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SSC CGL - 2014 PAPER

Direction : In Question Nos. 1 to 6, select the related word/letter/number from the given alternatives.

- Voyage : Sea sickness :: Heights : ?
(a) Ship (b) Travel
(c) Giddiness (d) Motion
- Waitress : Restaurant :: ?
(a) Doctor : Nurse (b) Driver : Truck
(c) Teacher : School (d) Actor : Role
- AROUND : RAUODN :: GROUND : ?
(a) RGUODN (b) NDOOGR
(c) OUNDGR (d) DNUURG
- APPROACHED : ROACHEDAPP :: BARGAINED : ?
(a) AINEDBARG (b) GAINEDBAR
(c) GAINEDRAB (d) RABGAINED
- 8 : 256 :: ?
(a) 7 : 343 (b) 9 : 243
(c) 10 : 500 (d) 5 : 75
- 21 : 3 :: 574 : ?
(a) 23 (b) 82
(c) 97 (d) 113

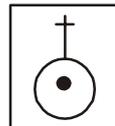
Direction : In Question Nos. 7 to 12, find the odd word/number/letters/number pair from the given alternatives.

- (a) Obstetrician (b) Podiatrist
(c) Pulmonologist (d) Prosthetist
- (a) Century (b) Decadent
(c) Year (d) Month
- (a) FEDC (b) STUV
(c) LKJI (d) RQPO
- (a) LPXOY (b) RQST
(c) FBDLX (d) MPONL
- (a) 14 - 16 (b) 56 - 64
(c) 77 - 88 (d) 80 - 93
- (a) 13 - 21 (b) 19 - 27
(c) 15 - 23 (d) 16 - 24
- Which one of the given responses would be a meaningful order of the following ?
1. apartment 2. town
3. street 4. building
5. complex
(a) 1, 5, 4, 3, 2 (b) 4, 5, 3, 2, 1
(c) 2, 1, 3, 4, 5 (d) 1, 4, 5, 3, 2
- If the following words are arranged in reverse dictionary order, which word comes second ?
(a) Explosion (b) Express
(c) Exploit (d) Expulse
- Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?
ac _ c _ cb _ acbcacbca _ bc
(a) abbb (b) bacc
(c) babc (d) bbcc

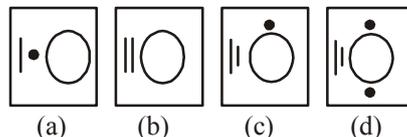
Direction : In Question Nos. 16 to 18, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

- AZ, CX, FU, ?
(a) IR (b) IV
(c) JQ (d) KP
- 1, 2, 6, 24, ?, 720
(a) 3 (b) 5
(c) 120 (d) 8
- 156, 506, ?, 1806
(a) 1056 (b) 856
(c) 1456 (d) 1506
- Suket has three daughters and each daughter has a brother. How many male members are there in the family ?
(a) 4 (b) 2
(c) 3 (d) 1
- Dinesh and Ramesh start together from a certain point in the opposite direction on motorcycles. The speed of Dinesh is 60 km per hour and Ramesh 44 km per hour. What will be the distance between them after 15 minutes ?
(a) 20km. (b) 24km.
(c) 26km. (d) 30km.
- An insect is walking in a straight line. It covers a distance of 15 cm per minute. It comes back 2.5 cm after every 15 cm. How long will it take to cover a distance of 1 metre ?
(a) 6.5 min (b) 8 min
(c) 10min (d) 12min
- A group of alphabets are given with each being assigned a number. These have to be unscrambled into a meaningful word and correct order of letters may be indicated from the given responses.
T M H R E O
5 4 3 2 1 0
(a) 025314 (b) 315402
(c) 405312 (d) 504231
- From the given alternative words, select the word which

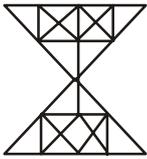
- cannot be formed using the letters of the given word :
TRIVANDRUM
- (a) RAIN (b) DRUM
(c) TRAIN (d) DRUK
24. How many meaningful English words can be made with the letters 'OEHM' using each letter only once in each word ?
(a) FOUR (b) THREE
(c) TWO (d) ONE
25. A shopkeeper quotes the rate on the price tag by replacing numbers with letters as follows :
- | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| B | R | O | W | N | S | T | I | C | K |
- If a customer purchases two items whose price tags read ₹ IIT and ₹ NICK, what is the total amount he has to Pay?
(a) ₹4776 (b) ₹4765
(c) ₹5565 (d) ₹5665
26. If CASUAL is coded as SACLAU, then what would be the code of MATRIC ?
(a) CIRTAM (b) TMAICR
(c) TAMCIR (d) ATMCIR
27. If 'S' is written as 'H' 'R' as '@' 'A' as '∇' 'M' as '#', 'T' as '\$' and 'E' as '%' then how is 'MASTER' written in that code ?
(a) #∇H\$%@ (b) #H∇\$%@
(c) #∇\$H%@ (d) #∇H%@\$
28. If 1 candle in box number 1 is placed in box number 2, then box-2 has twice the number of candles that box 1 has. If 1 candle from box-2 is placed in box-1, the box-2 and box-1 have the same number of candles. How many candles were there in box-1 and box-2 ?
- | | | | |
|-----------|-----------|-----------|-----------|
| Box-1 | Box-2 | Box-1 | Box-2 |
| (a) 5 : 3 | (b) 7 : 5 | (c) 6 : 4 | (d) 5 : 7 |
29. Which of the following interchange of signs would make the equation correct ?
 $6 \times 4 + 2 = 16$
(a) + and \times , 2 & 4 (b) + and \times , 4 & 6
(c) + and \times , 2 & 6 (d) + and \times , 3 & 4
30. Select the correct combination of mathematical signs to replace the * signs and to balance the following equation :
 $45 * 3 * 6 * 2 * 16$
(a) $+\times\div=$ (b) $+\div\times=$
(c) $+\times-=$ (d) $++-=$
31. Select the correct combination of mathematical signs to replace * signs and to balance the following equation :
 $8 * 5 * 10 * 2 * 25$
(a) $+\times\div=$ (b) $+\div-=$
(c) $\times+=\times$ (d) $\times-=\times$
32. 7 6 6
8 6 ?
3 4 5
168 144 120
- (a) 8 (b) 10
(c) 5 (d) 4
33. 8 5 6
3 7 5
1 4 2
74 90 ?
(a) 65 (b) 85
(c) 52 (d) 76
34. 22 46 24
27 58 31
32 68 ?
(a) 46 (b) 36
(c) 32 (d) 38
35. On one side of a street are even numbers and on the other side are odd numbers. No. 1 is exactly in front of No. 2. My House is No. 9. From my house, a man comes up from No. 2 and knocks at the door, five doors beyond the house in front of me. What is the No. of that house ?
(a) 18 (b) 20
(c) 22 (d) 26
36. Four players P, Q, R and S are standing a play field in such a way that Q is to East of P, R is to the South of P and S is to the North of P. In which direction of Q is S Standing ?
(a) North (b) South
(c) North-West (d) South-East
37. One statement is given followed by two Conclusions I and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions can definitely be drawn from the given statement. Indicate your answer.
Statement : The rich must live more simply. All poor people are simple.
Conclusions :
I. Rich people waste money.
II. Poor people save money.
(a) Only I follows. (b) Only II follows.
(c) Neither I nor II follow. (d) Both I and II follow.
38. (1) All roses in Sita's garden are red.
(2) All marigold flowers in Sita's garden are orange.
(3) All flowers in Sita's garden are either red or orange.
If 1st two statements are true, the third is
(a) True (b) False
(c) Uncertain (d) Vague
39. Find out which answer figure will exactly make up the question figure.
Question figure :



Answer figures :

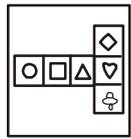


40. How many triangles are there in the give figure ?

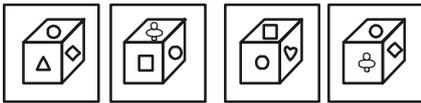


- (a) 48
- (b) 60
- (c) 56
- (d) 52

41. Choose the cube that will be formed by folding the sheet of paper shown in the problem figure.

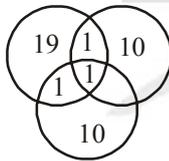


Answer figures :



- (a)
- (b)
- (c)
- (d)

42. In a group of persons, 11 persons speak Kannada, 20 persons speak Tamil and 11 persons speak Telugu. In that group, if two persons speak two languages and one person speak all the languages, then how many persons are there in the group ?

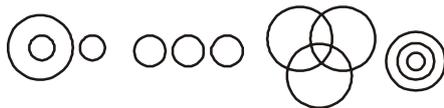


- (a) 40
- (b) 41
- (c) 42
- (d) 43

43. Which one of the following diagrams best depicts the relationship among Human Society - Youth Club, Political Party and Youths ?



