBL, then BULB is written as
(a) BLUB (b) BBUL (c) BBLU (d) BLBU
- 40% of 1620 + 30% of 960 = ? % of 5200
(a) 12 (b) 24 (c) 16 (d) 18
- Which of the following interchange of signs would make the given equation correct ?
 $2 \times 3 + 6 - 12 \div 4 = 17$
(a) \times and + (b) + and - (c) + and \div (d) - and \div
- 'B' stands for addition, 'G' stands for subtraction, 'E' stands for multiplication, 'C' stands for division, 'D' stands for equal to, 'A' stands for greater than, 'F' stands for less than. In each of the four alternatives, only one expression is correct according to the letter symbol. Identify that expression.
(a) 15C3B2A6E2 (b) 15B2G5A4G4
(c) 15C3B2D6B1 (d) 15B3D4E6

- Identify the symbols to be inserted to make the expression correct ?
 $24 \Delta 4 \Delta 5 \Delta 4$

- (a) $\times + \times$ (b) $= \times +$ (c) $\times + =$ (d) $+ = \times$
- 6 boys A, B, C, D, E and F are sitting in a row facing west. D is between A and C, B is just right of C but left of F. E is not at the right end. Who is at the right end ?
(a) C (b) F (c) D (d) B
 - Y is in the East of X which is in the North of Z. If P is in the south of Z, then in which direction Y is P?
(a) North (b) East (c) South-East (d) South-West
 - Kate walk 4 km towards south. She then turns towards her left and walks 8 km more. After that she turns left again and walks another 8 km. Here, she meets her friend coming from the opposite direction and they both stop here. Which direction would she be facing ?
(a) North (b) south (c) East (d) West

Directions In question no. 37-38, two statements are given followed by two/ four conclusions, I, II, III and IV. You have to consider the two statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follow from the given statements.

37. Statements :

- I. Some birds are clouds.
- II. Horse is a bird.

Conclusions :

- I. some clouds are birds. II. Horse is not a cloud.
- (a) conclusion I follows (b) conclusion II follows
- (c) either conclusion I or II follows
- (d) Neither conclusion I nor II follows

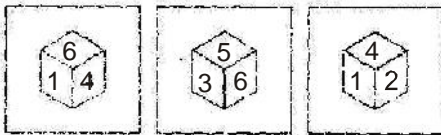
38. Statements :

- I. Ravi has five pens.
- II. No one else in the class has five pens.

Conclusions :

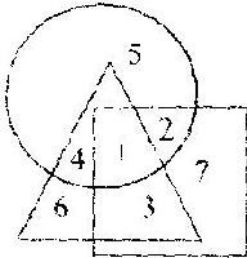
- I. All students in the class have pens.
- II. All students in the class have five pen each.
- III. Some of the students have more than five pens.
- IV. Only one students in the class has exactly five pens.
- (a) only conclusion I follows
- (b) only conclusion III follows
- (c) only conclusion II follows
- (d) only conclusion IV follows

39. Three positions of a dice are given. Find out which number is found opposite the number 2 in the given dice.



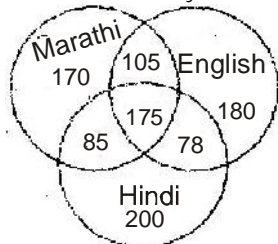
- (a) 6 (b) 5 (c) 3 (d) 1

40. In the following figure O represents hard working, Δ represents sincere and □ represents intelligent. Find out the hardworking who are intelligent but not sincere.



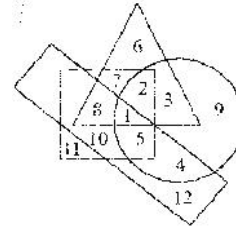
- (a) 1 (b) 2 (c) 3 (d) 4

41. The below diagram shows the survey on a sample of 1000 persons with reference to their knowledge of English, Hindi and Marathi. How many knew only Hindi ?