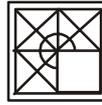
44. Which one of the following diagrams represent correct relationship among pigeon, birds, dogs ?



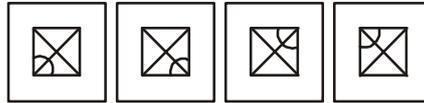
- (1)
- (2)
- (3)
- (4)
- (a) 1
- (b) 2
- (c) 3
- (d) 4

Direction : In Question Nos. 45 and 46, which answer figure will complete the pattern in the question figure ?

45. Question figure :

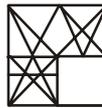


Answer figures :

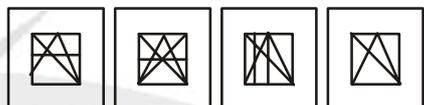


- (a)
- (b)
- (c)
- (d)

46. Question figure :



Answer figures :



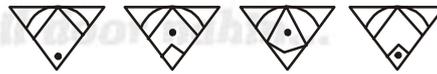
- (a)
- (b)
- (c)
- (d)

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

Question figure :



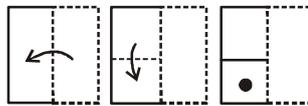
Answer figures :



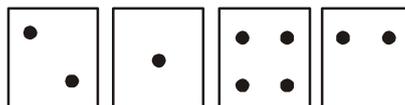
- (a)
- (b)
- (c)
- (d)

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

Question figures :



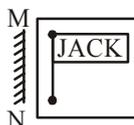
Answer figures :

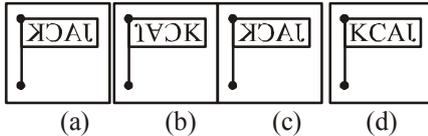


- (a)
- (b)
- (c)
- (d)

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

Question figure :



Answer figures :


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 30, 22, etc. and 'N' can be represented by 97, 89, etc. Similarly, you have to identify the set for the given word.

"DAKU"

Matrix-I

	0	1	2	3	4
4	A	F	K	P	U
3	F	K	A	U	P
2	P	U	F	K	A
1	K	P	U	A	F
0	U	A	P	F	K

Matrix-II

	5	6	7	8	9
9	D	I	N	S	X
8	X	S	I	D	N
7	N	X	S	I	D
6	S	D	X	N	I
5	I	N	D	X	S

- (a) 95, 40, 04, 42 (b) 24, 95, 20, 27
 (c) 88, 24, 10, 34 (d) 57, 13, 23, 21

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Direction : In Question Nos. 39 to 41, select the related word/letter/number from the given alternatives.

39. Doctor : Diagnosis :: Judge : ?
 (a) Judgement (b) Court
 (c) Lawyer (d) Punishment
40. BDFH : JLNP :: RTVX : ?
 (a) ZYDF (b) ZBDE
 (c) ZBDF (d) ZEDF
41. 5 : 124 :: 10 : ?
 (a) 999 (b) 1001
 (c) 199 (d) 1011

Direction : In Question Nos. 42 & 43, find the odd number/letters/number pair from the given alternatives.

42. (a) BEAM (b) PILLAR
 (c) HOUSE (d) ROOF
43. (a) 178 (b) 98
 (c) 168 (d) 28
44. In the following series, how many p' q and u occur in such a way that u is in the middle, and both p and q are any one side ?
 asdfgflkjhpqirwqpauiatzbnmer
 ghpuqolmcbvutzxqvpomwnmypuqa
 bcvzxsmpuqtrtydfbhjellpuqoxbvn
 mklercftcupqpkqrtoxcmbaspuq
 xewvzpbduiopqrsmnopuqcsdefg
 (a) 8 (b) 9
 (c) 10 (d) 11
45. Arrange the following words in a meaningful order :
 (1) Lieutenant (2) Admiral
 (3) Commander (4) Commodore
 (5) Captain
 (a) 2, 3, 5, 4, 1 (b) 1, 5, 3, 4, 2
 (c) 1, 3, 5, 4, 2 (d) 1, 5, 4, 2, 3

Direction : In Question Nos. 46 & 47 numbers are arranged in some order. Find out the missing number.

46. 2, 10, 60, 420, 3360, ?
 (a) 30440 (b) 30240
 (c) 30220 (d) 30420
47. 208, 238, ?, 304, 340
 (a) 268 (b) 270
 (c) 286 (d) 274
48. In a certain code 'JUDICIAL' is written as 'LAUJICID'. How is 'GLORIOUS' written in that code ?
 (a) USGLIOOR (b) SULGROOL
 (c) SULOGIRO (d) SULGOIRO
49. A cyclist goes 30 km to North and then turning to East he goes 40 km. Again he turns to his right and goes 20 km. After this he turns to his right and goes 40 km. How far is he from his starting point ?
 (a) 0km (b) 10km
 (c) 25km (d) 40km
50. A boy from his home, first walks 20 m in North-West direction & then 20 m in South-West direction. Next, he walks 20 m South-East direction. Finally, he turns towards his house. In which direction is he moving ?
 (a) North-West (b) North-East
 (c) South-West (d) South-East
51. Prof. Milton Friedman was the leader of
 (a) Ohio school (b) Chicago school
 (c) Cambridge school (d) London school
52. Which one of the following is not a qualitative control of credit by the Central Bank of a country?
 (a) Rationing of credit
 (b) Regulation of consumer credit
 (c) Variation of the reserve ratio
 (d) Regulation of margin requirements
53. The market in which loans of money can be obtained is called

- (a) Reserve market (b) Institutional market
(c) Money market (d) Exchange market
54. If the marginal return increases at a diminishing rate, the total return
(a) increases (b) decreases
(c) remains constant (d) becomes zero
55. The law of Increasing Returns means
(a) increasing cost (b) decreasing cost
(c) increasing production (d) increasing income
56. The most important feature of Cabinet system of Government is
(a) Individual responsibility
(b) Collective responsibility
(c) Responsibility to none
(d) Non-responsibility
57. Direct legislation in Switzerland has
(a) a natural growth (b) a haphazard growth
(c) an artificial growth (d) None of the above
58. Who gave the idea of "Cabinet Dietatorship"?
(a) Muir (b) Lowell
(c) Marriot (d) Laski
59. In which of the following countries are the judges of the federal court elected by the two Houses of the Federal Legislature?
(a) Switzerland (b) Germany
(c) Canada (d) Both (a) and (b)
60. The President of the USA appoints Supreme Court Judges
(a) with Senate's consent
(b) at his discretion
(c) with consent of the House of Representatives
(d) None of these
61. Multan was named by the Arabs as
(a) City of beauty (b) City of wealth
(c) City of gold (d) Pink city
62. Which one of the following was the book written by Amoghvarsha, the Rashtrakuta King?
(a) Adipurana (b) Ganitasara Samgraha
(c) Saktayana (d) Kavirajamarga
63. Who built the Kailasanatha Temple at Ellora?
(a) Rajendra I (b) Mahendra Varman I
(c) Krishna I (d) Govinda I
64. The land measures of the Second Pandyan Empire was mentioned in
(a) Thalavaipuram Copper Plates
(b) Uttirameru Inscription
(c) Kudumiyammalai Inscription
(d) Kasakudi Copper Plates
65. Who was the greatest ruler of the Satavahanas?
(a) Satkarni I (b) Gautamiputra Satkarni
(c) Simuka (d) Hala
66. Cactus is referred to as
(a) Hydrophyte (b) Mesophyte
(c) Xerophyte (d) Epiphyte
67. Which of the following is not a renewable resource?
(a) Thorium (b) Geothermal heat
(c) Tidal power (d) Radiant energy
68. Which of the following statements is correct?
(a) Mahadeo hills are in the west of Maikala hills.
(b) Mahadeo hills are the part of Karnataka Plateau.
(c) Mahadeo hills are in the east of Chhotanagpur Plateau.
(d) Mahadeo hills are the part of Aravalli ranges.
69. Which one of the following pairs is not correctly matched?
(a) Hevea Tree—Brazil
(b) Sumatra Storm—Malaysia
(c) Kajan River—Borneo
(d) Dekke Toba fish—Brazil
70. Which of the following resources is renewable one?
(a) Uranium (b) Coal
(c) Timber (d) Natural Gas
71. How many neck canal cells are found in the archegonium of a fern?
(a) One (b) Two
(c) Three (d) Four
72. Which angiosperm is vesselless?
(a) Hydrilla (b) Trochodendron
(c) Maize (d) Wheat
73. Who was the first child born after operative procedure?
(a) Caesar (b) Huxley
(c) William (d) Pasteur
74. Myrmecology is study of
(a) Insects (b) Ants
(c) Crustaceans (d) Arthropods
75. NIN (National Institute of Nutrition) Central Office is located at
(a) Hyderabad (b) Mumbai
(c) Bengaluru (d) Kolkata
76. HIV often changes its shapes due to the presence of an enzyme called
(a) Reverse Transcriptase (b) Enterokinase
(c) Nucleotidase (d) Nucleoditase
77. Fleming's right hand rule is used to find the direction of the
(a) Alternate current (b) Direct current
(c) Induced current (d) Actual current
78. The unit of electrical power is
(a) Volt (b) Watt
(c) Kilowatt hour (d) Ampere
79. The resistance of the human body (dry condition) is of the order of
(a) 10^1 Ohm (b) 10^2 Ohm
(c) 10^3 Ohm (d) 10^4 Ohm
80. Certain substances lose their electrical resistance completely at super low temperature. Such substances are called
(a) super conductors (b) semi conductors
(c) dielectrics (d) perfect conductors
81. The section of the CPU that selects, interprets and monitors the execution of program instructions is
(a) Memory (b) Register unit
(c) Control unit (d) ALU
82. Who among the following introduced the world's first laptop computer in the market?
(a) Hewlett-Packard
(b) Epson
(c) Laplink travelling software Inc