- (a) 85 (b) 175 (c) 78 (d) 200

42. In the below figure, the circle stands for employed, the square stands for social worker, the triangle stands for illiterate and the rectangle stands for truthful. Study the figure and answer the questions which region represents literate, employed people who are neither truthful nor social worker.



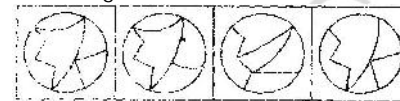
- (a) 11 (b) 4 (c) 9 (d) 10

43. Identify the answer figure from which the piece given in question figure has been cut.

Question figure



Answer figure

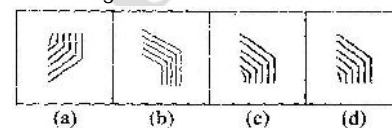


Directions : In question No. 44 and 45 which answer figure will complete the pattern in the question figure ?

44. Question figure



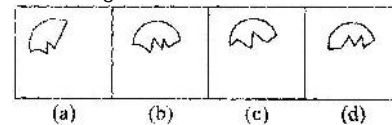
Answer figure



45. Question figure

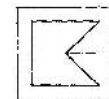


Answer figure

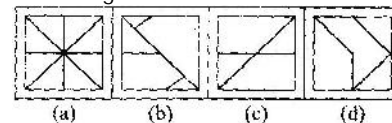


46. From the given answer figures, select the one in which the question figure is hidden/ embedded.

Question figure

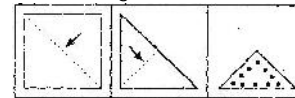


Answer figure

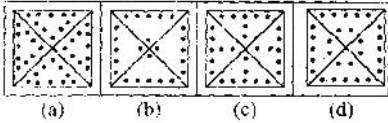


47. A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

Question figures

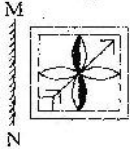


Answer figures

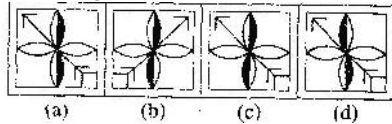


48. From the answer figures, find out the figure which is the exact mirror image of the question figure when the mirror is placed on the line 'MN'?

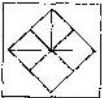
Question figure



Answer figure



49. How many triangles are there in the given figure.



(a) 7 (b) 10 (c) 8 (d) 9

50. A word 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 5-9. 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, 12 etc. and P can be represented by 56, 76 etc. Similarly, you have to identify the set for the word 'PARROT'.

Matrix-I

	0	1	2	3	4
0	A	B	C	D	E
1	E	C	A	B	D
2	A	E	B	D	C
3	B	A	D	C	E
4	A	D	C	B	E

Matrix-II

	5	6	7	8	9
5	O	P	Q	R	T
6	P	O	T	Q	R
7	O	P	R	Q	T
8	P	O	Q	R	T
9	O	Q	P	R	T

(a) 50, 00, 77, 88, 86, 99 (b) 85, 20, 58, 77, 87, 79
(c) 65, 30, 77, 98, 90, 99 (d) 66, 40, 76, 77, 86, 99

GENERAL AWARENESS

51. The principle of maximum social advantage is the basic principle of

(a) Micro Economics (b) Macro Economics
(c) Fiscal Economics (d) Environmental Economics

52. which five year plan is not correct among the following?

(a) first 1951-56 (b) Second 1956-61
(c) Third 1961-66 (d) Fourth 1966-71

53. The ordinary and maximum tolerance limit of sound by human being is

(a) 50 db to 70 db (decibel) (b) 60 db to 80 db (decibel)
(c) 65 db to 75 db (decibel) (d) 70 db to 85 db (decibel)

54. An economics theory is a /an

(a) Axion (b) Proposition
(c) Hypothesis (d) Tested hypothesis

55. Indian special economic rules amendment came in the year.

(a) 2000 (b) 2002 (c) 2004 (d) 2006

56. Provisions of citizenship in Indian Constitution, became applicable in

(a) 1950 (b) 1949 (c) 1951 (d) 1952

57. Who gave the title 'Sardar' to Ballabh Bhai Patel?

(a) Mahatma Gandhi (b) Vinoba Bhawe

- (c) Women of Bardoli (d) Peasants of Gujrat

58. According to Marx, the source of value is

(a) Capital (b) Land
(c) Labour (d) None of these

59. The National Emergency in India Declared by the President of India due to the External aggression or armed revolt through

(a) Article- 352 (b) Article-356
(c) Article - 360 (d) Article- 368

60. The Community Development Programme was launched in the year

(a) 1950 (b) 1952 (c) 1951 (d) 1953

61. What Satyagraha was held at Nagpur in 1923?

(a) Salt Satyagraha (b) Individual Satyagraha
(c) Ryots Satyagraha (d) Flag Satyagraha

62. Which one of the following is not a sect of Buddhism.

(a) Mahayana (b) Hinayana
(c) Digambar (d) Theravad

63. Who was the viceroy when Delhi became the Capital of British India?

(a) Lord Curzon (b) Lord Minto
(c) Lord Hardinge (d) Lord Wavell

64. Who established the India Civil Liberties Union in 1936?

(a) Subhash Chandra Bose (b) Bal Gangadhar Tilak
(c) Jawahar Lal Nehru (d) Rajendra Prasad

65. Which of the following was established first?

(a) Banaras Hindu University (b) University of Bombay
(c) Aligarh Muslim University (d) University of Allahabad

66. " Yosemite" is a

(a) River (b) Peak (c) Waterfall (d) Dam

67. The first Indian Satellite Arybhata was launched in

(a) 1972 (b) 1975 (c) 1977 (d) 1979

68. Where is the shore based steel plant located?

(a) Tuticorin (b) Salem
(c) Vishakhapatnam (d) Mangalore

69. which two of the following are connected by the North- South Corridor?

(a) Srinagar and Kanyakumari (b) Mumbai and Chennai
(c) Amritsar and Kolkata (d) Hyderabad and Bhopal

70. The pollutants which move downward percolating groundwater are called

(a) Leachates (b) Pollutates
(c) Earthites (d) Percolates

71. Lungs are located in the

(a) Abdominal cavity (b) pericardial cavity
(c) peritoneal cavity (d) pleural cavity

72. Which one of the following is the ideal food for newborn babies?

(a) Water (b) Sugar (c) Honey (d) Milk

73. Transcription means the synthesis of

(a) Lipids (b) Protein (c) DNA (d) RNA

74. Hydrochloric acid is secreted by the cells lining in the

(a) Oral cavity (b) Stomach
(c) Ileum (d) Colon

75. Emulsification is

(a) breaking fats into small globules (b) digestion of facts
(c) absorption of facts (d) storage of facts

76. Taxonomy is a science that deals with

(a) Morphology (b) Anatomy
(c) Classification (d) Economics uses

77. Which one of the following is responsible for the working of Newton's colour disc experiment?

(a) Formation of pure spectra (b) Formation of impure spectra
(c) Persistence of vision (d) Principle of complementary colour