- (d) Microsoft
83. Brass contains
 (a) Copper and Zinc (b) Copper and Tin
 (c) Copper and Silver (d) Copper and Nickel
84. Which is the purest commercial form of iron?
 (a) Pig iron (b) Steel
 (c) Stainless steel (d) Wrought iron
85. In galvanization, iron is coated with
 (a) Copper (b) Zinc
 (c) Tin (d) Nicked
86. Which one of the following is also known as solution?
 (a) A compound
 (b) A homogeneous mixture
 (c) A heterogeneous mixture
 (d) A suspension
87. The cells which are closely associated and interacting with guard cells are
 (a) Transfusion tissue (b) Complementary cells
 (c) Subsidiary cells (d) Hypodermal cells
88. Conversion of starch to sugar is essential for
 (a) Stomatal opening (b) Stomatal closing
 (c) Stomatal formation (d) Stomatal growth
89. Soil erosion can be prevented by
 (a) Increasing bird population
 (b) Afforestation
 (c) Removal of vegetation
 (d) Overgrazing
90. Natural sources of air pollution are
 (a) Forest fires
 (b) Volcanic eruptions
 (c) Dust storm
 (d) Smoke from burning dry leaves
91. Which of the following Genetically Modified vegetable is recently being made available in Indian market?
 (a) Carrot (b) Radish
 (c) Brinjal (d) Potato
92. "Bull's eye" is used in the game of
 (a) Boxing (b) Basketball
 (c) Polo (d) Shooting
93. As per newspapers report what percent of Government stake will be disinvested in Rashtriya Ispat Nigam Ltd. (RINL)?
 (a) 5% (b) 50%
 (c) 10% (d) 12%
94. Pablo Picasso, the famous painter was
 (a) French (b) Italian
 (c) Flemish (d) Spanish
95. Which of the following is the Regulator of the credit rating agencies in India?
 (a) RBI (b) SBI
 (c) SIDBI (d) SEBI
96. Which is the first Indian Company to be listed in NASDAQ?
 (a) Reliance (b) TCS
 (c) HCL (d) Infosys
97. RRBs are owned by
 (a) Central Government
 (b) State Government
 (c) Sponsor Bank
- (d) Jointly by all of the above
98. The Monetary and Credit Policy is announced by which of the following?
 (a) Ministry of Finance of Centre
 (b) Reserve Bank of India
 (c) State Bank of India
 (d) Planning Commission of India
99. Which of the following method is not used in determining National Income of a country?
 (a) Income Method (b) Output Method
 (c) Input Method (d) Investment Method
100. What does the letter 'e' denotes in the term 'e-banking'?
 (a) Essential Banking (b) Economic Banking
 (c) Electronic Banking (d) Expansion Banking

PART - C

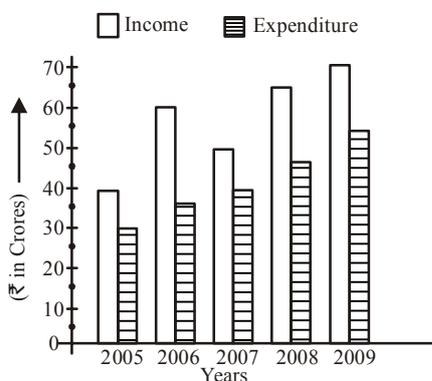
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101. Arrange the following in ascending order 3^{34} , 2^{51} , 7^{17} , we get
 (a) $3^{34} > 2^{51} > 7^{17}$ (b) $7^{17} > 2^{51} > 3^{34}$
 (c) $3^{34} > 7^{17} > 2^{51}$ (d) $2^{51} > 3^{34} > 7^{17}$
102. If the product of first fifty positive consecutive integers be divisible by 7^n , where n is an integer, then the largest possible value of n is
 (a) 7 (b) 8
 (c) 10 (d) 5
103. A, B and C together can do a piece of work in 40 days. After working with B and C for 16 days, A leaves and then B and C complete the remaining work in 40 days more. A alone could do the work in
 (a) 80 days (b) 90 days
 (c) 100 days (d) 120 days
104. Three pipes A, B and C can fill a tank in 6 hours. After working it together for 2 hours, C is closed and A and B can fill the remaining part in 7 hours. The number of hours taken by C alone to fill the tank is
 (a) 10 (b) 12
 (c) 14 (d) 16
105. Pratibha is thrice as efficient as Sonia and is therefore able to finish a piece of work in 60 days less than Sonia. Pratibha and Sonia can individually complete the work respectively in
 (a) 30, 60 days (b) 60, 90 days
 (c) 30, 90 days (d) 40, 120 days
106. The base of a right pyramid is an equilateral triangle of side 4 cm each. Each slant edge is 5 cm long. The volume of the pyramid is
 (a) $\frac{4\sqrt{8}}{3}$ cm³ (b) $\frac{4\sqrt{60}}{3}$ cm³
 (c) $\frac{4\sqrt{59}}{3}$ cm³ (d) $\frac{4\sqrt{61}}{3}$ cm³
107. There are two cones. The curved surface area of one is twice that of the other. The slant height of the latter is twice that of the former. The ratio of their radii is
 (a) 4 : 1 (b) 4 : 3
 (c) 3 : 4 (d) 1 : 4
108. A wire is bent into the form of a circle, whose area is 154