78. The dimension MLT^{-2} corresponds to

(a) force (b) Work done (c) acceleration (d) velocity

79. Who is the founder of quantum theory of radiation?

(a) Einstein (b) Bohr (c) Plank (d) S.N. Bose

80. Fiber optic cable used in communication, works on the principle of,
 (a) regular reflection of light (b) diffuse reflection of light
 (c) refraction of light. (d) total internal reflection of light
81. Which was the first electronic computer constructed at the Moore School of Engineering?
 (a) EOVAC (b) ONIVAC
 (c) ENIAC (d) EDSAC
82. Which among the following standard protocols is the most widely used by the internet?
 (a) HTTP (b) TCP/IP (c) SMTP (d) SLIP
83. The outer skin of most of the crustaceans are made up of a carbohydrate. This carbohydrate is
 (a) cellulose (b) galactose
 (d) chitin (d) starch
84. Rutherford's scattering experiment proved the presence of
 (a) atoms in all matter (b) electrons in atoms
 (c) neutrons in atoms (d) nucleus in atoms
85. When a metal is heated in a flame, the electrons absorb energy and jump to higher energy state. On coming back to the lower energy state, they emit light, which we can observe in
 (a) Raman Spectra (b) Absorption Spectra
 (c) Emission Spectra (d) Fluorescence
86. Blood pressure may be increased by the excessive secretion of
 (a) Thyroxine (b) Testosterone
 (c) Estradiol (d) Estrol
87. The concept of "Green House Gases" was postulated by
 (a) Joseph Furier (b) Abdul Kalam
 (c) M.S Swaminathan (d) Richael Carlson
88. "Bhopal gas tragedy" 1984 is related to
 (a) Aluminum Phosphide (b) Methyl bromide
 (c) Methyl isocyanate (d) Carbon dioxide
89. The particulate matter (PM-10) exhaled from the polluted atmosphere is often filtered out during the process of
 (a) Coughing (b) Sneezing
 (c) (a) and (b) (d) Urination
90. Sarus crane is the state bird of
 (a) Rajasthan (b) Uttar Pradesh
 (c) Madhya Pradesh (d) West Bengal
91. The Tongario volcano that erupted on November 21, 2012 is in
 (a) Australia (b) Indonesia
 (c) Papua New Guinea (d) New Zealand
92. The Daocheng Yading Airport is located in
 (a) Thailand (b) Philippines
 (c) China (d) Tibet
93. BCCI named the "Indian Cricketer of the year "2011-12" to honour
 (a) Sunil Gavaskar (b) VVS Laxman
 (c) Virat Kohil (d) Yuva Raj
94. " Martyr's Day" is marked on
 (a) January 1 (b) January 15
 (c) January 30 (d) January 9
95. Who won the world Carrom Championship 2012?
 (a) Rashmi Kumari (b) Mirabai Chanu
 (c) Nishantha Fernando (d) Nuthaki Priyanka
96. The animal who can consume more salt among the following is
 (a) Sheep (b) Camel (c) Donkey (d) Dog
97. Which of the following is only domestic Airport.
 (a) Dabolin Airport, Goa (b) Srinagar Airport
 (c) Devi Ahiyabai Holkar Airport (d) None of these
98. Tick the correct option with regards to the contribution towards GDP (Gross Domestic Product) from Agriculture
 (a) During 1950-51 (GDP 51.88%) and 2011-12 (GDP 14.01%)
 (b) During 1950-51 (GDP 11.00%) and 2011-12 (GDP 25%)
 (c) During 1990-91 (GDP 29.53%) and 2011-12 (GDP 66.77%)
 (d) During 1980-81 (GDP 35.69%) and 2011-12 (GDP 20.69%)
99. Second India- Africa Forum Summit – 2011 was held in

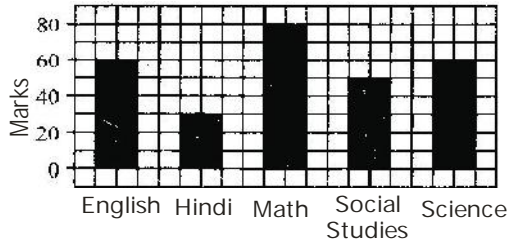
- (a) Eretrea (b) Ethiopia
 (c) Sudan (d) Nigeria
100. Where did Aurangzeb die?
 (a) Pune (b) Aurangabad
 (c) Ahmad Nagar (d) Mumbai
- QUANTITATIVE APTITUDE**
101. The difference of a number consisting of two digits from the number formed by interchanging the digits is always divisible by
 (a) 10 (b) 9 (c) 11 (d) 6
102. The number 323 has
 (a) three prime factors (b) five prime factors
 (c) two prime factors (d) no prime factor
103. A tyre has 2 punctures. The first puncture alone would have made the tyre flat in 9 minutes and the second alone would have done it in 6 minutes. If air leaks out at a constant rate, how long does it take both the punctures together to make it flat?
 (a) $1\frac{1}{2}$ minutes (b) $3\frac{1}{2}$ minutes
 (c) $3\frac{3}{5}$ minutes (d) $4\frac{1}{4}$ minutes
104. If 8 men or 12 boys can do a piece of work in 16 days, the number of days required to complete the work by 20 men and 6 boys is
 (a) $5\frac{1}{3}$ (b) $6\frac{1}{3}$ (c) $8\frac{1}{3}$ (d) $7\frac{1}{3}$
105. A and B together can do a piece of work in 12 days which B and C together can do in 16 days. After A has been working at it for 5 days and B for 7 days, C finishes it in 13 days. In how many days B could finish the work ?
 (a) 48 days (b) 24 days (c) 16 days (d) 12 days
106. Three circles of radius a, b, c touch each other externally. The area of the triangle formed by joining their centers is
 (a) $\sqrt{(a+b+c)abc}$ (b) $(a+b+c)\sqrt{ab+bc+ca}$
 (c) $ab+bc+ca$ (d) None of the above
107. If a metallic cone of radius 30 cm and height 45 cm, is melted and recast into metallic spheres of radius 5 cm, find the number of spheres.
 (a) 81 (b) 41 (c) 80 (d) 40
108. Chords AB and CD of a circle intersect at E and are perpendicular to each other. Segments AE, EB and ED are of lengths 2 cm, 6 cm and 3 cm respectively. Then the length of the diameter of the circle in cm is
 (a) $\sqrt{65}$ (b) $\frac{1}{2}\sqrt{65}$ (c) 65 (d) 65/2
109. For every set of 19 kites sold, a vendor gives 1 kite extra, free of cost. In order to give a discount of 10%, the number of extra kites he should give in a sale of 27 kites to the nearest integer is
 (a) 3 (b) 6 (c) 7 (d) 8
110. A ruby stone was bought for Rs. 1600 at Jaipur. A sum of Rs. 2400 was spent on making a ring with the ruby stone. It was advertised for sale at Mumbai for Rs. 7800. If a discount of 10% was given, then the % profit made as
 (a) 55% (b) 68.5% (c) 75.5% (d) 80%
111. A shopkeeper buys an article for Rs. 450. He marks it at 20% above the cost price. Find the percentage discount given by him, if he sells the article for Rs. 496.80.
 (a) 8% (b) 9% (c) 10% (d) 12%
112. The area of a circle is proportional to the square of its radius. A small circle of radius 3 cm is drawn within a larger circle of radius 5 cm. Find the ratio of the area of the annular zone to the area of the larger circle. (Area of the annular zone is the difference between the area of the larger circle and that of the smaller circle.)
 (a) 9:16 (b) 9:25 (c) 16:25 (d) 16:27
113. A man invested $\frac{1}{3}$ of his capital at 7%, $\frac{1}{4}$ at 8% and the remainder at 10%. If his annual income is Rs. 561, the capital is
 (a) Rs. 5400 (b) Rs. 6000 (c) Rs. 6600 (d) Rs. 7200