- cm². If the same wire is bent into the form of an equilateral triangle, the approximate area of the equilateral triangle is
 (a) 93.14 cm² (b) 90.14 cm²
 (c) 83.14 cm² (d) 39.14 cm²
109. A shopkeeper allows 10% discount on goods when he sells without credit. Cost price of his goods is 80% of his selling price. If he sells his goods by cash, then his profit is
 (a) 50% (b) 70%
 (c) 25% (d) 40%
110. A dealer of scientific instruments allows 20% discount on the marked price of the instruments and still makes a profit of 25%. If his gain over the sale of an instrument is ₹ 150, find the marked price of the instrument.
 (a) ₹938.50 (b) ₹940
 (c) ₹938 (d) ₹937.50
111. Ram bought a T.V. with 20% discount on the labelled price. Had he bought it with 30% discount he would have saved ₹ 800. The value of the T.V. set that he bought is
 (a) ₹5,000 (b) ₹8,000
 (c) ₹9,000 (d) ₹10,000
112. A vessel full of pure acid contains 10 litres of it, of which 2 litres are withdrawn. The vessel is then filled with water. Next 2 litres of the mixture are withdrawn, and again the vessel is filled up with water. The ratio of the acid left in the vessel with that of the original quantity is
 (a) 1 : 5 (b) 4 : 5
 (c) 4 : 25 (d) 16 : 25
113. Gold is 19 times as heavy as water and copper is 9 times as heavy as water. In what ratio should these be mixed to get an alloy 15 times as heavy as water?
 (a) 1 : 1 (b) 1 : 2
 (c) 2 : 3 (d) 3 : 2
114. The average age of boys in the class is twice the number of girls in the class. The ratio of boys and girls in the class of 50 is 4 : 1. The total of the ages (in years) of the boys in the class is
 (a) 2000 (b) 2500
 (c) 800 (d) 400
115. There are 100 students in 3 sections A, B and C of a class. The average marks of all the 3 sections was 84. The average of B and C was 87.5 and the average marks of A is 70. The number of students in A was
 (a) 30 (b) 35
 (c) 20 (d) 25
116. A sold an article to B at 20% profit and B sold it to C at 15% loss. If A sold it to C at the selling price of B, then A would make
 (a) 5% profit (b) 2% profit
 (c) 2% profit (d) 5% loss
117. The monthly salaries of A and B together amount to ₹ 40,000. A spends 85% of his salary and B, 95% of his salary. If now their savings are the same, then the salary (in ₹) of A is
 (a) 10,000 (b) 12,000
 (c) 16,000 (d) 18,000
118. It takes 8 hours for a 600 km journey, if 120 km is done by train and the rest by car. It takes 20 minutes more if 200 km is down by train and the rest by car. The ratio of the speed of the train to that of the car is
 (a) 2 : 3 (b) 3 : 2
 (c) 3 : 4 (d) 4 : 3
119. If a train runs at 70 km/hour, it reaches its destination late by 12 minutes. But if it runs at 80 km/hour, it is late by 3 minutes. The correct time to cover the journey is
 (a) 58 minutes (b) 2 hours
 (c) 1 hour (d) 59 minutes
120. A man borrowed some money from a private organisation at 5% simple interest per annum. He lended 50% of this money to another person at 10% compound interest per annum and thereby the man made a profit of ₹ 13,205 in 4 years. The man borrowed
 (a) ₹80,000 (b) ₹1,00,000
 (c) ₹1,20,000 (d) ₹1,50,000
121. If $a^2 + b^2 + c^2 = 2a - 2b - 2$, then the value of $3a - 2b + c$ is
 (a) 0 (b) 3
 (c) 5 (d) 2
122. If $a + b + c = 3$, $a^2 + b^2 + c^2 = 6$ and $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 1$, where a, b, c are all non-zero, then 'abc' is equal to
 (a) $\frac{2}{3}$ (b) $\frac{3}{2}$
 (c) $\frac{1}{2}$ (d) $\frac{1}{3}$
123. If $a^2 - 4a - 1 = 0$, $a \neq 0$, then the value of $a^2 + 3a + \frac{1}{a^2} - \frac{3}{a}$ is
 (a) 24 (b) 26
 (c) 28 (d) 30
124. The total area (in sq. unit) of the triangles formed by the graph of $4x + 5y = 40$, x-axis, y-axis and $x = 5$ and $y = 4$ is
 (a) 10 (b) 20
 (c) 30 (d) 40
125. For what value of k, the system of equations $kx + 2y = 2$ and $3x + y = 1$ will be coincident?
 (a) 2 (b) 3
 (c) 5 (d) 6
126. If $x = 2 + \sqrt{3}$, then $x^2 + \frac{1}{x^2}$ is equal to
 (a) 10 (b) 12
 (c) -12 (d) 14
127. If $a = 4.965$, $b = 2.343$ and $c = 2.622$, then the value of $a^3 - b^3 - c^3 - 3abc$ is
 (a) -2 (b) -1
 (c) 0 (d) 9.93^2
128. If $x + y + z = 0$, then the value of $\frac{x^2 + y^2 + z^2}{x^2 - yz}$ is
 (a) -1 (b) 0
 (c) 1 (d) 2
129. The value of $\sin^2 1^\circ + \sin^2 2^\circ + \sin^2 3^\circ + \dots + \sin^2 89^\circ$ is
 (a) 22 (b) 44

- (c) $22\frac{1}{2}$ (d) $44\frac{1}{2}$
130. The value of $\frac{\cos^3 \theta + \sin^3 \theta}{\cos \theta + \sin \theta} + \frac{\cos^3 \theta - \sin^3 \theta}{\cos \theta - \sin \theta}$ is equal to
 (a) -1 (b) 1
 (c) 2 (d) 0
131. The shadow of a tower standing on a level plane is found to be 30 m longer when the Sun's altitude changes from 60° to 45° . The height of the tower is
 (a) $15(3 + \sqrt{3})$ m (b) $15(\sqrt{3} + 1)$ m
 (c) $15(\sqrt{3} - 1)$ m (d) $15(3 - \sqrt{3})$ m
132. If $\sin 17^\circ = \frac{x}{y}$ then $\sec 17^\circ - \sin 73^\circ$ is equal to
 (a) $\frac{y}{\sqrt{y^2 - x^2}}$ (b) $\frac{y^2}{(x\sqrt{y^2 - x^2})}$
 (c) $\frac{x}{(y\sqrt{y^2 - x^2})}$ (d) $\frac{x^2}{(y\sqrt{y^2 - x^2})}$
133. If θ is a positive acute angle and $\operatorname{cosec} \theta + \cot \theta = \sqrt{3}$, then the value of $\operatorname{cosec} \theta$ is
 (a) $\frac{1}{\sqrt{3}}$ (b) $\sqrt{3}$
 (c) $\frac{2}{\sqrt{3}}$ (d) 1
134. If $\cos \alpha + \sec \alpha = \sqrt{3}$, then the value of $\cos^3 \alpha + \sec^3 \alpha$ is
 (a) 2 (b) 1
 (c) 0 (d) 4
135. If $\sin \theta + \cos \theta = \sqrt{2} \cos \theta$, then the value of $\cot \theta$ is
 (a) $\sqrt{2} + 1$ (b) $\sqrt{2} - 1$
 (c) $\sqrt{3} - 1$ (d) $\sqrt{3} + 1$
136. In a quadrilateral ABCD, the bisectors of $\angle A$ and $\angle B$ meet at O. If $\angle C = 70^\circ$ and $\angle D = 130^\circ$, then measure of $\angle AOB$ is
 (a) 40° (b) 60°
 (c) 80° (d) 100°
137. In $\triangle ABC$, E and D are points on sides AB and AC respectively such that $\angle ABC = \angle ADE$. If $AE = 3$ cm, $AD = 2$ cm and $EB = 2$ cm, then length of DC is
 (a) 4 cm (b) 4.5 cm
 (c) 5.0 cm (d) 5.5 cm
138. In a circle with centre O, AB is a chord, and AP is a tangent to the circle. If $\angle AOB = 140^\circ$, then the measure of $\angle PAB$ is
 (a) 35° (b) 55°
 (c) 70° (d) 75°
139. In $\triangle ABC$, $\angle A < \angle B$. The altitude to the base divides vertex angle C into two parts C_1 and C_2 , with C_2 adjacent to BC. Then
 (a) $C_1 + C_2 = A + B$ (b) $C_1 - C_2 = A - B$
 (c) $C_1 - C_2 = B - A$ (d) $C_1 + C_2 = B - A$
140. If O is the in-centre of $\triangle ABC$; if $\angle BOC = 120^\circ$, then the measure of $\angle BAC$ is
 (a) 30° (b) 60°
 (c) 150° (d) 75°
141. Two parallel chords of a circle of diameter 20 cm are 12 cm and 16 cm long. If the chords are in the same side of the centre, then the distance between them is
 (a) 28 cm (b) 2 cm
 (c) 4 cm (d) 8 cm
142. The interior angle of a regular polygon is 140° . The number of sides of that polygon is
 (a) 9 (b) 8
 (c) 7 (d) 6
143. If two circles of radii 9 cm and 4 cm touch externally, then the length of a common tangent is
 (a) 5 cm (b) 7 cm
 (c) 8 cm (d) 12 cm
- Study the following table and answer Question Nos. 144 to 146:
- | School | No. of students scoring marks less than 50% | Percentage of students scoring more than 50% | No. of students appeared |
|--------|---|--|--------------------------|
| A | 240 | 55 | 600 |
| B | 220 | 40 | 400 |
| C | 300 | 20 | 375 |
| D | 280 | 10 | 350 |
| E | 210 | 25 | 300 |
144. The ratio of the total number of students scoring marks less than 50% to that of scoring marks exactly 50% is
 (a) $50 : 3$ (b) $25 : 2$
 (c) $25 : 4$ (d) $35 : 2$
145. Which school has the highest number of students scoring exactly 50% marks?
 (a) D (b) E
 (c) B (d) A
146. The total number of students scoring 50% or more marks is
 (a) 1250 (b) 875
 (c) 775 (d) 675

Study the following graph which shows income and expenditure of a company over the years 2005-2009 and answer questions 147 to 150.



147. The difference in profit (₹ in crores) of the company during 2006 and 2007 is
 (a) 10 (b) 15
 (c) 20 (d) 25
148. In how many years was the income of the company less than the average income of the given years?
 (a) 4 (b) 3
 (c) 2 (d) 1
149. The percentage increase in expenditure for the company from 2007 to 2008 is
 (a) 20 (b) 25
 (c) 30 (d) 35
150. Profit of the company was maximum in the year
 (a) 2009 (b) 2008
 (c) 2006 (d) 2005

FOR VISUALLY HANDICAPPED CANDIDATES ONLY

144. In an examination, a boy was asked to multiply a given number by $\frac{7}{19}$. By mistake, he divided the given number by $\frac{7}{19}$ and got a result 624 more than the correct answer. The sum of digits of the given number is
 (a) 10 (b) 11
 (c) 13 (d) 14
145. The length of a rectangle is increased by 15% and breadth decreased by 15%. Then the area of the new rectangle is
 (a) unchanged (b) increased by 2.25%
 (c) decreased by 2.25% (d) increased by 15%
146. The cost price of 8 books is equal to the selling price of 6 books. The percentage of gain is
 (a) $4\frac{1}{6}$ (b) $33\frac{1}{3}$
 (c) 2 (d) 25
147. One litre of water is evaporated from 6 litres of a solution containing 5% salt. The percentage of salt in the remaining solution is

- (a) $4\frac{4}{9}\%$ (b) $5\frac{5}{7}\%$
 (c) 5% (d) 6%

148. A, B and C enter into a partnership with their capitals in the ratio $\frac{7}{2} : \frac{4}{3} : \frac{6}{5}$. After 4 months, A increases his share 50%. If the total profit at the end of the year was ₹ 2,16,000, then B's share in the profit was
 (a) ₹ 22,000 (b) ₹ 24,000
 (c) ₹ 30,000 (d) ₹ 40,000
149. On a journey across Kolkata, a taxi averages 40 kmph for 60% of distance, 30 kmph for 20% of the distance, and 10 kmph for the remainder. The average speed of the whole journey is
 (a) 25 kmph (b) 26 kmph
 (c) 24 kmph (d) 30 kmph
150. 40 men can finish a piece of work in 60 days. After some days, 10 men leave the work so that the work is finished in 70 days. The number of days after which 10 men left the work is
 (a) 20 days (b) 25 days
 (c) 30 days (d) 40 days

PART - D

ENGLISH COMPREHENSION

Directions: In Question Nos. 151 to 155, some parts of the sentences have errors and some are correct. Find out which part of a sentence has an error and blacken the oval [•] corresponding to the appropriate letter (A, B, C). If a sentence is free from error, blacken the oval corresponding to (D) in the Answer Sheet.

151. If I would have realised / what a bad shape our library is in / I would have done something / to arrest the deterioration.
 (a) (b) (c) (d)
152. He has been / enhanced in position / as a result of his diligence and integrity. / No error
 (a) (b) (c) (d)
153. It is I / who is responsible / for the delay. / No error
 (a) (b) (c) (d)
154. There is only one cure / to the evils which newly / acquired freedom produces and that cure is freedom.
 (a) (b) (c)

No error

(d)

155. He flew / over extensively / the Pacific last winter. /
 (a) / (b) / (c)

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. The student was punished for his _____.
 (a) impudence (b) prudence
 (c) modesty (d) elemency
157. My father was too _____ to push the heavy door.
 (a) faint (b) feeble
 (c) fragile (d) faltering
158. The flood damaged the books so much that it was impossible to _____ them.
 (a) retrieve (b) retrace
 (c) retract (d) retreat
159. His bungalow went through a make _____.
 (a) up (b) out
 (c) over (d) for
160. This auspicious beginning _____ well for a successful completion of our project.
 (a) attunes (b) argues
 (c) augurs (d) answers

Directions: In Question Nos. 161 to 163, 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. Persist
 (a) Resist (b) Leave
 (c) Quit (d) Insist
162. Eventually
 (a) previously (b) briefly
 (c) finally (d) successfully
163. Impeccable
 (a) remarkable (b) unbelievable
 (c) flawless (d) displeasing

Directions: In Question Nos. 164 to 166, choose the word opposite in meaning to the given word and mark it in the Answer Sheet.

164. Predilection
 (a) Predicament (b) Afterthought
 (c) Aversion (d) Postponement
165. Pompous
 (a) Uppish (b) Humble
 (c) Meek (d) Grandiose
166. Serene
 (a) Calm (b) Angry
 (c) Ruffled (d) Bitter

Directions: In Question Nos. 167 to 171, 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.

167. With great difficulty, he was able to carve out a niche for himself.
 (a) became a sculptor
 (b) did the best he could do
 (c) destroyed his career
 (d) developed a specific position for himself
168. You will succeed if you follow my advice to the letter.
 (a) about writing letters (b) written in the letter
 (c) in every detail (d) very thoughtfully
169. A critic's work is to read between the lines.
 (a) to comprehend the meaning
 (b) to appreciate the inner beauty
 (c) to understand the inner meaning
 (d) to read carefully
170. Where discipline is concerned I put my foot down.
 (a) take a firm stand (b) take a light stand
 (c) take a heavy stand (d) take a shaky stand
171. The convict claimed innocence and stood his ground in spite of the repeated accusations.
 (a) knelt (b) surrendered
 (c) kept standing (d) refused to yield

Directions: In Question Nos. 172 to 181, a sentence/a part of the sentence is underlined. Below are given alternatives to the underlined part at (a), (b), (c) which may improve the sentence. Choose the correct alternative. In case no improvement is needed your answer is (d). Mark your answer in the Answer Sheet.

172. Why should you be despaired of your success of your undertaking?
 (a) you despair of the success of your undertaking
 (b) you despair of success of undertaking
 (c) you be despaired of the success of your undertaking
 (d) No improvement.
173. As Rees was going to town in the High Street a savage dog attacked him and bit him.
 (a) going to town a savage dog attacked him and bit him in the High Street
 (b) in the High Street a savage dog attacked him and bit him in the town
 (c) going to town in the High Street a savage dog bit him and attacked him
 (d) No improvement
174. Something is pretty here that Vineeta can wear to the party.
 (a) Something here is pretty
 (b) Something is here pretty
 (c) Here is something pretty
 (d) No improvement
175. I have dreamt all my life to own a beautiful maroon coloured car.
 (a) of owning (b) to owning
 (c) at owning (d) No improvement
176. Sitting on the hill top, the sun went down watching before him.
 (a) he watched the sun go down.
 (b) the sun went down with him watching
 (c) the sun went down when he watched
 (d) No improvement

177. The office is soon to be closed.
 (a) just to (b) about to
 (c) immediately to (d) No improvement
178. He has achieved nothing out of his way worth mentioning.
 (a) out of the way (b) by the way
 (c) in a big way (d) No improvement
179. I prevailed on him to vote for you.
 (a) to (b) at
 (c) upon (d) No improvement
180. Eager to pass his final exams, studying was the students top priority.
 (a) the student's top priority was studying.
 (b) the student made studying his top priority.
 (c) the top priority of studying was made by the student.
 (d) No improvement.
181. Mr. Dev will not go to the wedding reception without being called.
 (a) if he is not invited (b) till he is invited
 (c) unless he is invited (d) No improvement

Directions: In Question Nos. 182 to 188, out of the four alternatives, choose the one which can be substituted for the given words/sentences and indicate it by blackening the appropriate oval [•] in the Answer Sheet.

182. Belief in many gods
 (a) pantheism (b) monotheism
 (c) polytheism (d) atheism
183. A cluster of flowers on a branch
 (a) bouquet (b) inflorescence
 (c) wreath (d) incandescence
184. A person who believes that only selfishness motivates human actions
 (a) agnostic (b) cynic
 (c) sceptic (d) misogynist
185. A highly skilled musician
 (a) artiste (b) virtuoso
 (c) performer (d) diva
186. A method of boiling briefly to cook food slightly
 (a) steam (b) bake
 (c) saute (d) parboil
187. The group, especially in the arts, regarded as being the most experimental
 (a) avant-garde (b) iconoclast
 (c) revolutionary (d) nerd
188. One who helps people by giving them money or other aid
 (a) benefactor (b) beneficiary
 (c) tycoon (d) patriot

Directions: In Question Nos. 189 to 190, four words are given in each question, out of which only one word is correctly spelt. Find the correctly spelt word and mark your answer in the Answer Sheet.

189. (a) Plebeian (b) Plibeian
 (c) Plebian (d) Plebiean
190. (a) Surroundings (b) Surroundings
 (c) Sarroundings (d) Surondings

Directions: In Question Nos. 191 to 195, 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 by blackening the appropriate oval [•] in the Answer Sheet.

PASSAGE - I (Q. NOS. 191-195)

As I stepped out of the train I felt unusually solitary since I was the only passenger to alight. I was accustomed to arriving in the summer, when holiday-makers throng coastal resorts and this was my first visit when the season was over. My destination was a little village which was eight miles by road. It took only a few minutes for me to come to the foot of the cliff path. When I reached the top I had left all signs of habitation behind me. I was surprised to notice that the sky was already a flame with the sunset. It seemed to be getting dark amazingly quickly. I was at a loss to account for the exceptionally early end of daylight since I did not think I had walked unduly slowly. Then I recollected that on previous visits I had walked in high summer and how it was October.