114. The average age of Ram and his two children is 17 years and the average age of Ram's wife and the same children is 16 years. If the age of Ram is 33 years, the age of his wife is (in years).
 (a) 31 (b) 32 (c) 35 (d) 30
115. A man's pension on retirement from service is equal to half the average salary during last 3 years of his service. His salary from 1-1-1983 is Rs. 380 per month with increment of Rs. 40 due on 1-10-83 and 1-10-84 and 1-10-85. If he retires on 1-1-86, what pension does he draw ?
 (a) Rs. 205 (b) Rs. 215 (c) Rs. 225 (d) Rs. 230
116. A person bought 76 cows and sold 20 cows at 15% profit, 40 cows at 19% profit and remaining 16 cows at 25% profit and got a profit Rs. 6570 as a whole. The cost price of each cow is
 (a) Rs. 450 (b) Rs. 425 (c) Rs. 420 (d) Rs. 400
117. One side of a square is increased by 30%. To maintain the same area, the other side will have to be decreased by
 (a) $23\frac{1}{13}\%$ (b) $76\frac{12}{13}\%$ (c) 30% (d) 15%
118. Ram traveled 1200 km by air which formed $\left(\frac{2}{5}\right)$ of his trip. He traveled one third of the trip by car and the rest by train. The distance (in km) traveled by train was
 (a) 480 (b) 800 (c) 1600 (d) 1800
119. A policeman goes after a thief who has 100 metres start, if the policeman runs a kilometer in 8 min, and the thief a km in 10 min, the distance covered by thief before he is over powered is
 (a) 350 m (b) 400 m (c) 320 m (d) 420 m
120. A man borrows Rs. 21000 at 10% compound interest. How much he has to pay equally at the end of each year, to settle his loan in two years?
 (a) Rs. 12000 (b) Rs. 12100 (c) Rs. 12200 (d) Rs. 12300
121. If $\frac{4+3\sqrt{3}}{\sqrt{7+4\sqrt{3}}} = A + \sqrt{B}$, then $B - A$ is
 (a) -13 (b) $2\sqrt{13}$ (c) 13 (d) $3\sqrt{3} - \sqrt{7}$
122. If the expression $x^2 + x + 1$ is written in the form $\left(x + \frac{1}{x}\right)^2 + q^2$, then the possible values of q are
 (a) $\pm \frac{1}{3}$ (b) $\pm \frac{\sqrt{3}}{2}$ (c) $\pm \frac{2}{\sqrt{3}}$ (d) $\pm \frac{1}{2}$
123. If $a^2 - 4a - 1 = 0$, then value of $a^2 + \frac{1}{a^2} + 3a - \frac{3}{a}$ is
 (a) 25 (b) 30 (c) 35 (d) 40
124. If $x = \sqrt[3]{a + \sqrt{a^2 + b^3}} + \sqrt[3]{a - \sqrt{a^2 + b^3}}$, then $x^3 + 3bx$ is equal to
 (a) 0 (b) a (c) 2a (d) 1
125. If $x^2 - y^2 = 80$ and $x - y = 8$, then the average of x and y is
 (a) 2 (b) 3 (c) 4 (d) 5
126. If $\frac{1}{\sqrt[3]{4} + \sqrt[3]{2} + 1} = a^3\sqrt{4} + b^3\sqrt{2} + c$ and a,b,c are rational numbers, then a+b+c is equal to
 (a) 0 (b) 1 (c) 2 (d) 3
127. $\frac{1}{1+2^{a-b}} + \frac{1}{1+2^{b-a}}$ is
 (a) a-b (b) b-a (c) 1 (d) 0
128. If $\frac{a}{b} = \frac{4}{5}$ and $\frac{b}{c} = \frac{15}{16}$, then $\frac{18c^2 - 7a^2}{45c^2 + 20a^2}$ is equal to
 (a) 1/3 (b) 2/5 (c) 3/4 (d) 1/4
129. Two circles with centers P and Q intersect at B and C. A, D are points on the circles with centers P and Q respectively such that A, C, D are collinear. If $\angle APB = 130^\circ$, and $\angle BOD = x^\circ$, then the value of x is