All at once it was night. The track was grassy and even in daylight sghowed up hardly at all. I was terrified of hurtling over the edge of the cliff to the rocks below. I felt my feet squelching and sticking in something soggy. Then I bumped into a little clump of trees that loomed up in front of me. I climbed up the nearest trunk and managed to find a tolerably comfortable fork to sit on. The waiting was spent by my attempts to identify the little stirrings and noises of animal life that I could hear. I grew colder and colder and managed to sleep only in uneasy fitful starts. At last when the moon came up I was on my way again.

191. The writer felt unusually solitary because
 (a) he was feeling very lonely without his family.
 (b) he was missing the company of other holiday-makers.
 (c) his destination was a little village eight miles away.
 (d) there was no one to meet him.
192. "I left all signs of habitation behind me." This means that he
 (a) came to a place where there were very few houses.
 (b) was in front of a large collection of cottages.
 (c) had come very far from places where people lived.
 (d) had just passed a remote village.
193. I became darker than the writer expected because
 (a) the nights are shorter in autumn than in summer.
 (b) the nights are longer in October than mid summer.
 (c) the train arrived later than usual.
 (d) he had walked unduly slowly.
194. The writer found it difficult to keep to the path because of
 (a) the darkness and narrowness of the path.
 (b) poor visibility and grassy track.
 (c) the darkness and his slow pace.
 (d) poor visibility and dew on grass.
195. When he settled himself on the fork of the tree the writer
 (a) had a sound sleep.
 (b) was disturbed by noises of animals.
 (c) was too afraid to sleep.
 (d) tried to sleep but without much success.

PASSAGE - II (Q. NOS. 196-200)

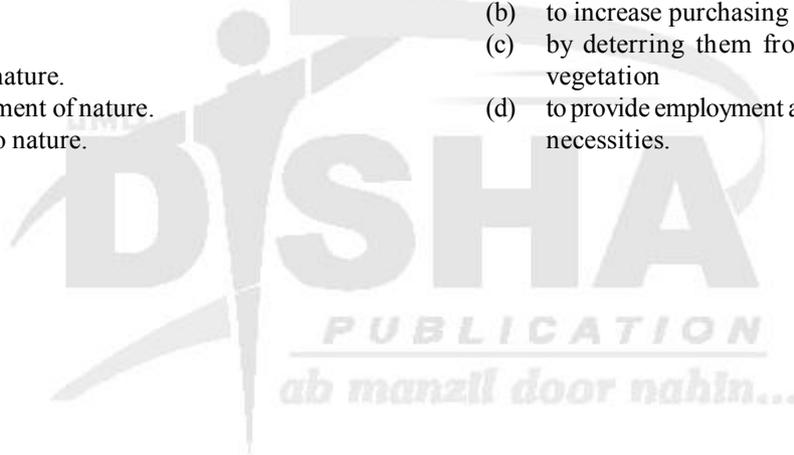
It is sad that in country after country, progress should become synonymous with an assault on nature. We who are a part of nature and dependent on her for every need, speak constantly about 'exploiting' nature. When the highest mountain

in the world was climbed in 1953, Jawaharlal Nehru objected to the phrase 'conquest of Everest' which he thought was arrogant. Is it surprising that this lack of consideration and the constant need to prove one's superiority should be projected on to our treatment of our fellowmen? I remember Edward Thompson, a British writer and a good friend of India, once telling Mr. Gandhi that wildlife was fast disappearing. Remarked Mr. Gandhi: 'It is decreasing in the jungles but it is increasing in the towns'

On the one hand the rich look askance at our continuing poverty; on the other they warn us against their own methods. We do not wish to impoverish the environment any further and yet we cannot forget the grim poverty of large numbers of people. Are not poverty and need the great polluters? For instance, unless we are in a position to provide employment and purchasing power for the daily necessities of the tribal people and those who live in and around our jungles, we cannot prevent them from combing the forest for food and livelihood, from poaching and from despoiling the vegetation.

196. At the beginning of the passage, the writer expresses her opinion that in many countries progress is synonymous with
- development.
 - utmost care for nature.
 - a balanced treatment of nature.
 - utmost cruelty to nature.

197. In the passage the term 'exploiting' nature suggests
- regretfulness.
 - sarcasm.
 - destructive urge of man.
 - greed of man.
198. Nehru objected to the phrase 'conquest of Everest' since
- it carries a war-like connotation.
 - it sounds pompous and boastful.
 - it depicts Everest as a victim.
 - Everest is unconquerable.
199. Gandhi's statement 'It is decreasing in the jungles but it is increasing in the towns.!'
- Refers to wild animals' decrease in the jungle.
 - Refers to flora and fauna.
 - Refers to man's selfishness.
 - Is a satirical comparison of man's callousness to the animals.
200. The writer is of opinion that tribal people can be prevented from combing forest for food
- to provide employment
 - to increase purchasing power
 - by deterring them from poaching and despoiling vegetation
 - to provide employment and purchasing power for *daily* necessities.



HINTS & SOLUTION

Reasoning

1. (c) Sea sickness is to feel ill when you are travelling on a ship or boat.
Similarly, Giddiness is to feel that you are going to fall.
2. (c) Waitress is a person whose job is to serve customers in a restaurant.
Similarly, A teacher teaches students in a school.

3. (a) $\begin{matrix} \text{A} & \text{R} & \text{O} & \text{U} & \text{N} & \text{D} \\ \curvearrowright & & \curvearrowright & & \curvearrowright & \\ \text{R} & & \text{U} & & \text{D} & \\ \curvearrowleft & & \curvearrowleft & & \curvearrowleft & \\ \text{A} & & \text{O} & & \text{N} & \end{matrix} \Rightarrow \text{R A U O D N}$

Similarly,

$$\begin{matrix} \text{G} & \text{R} & \text{O} & \text{U} & \text{N} & \text{D} \\ \curvearrowright & & \curvearrowright & & \curvearrowright & \\ \text{R} & & \text{U} & & \text{D} & \\ \curvearrowleft & & \curvearrowleft & & \curvearrowleft & \\ \text{G} & & \text{O} & & \text{N} & \end{matrix} \Rightarrow \text{R G U O D N}$$

4. (b) $\boxed{\text{APP}} \text{R O A C H E D} \Rightarrow \text{R O A C H E D} \boxed{\text{APP}}$

Similarly,

$$\boxed{\text{BAR}} \text{G A I N E D} \Rightarrow \text{G A I N E D} \boxed{\text{BAR}}$$

5. (c) $8 \times 8 = 64 \times 4 = 256$

$$10 \times 10 = 100 \times 5 = 500$$

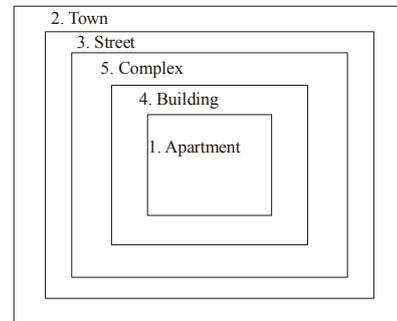
6. (b) $\frac{21}{3} = 7$

Similarly, $\frac{574}{x} = 7, x = \frac{574}{7} = 82$

7. (d) An *Obstetrician* is a medical doctor who specializes in the management of pregnancy, labor and birth.
A *Podiatrist* is a doctor who diagnose and treat conditions of the foot, ankle, and related structures of the leg.
A *Pulmonologist* is a physician who possesses specialised knowledge and skill in the diagnosis and treatment of lung conditions and disease.
A *Prothesis* is a device designed to replace a missing part of the body or to make a part of body work better.
Hence (d) is odd one out.

8. (b) Except (b), all other are related to a period. While decadent is a person who has interest only in pleasure and enjoyment.
9. (b) Except (b) all others have consecutive letters in reverse order.
While (b) has consecutive letters in forward order.
10. (b) Except (b) all others have five letters.
11. (d) Except (d) in both number in all others pairs are divided by same number.
12. (d) All others have odd numbers.