 (a) 65 (b) 130 (c) 195 (d) 135
130. C_1 and C_2 are two concentric circles with centers at O. Their radii are 12 cm and 3 cm respectively. B and C are the points of contact of two tangents drawn to C_2 from a point A lying on the circle C_1 . Then the area of the quadrilateral ABOC is
 (a) $\frac{9\sqrt{15}}{2}$ sq. cm (b) $12\sqrt{15}$ sq. cm (c) $9\sqrt{15}$ sq. cm (d) $6\sqrt{15}$ sq. cm
131. I and O are respectively the in centre and circumcentre of a triangle ABC. The line AI produced intersects the circumcircle of ΔABC at the point D. If $\angle ABC = x^\circ$, $\angle BID = y^\circ$ and $\angle BOD = z^\circ$, then $\frac{z+x}{y} = ?$
 (a) 3 (b) 1 (c) 2 (d) 4
132. Rana drove 8 miles due west, then 6 miles due north, then 3 miles due east and then 6 more miles due north. The distance between his initial and final position is
 (a) 13 miles (b) 17 miles (c) 19 miles (d) 21 miles
133. ABCD is parallelogram. BC is produced to Q such that BC=CQ. Then
 (a) area (ΔBCP)=area (ΔDPO)
 (b) area (ΔBCP)>area (ΔDPO)
 (c) area (ΔBCP)<area (ΔDPO)
 (d) area (ΔBCP)+area (ΔDPO) = area (ABCD)
134. In ΔABC and ΔDEF , $AB=DE$ and $BC=EF$. Then one can infer that $\Delta ABC \cong \Delta DEF$, when
 (a) $\angle BAC = \angle EDF$ (b) $\angle ACB = \angle DEF$
 (c) $\angle ACB = \angle DFE$ (d) $\angle ABC = \angle DEF$
135. The length of the common chord of two circles of radii 30 cm and 40 cm whose centers are 50 cm apart, is (in cm)
 (a) 12 (b) 24 (c) 36 (d) 48
136. Two chords AB, CD of a circle with centre O intersect each other at P. $\angle ADP = 23^\circ$ and $\angle APC = 70^\circ$, then the $\angle BCD$ is
 (a) 45° (b) 47° (c) 57° (d) 67°
137. If the interior angles of a five sided polygon are in the ratio of 2:3:3:5:5, then the measure of the smallest angle is
 (a) 20° (b) 30° (c) 60° (d) 90°
138. If $\sec \theta + \tan \theta = \sqrt{3}$ ($0^\circ \leq \theta \leq 90^\circ$), then $\tan 3\theta$ is
 (a) undefined (b) $\frac{1}{\sqrt{3}}$ (c) considered as infinity (d) $\sqrt{3}$
139. If $\sin(60^\circ - \theta) = \cos(\psi - 30^\circ)$, then the value of $\tan(\psi - \theta)$ is (assume that θ and ψ are both positive acute angles with $\theta < 60^\circ$ and $\psi > 30^\circ$)
 (a) $\frac{1}{\sqrt{3}}$ (b) 0 (c) $\sqrt{3}$ (d) 1
140. The value of $(1 + \cot \theta - \operatorname{cosec} \theta)(1 + \tan \theta + \sec \theta)$ is equal to
 (a) 1 (b) 2 (c) 0 (d) -1
141. If $\tan \theta + \cot \theta = 2$, then the value of $\tan^n \theta + \cot^n \theta$ ($0^\circ < \theta < 90^\circ$) and n is an integer) is
 (a) 2 (b) 2^n (c) 2n (d) 2^{n+1}
142. A pole stands vertically, inside a scalene triangular park ABC. If the angle of elevation of the top of the pole from each corner of the park is same, then in ΔABC , the foot of the pole is at the
 (a) centroid (b) circumcentre (c) incentre (d) orthocentre

143. If $\frac{\sin \theta}{x} = \frac{\cos \theta}{y}$, then $\sin \theta - \cos \theta$ is equal to

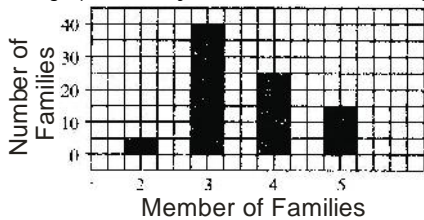
- (a) $x - y$ (b) $x + y$ (c) $\frac{x - y}{\sqrt{x^2 + y^2}}$ (d) $\frac{y - x}{\sqrt{x^2 + y^2}}$

144. The below bar graph shows the marks obtained by a student in an examination. What is the average marks obtained by the student ?



- (a) 55 (b) 56 (c) 57 (d) 58

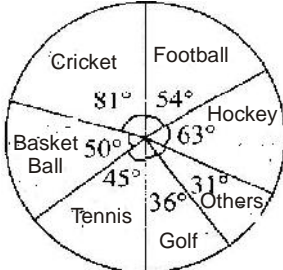
145. Study the bar graph carefully and answer the following questions.



Which type of family is the most common?

- (a) 2 members (b) 3 members (c) 4 members (d) 5 members

Directions : The pie chart shows the expenditure of a country on various sports during a particular year. Study the graph and answer the question no. 146 to 148.



146. If the total amount spent on cricket and hockey together is Rs. 80,000, the total amount spent on sports is

- (a) Rs. 1,00,000 (b) Rs. 2,00,000 (c) Rs. 2,50,000 (d) Rs. 3,00,000

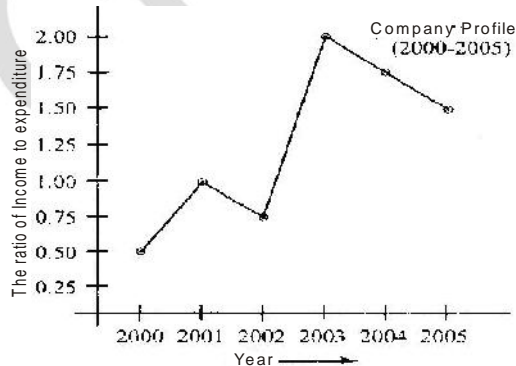
147. How much percent more is spent on Hockey than that on Golf ?

- (a) 27% (b) 35% (c) 37.5% (d) 75%

148. How much percent less is spent on football than that on cricket ?

- (a) $22\frac{2}{9}\%$ (b) 27% (c) $33\frac{1}{3}\%$ (d) $37\frac{1}{2}\%$

Directions : Study the following graph and answer the question No. 149 and 150.



149. Find the percentage decrease in income from 2001 to 2002.

- (a) 50 (b) 33 (c) $37\frac{1}{2}$ (d) data inadequate

150. If the income shows positive growth in every year throughout period (2000-2005), then in how many years the expenditure shows a positive growth ?

- (a) 5 (b) 3 (c) 4 (d) 2

ENGLISH COMPREHENSION

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

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(c)/ No error (d).

153. My grandfather owns(a)/fifty acre(b)/ of wetland (c)/ No error (d)

154. Belgium chocolate is considered (a)/ by many to be finer(b)/than any others in the World(c)/ No error (d)

155. Indian scientists are in no way (a)/ inferior than (b)/ any other scientist in the world. (c)/ No error (d)

Directions (156-160): In the following questions, 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 as your answer.

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 students 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: (161-165): In the following questions, out of the four alternatives, choose the one which best expresses the meaning of the given word as your answer.

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 (166-170): In the following questions, choose the word opposite in meaning to the given word as your answer.

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

Direction (171-175): In the following questions, four alternatives are given for the Idiom/ phrase printed in bold in the sentence. Choose the alternative which best expresses the meaning of the idiom/ phrase as your answer.

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 (176-180): In the following questions, a part of the sentence is printed in bold. Below are given alternatives to the bold part at (1), (2) and (3) which may improve the sentence. Choose the correct alternative. In case no improvement is needed. Your answer is (4).

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 (181-185): In the following questions, out of the four alternatives 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) Naïve (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 (186-190): In the following questions, there are four different words out of which one is correctly spelt. Find the correctly spelt word as your answer.

186. (a) Beneficil (b) Beneficial (c) Benifical (d) Beneficial

187. (a) Averisious (b) Avaricious (c) Avaricious (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) Apprihension (d) Apprehenson

Directions (191-200): In the following questions, 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.

Passage - I

Question Nos 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 Nos. 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) Everbody 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) Critical 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