13. (d)



14. (b) Arrangement in Reverse dictionary order—
Expulse \rightarrow Express \rightarrow Explosion \rightarrow Exploit
1 2 3 4

15. (b) $\underline{a} \underline{b} \underline{c} / \underline{a} \underline{c} \underline{b} / \underline{a} \underline{c} \underline{b} / \underline{a} \underline{c} \underline{b} / \underline{a} \underline{c} \underline{b}$

16. (c)
$$\begin{matrix} & & -2 & & -3 & & -4 \\ & & \downarrow & & \downarrow & & \downarrow \\ \text{A} & \text{Z} & \text{C} & \text{X} & \text{F} & \text{U} & \text{J} & \text{Q} \\ & \uparrow & & \uparrow & & \uparrow & & \uparrow \\ & +2 & & +3 & & +4 & & \end{matrix}$$

17. (c) $1 \times 2 = 2$

$$2 \times 3 = 6$$

$$6 \times 4 = 24$$

$$24 \times 5 = 120$$

$$120 \times 6 = 720$$

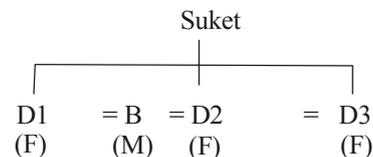
18. (a) 156, 506, ?, 1806

$$156 + 350 = 506$$

$$506 + 550 = 1056$$

$$1056 + 750 = 1806$$

19. (b) Suket has three daughters and each daughter has a brother.



Hence, there are 2 male members in a family.

20. (c) $\leftarrow \frac{60\text{km/hr}}{\circ} \text{Dinesh}$

$$\text{Ramesh} \circ \xrightarrow{44\text{km/hr}}$$

Relative speed of Dinesh and Ramesh's motorcycles
= $(60 + 44) = 104 \text{ km/hr}$

Distance travelled by them = Relative speed \times Time covered,

$$104\text{km/hr} \times \left(\frac{15}{60}\right) \text{hr} = \frac{104 \times 15}{60} = 26\text{km}$$

21. (b)

22. (c) $\begin{matrix} 4 & 0 & 5 & 3 & 1 & 2 \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ M & O & T & H & E & R \end{matrix}$

23. (d) DRUK cannot be formed using TRIVAN DROM as it does not contain letter 'K'.

24. (d) Home, only one meaningful word is formed.

25. (c) Price tag ₹ IIT = ₹ 776
Price tag ₹ NICK = ₹ 4789
Total amount = ₹ 4789 + ₹ 776 = ₹ 5565

26. (c) C ← A ← S U ← A ← L
S A C L A U
Similarly, M ← A ← T R ← I ← C
T A M C I R

27. (a) Letter → S R A M T E
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
code → H @ ∇ # \$ %
MASTER = # ∇ H \$ % @

28. (d) Going by options; Box 1 Box 2
 [5] : [7]

If 1 candle in box number 1 is placed in box number 2 then

Box 1 Box 2
[4] : [8]

Therefore, Box 2 has twice the number of candles than box 1.

If 1 candle from box 2 is placed in box-1

Then- Box 1 Box 2
[6] : [6] Hence, Both boxes have the same numbers of candles.

29. (b) $4 + 6 \times 2 = 16$

30. (*) Going by options:-

(a) $45 + 3 \times 6 \div 2 = 16$ (c) $45 + 3 \times 6 - 2 = 16$
 $54 \neq 16$ $61 \neq 16$

(b) $45 + 3 \div 6 \times 2 = 16$ (d) $45 + 3 + 6 - 2 = 16$
 $46 \neq 16$ $52 \neq 16$

None of option matching, Hence question is wrong.

31. (c) $8 \times 5 + 10 = 2 \times 25$
 $50 = 50$

32. (d) $7 \times 8 \times 3 = 168$

$6 \times 4 \times 4 = 144$

$6 \times x \times 5 = 120$

∴ $30x = 120$

$x = \frac{120}{30} = 4$

33. (a) $8^2 + 3^2 + 1^2 = 74$

$5^4 + 7^2 + 4^2 = 90$

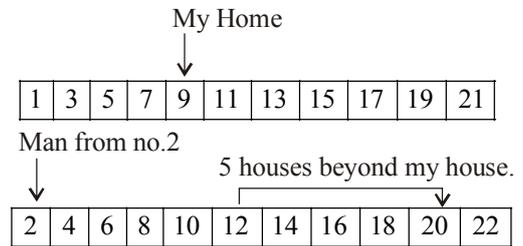
$6^2 + 5^2 + 2^2 = \boxed{65}$

34. (b) $46 - 22 = 24$

$58 - 27 = 31$

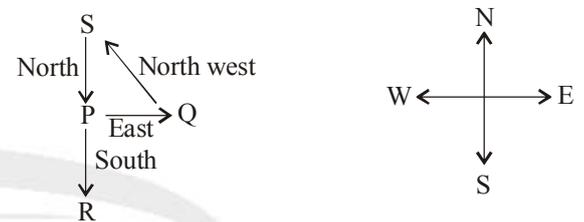
$68 - 32 = \boxed{36}$

35. (b)



Hence, 20 is the number of that house.

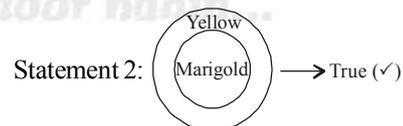
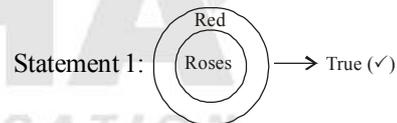
36. (c)



Hence, Q is in North west direction of S.

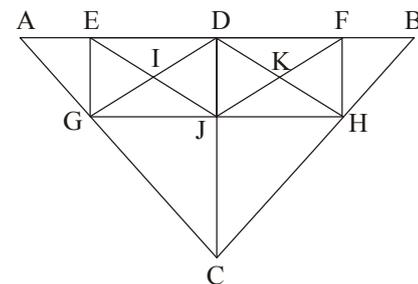
37. (c) Neither I nor II

38. (c) Uncertain



39. (c)

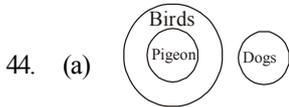
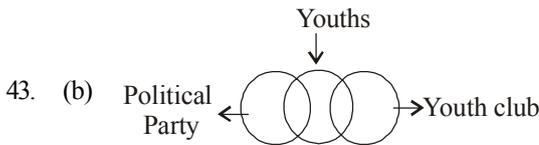
40. (c)



$\Delta ABC, \Delta ADC, \Delta DBC, \Delta AEG, \Delta BFH$
 $\Delta EIG, \Delta EID, \Delta IGJ, \Delta IDJ,$
 $\Delta DKJ, \Delta DFK, \Delta KJH, \Delta KFH$
 $\Delta EDG, \Delta DJG, \Delta EGJ, \Delta DJG$
 $\Delta DFJ, \Delta FHJ, \Delta DHJ, \Delta DFH$
 $\Delta ADG, \Delta DGH, \Delta DBH, \Delta JEF$
 $\Delta GJC, \Delta HJC, \Delta GHC = 28$ Triangles
 $28 \times 2 = 56$ Triangles.

41. (d)

42. (c)



45. (d)

46. (b)

47. (d)

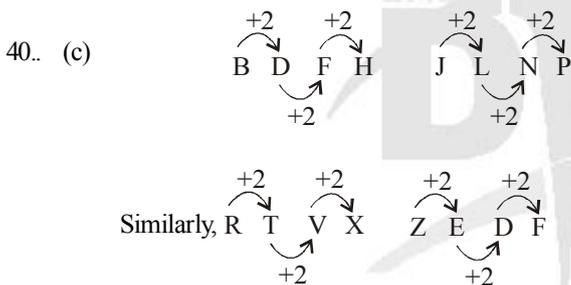
48. (c)

49. (c)

50. (d)

FOR VISUALLY HANDICAPPED

39. (a) A doctor diagnoses the cause of a disease. Similarly, A Judge gives judgement about crimes.



41. (a) $5 \times 5 \times 5 - 1 = 125 - 1 = 124$

$10 \times 10 \times 10 - 1 = 1000 - 1 = 999$

42. (c) Except (c), all others are parts of a house.

43. (a) Except (a), all others are divisible by 7

44. (b) Sequence should be -

p	u	q
---	---	---

or

q	u	p
---	---	---

This sequence occurs 9 times

45. (c) Licutenant > Commander > Captain > Commodore > Admiral.

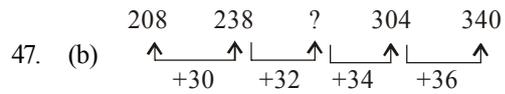
46. (b) $2 \times 5 = 10$

$10 \times 6 = 60$

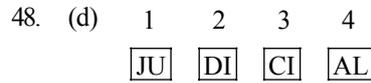
$60 \times 7 = 420$

$420 \times 8 = 3360$

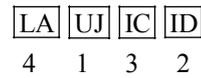
$3360 \times 9 = 30240$



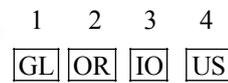
Therefore, $238 + 32 = 270$



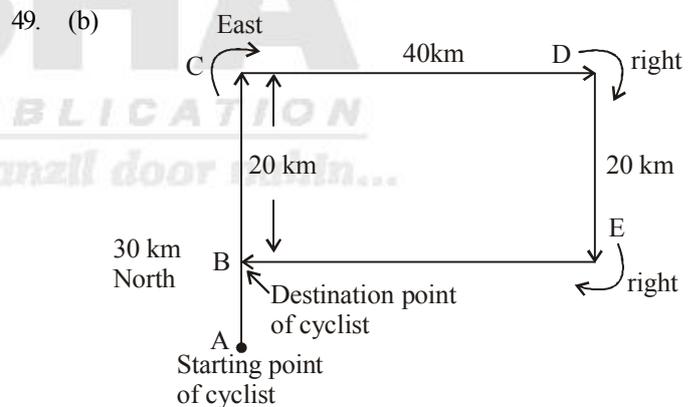
Reverse order



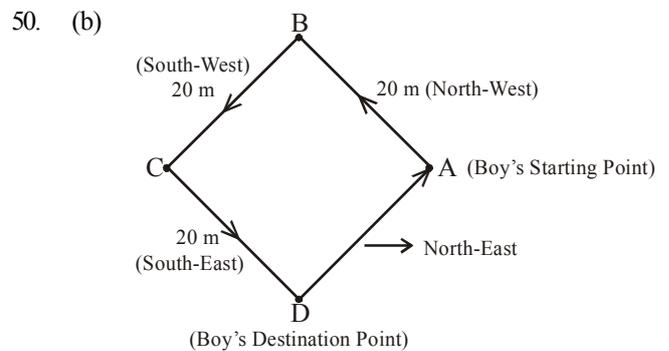
Similarly,



Reverse order



Distance from starting point = $AC - BC = 30 - 20 = 10$ km



51. (b) Milton Friedman (July 31, 1912 - November 16, 2006) was an American economist, statistician, and writer

who taught at the University of Chicago for more than three decades. He was a recipient of the 1976 Nobel Prize in Economic Sciences, and is known for his research on consumption analysis, monetary history and theory, and the complexity of stabilization policy.

52. (c) The qualitative or selective methods of credit control are adopted by the Reserve Bank in its pursuit of economic stabilization and as part of credit management. The four important methods are Margin Requirements, Credit Rationing, Regulation of Consumer Credit, Moral Suasion.
53. (c) A segment of the financial market in which financial instruments with high liquidity and very short maturities are traded. The money market is used by participants as a means for borrowing and lending in the short term, from several days to just under a year.
54. (a) In economics, diminishing returns (also called law of diminishing returns, law of variable proportions, principle of diminishing marginal productivity, or diminishing marginal returns is the decrease in the marginal (incremental) output of a production process as the amount of a single factor of production is incrementally increased, while the amounts of all other factors of production stay constant.
55. (b) The law of increasing returns is the opposite of the law of decreasing returns. Where the law of diminishing returns operates, every additional investment of capital and labour yields less than proportionate returns. But, in the case of the law of increasing returns, the return is more than proportionate.
56. (b) Cabinet collective responsibility is constitutional convention in governments is that members of the Cabinet must publicly support all governmental decisions made in Cabinet, even if they do not privately agree with them. This support includes voting for the government in the legislature. Cabinet collective responsibility is related to the fact that, if a vote of no confidence is passed in parliament, the government is responsible collectively, and thus the entire government resigns.
57. (a) Switzerland is a small country located in the heart of western Europe, at the intersection of German, French and Italian language and culture. Switzerland has been multicultural in its own way for centuries. Direct Democracy in particular, has a long, but not undisputed tradition in this country. Switzerland's unique political system is today world's most stable democratic system, offering a maximum of participation to citizens.
58. (a) John Muir was a Scottish-American naturalist, author, and early advocate of preservation of wilderness in the United States.
59. (a) The Federal Assembly is bicameral, being composed of the 200-seat National Council and the 46-seat Council of States. The houses have identical powers. Members of both houses represent the cantons, but, whereas seats in the National Council are distributed in proportion to population, each canton has two seats in the Council of States, except the six 'half-cantons' which have one seat each. Both are elected in full once every four years, with the last election being held in 2011.
60. (a) The Court consists of the Chief Justice of the United States and eight associate justices who are nominated by the President and confirmed by the Senate. Once appointed, justices have life tenure unless they resign, retire, take senior status, or are removed after impeachment (though no justice has ever been removed).
61. (c) During the early period, Multan was known as the city of gold for its large and wealthy temples. The Sun temple, Suraj Mandir, was considered one of the largest and wealthiest temples in the entire sub-continent.
62. (d) Amoghavarsha I was a follower of the Digambara branch of Jainism. His own writing Kavirajamarga is a landmark literary work in the Kannada language and became a guide book for future poets and scholars for centuries to come.
63. (c) The Kailasa temple is a famous rock cut monument, one of the 34 monasteries and temples known collectively as the Ellora Caves, extending over more than 2 km. The temple was commissioned and completed between dated 757-783 CE, when Krishna I ruled the Rashtrakuta dynasty. It is designed to recall Mount Kailash, the home of Lord Shiva. It is a megalith carved out of one single rock. It was built in the 8th century by the Rashtrakuta king Krishna I.
64. (a) the Thalavaipuram copper plate, belonging to the period between 1018 and 1054 brought out by the Pandya kings, describes giant waves, most possibly a tsunami.
65. (b) Gautamiputra Satakarni was the greatest of the Satavahana rulers. His reign period is noted by some scholars as 80 to 104 and by others from 106 to 130; in any case he is credited with a rule of 24 years.
66. (c) Succulent plants store water in their stems or leaves. They include the Cactaceae family, which has round stems and can store a lot of water. The leaves are often vestigial, as in the case of cacti, wherein the leaves are reduced to spines, or they do not have leaves at all. Water is stored in the bulbs of some plants, at or below ground level. They may be dormant during drought conditions and are, therefore, known as drought evaders.
67. (a) Thorium is an element which are used in radioactive chemicals where all other three options are power generating systems which are regenerated.
68. (a) The Mahadeo Hills are a range of hills in Madhya Pradesh state of central India. The hills form the central part of the Satpura Range.
69. (d) Dekke Toba fish in found in Indonesia. Lake Toba (Indonesian: Danau Toba) is a lake and supervolcano. The lake is 100 kilometres long, 30 kilometres wide,

- and up to 505 metres (1,666 ft) deep. The fauna includes several species of zooplankton and benthic animals. Since the lake is oligotrophic (nutrient-poor), the native fish fauna is relatively scarce, and the only endemics are *Rasbora tobana*.
70. (c) Timber means wood that we obtain from plants are called renewable in the sense that after cutting a tree if we plant another tree then it will grow up and again give us wood and timber whereas all other things given are non-renewable, once the stock is finished we cannot get more of it.
71. (a) chegonium, the female reproductive organ in ferns and mosses. An archeogonium also occurs in some gymnosperms, e.g., cycads and conifers. A flask-shaped structure, it consists of a neck, with one or more layers of cells, and a swollen base-the venter-which contains the egg.
72. (b) Trochodendron is a genus of flowering plants with one living species, *Trochodendron aralioides*, and six extinct species known from the fossil record.
73. (a) A Caesarean section (often C-section, also other spellings) is a surgical procedure in which one or more incisions are made through a mother's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies. The first modern Caesarean section was performed by German gynecologist Ferdinand Adolf Kehler in 1881. But in ancient medical history Julius Caesar was the first person to be borne by this method and thus the operation named after him.
74. (b) Study of ants is called Myrmecology.
75. (a) The National Institute of Nutrition (NIN) is an Indian Public health, Biotechnology and Translational research center located in Hyderabad, India. The institute is one of the oldest research centers in India, and the largest center, under the Indian Council of Medical Research, located in the vicinity of Osmania University.
76. (a) A Reverse transcriptase (RT) is an enzyme used to generate complementary DNA (cDNA) from an RNA template, a process termed reverse transcription. RT is needed for the replication of retroviruses (e.g., HIV), and RT inhibitors are widely used as antiretroviral drugs.
77. (c) Fleming's right-hand rule (for generators) shows the direction of induced current when a conductor moves in a magnetic field. The right hand is held with the thumb, first finger and second finger mutually perpendicular to each other (at right angles).
78. (b) The watt (symbol: W) is a derived unit of power in the International System of Units (SI), named after the Scottish engineer James Watt (1736-1819).
79. (d) The NIOSH states "Under dry conditions, the resistance offered by the human body may be as high as 100,000 Ohms. Wet or broken skin may drop the body's resistance to 1,000 Ohms," adding that "high-voltage electrical energy quickly breaks down human skin, reducing the human body's resistance to 500 Ohms."
80. (a) The critical temperature for superconductors is the temperature at which the electrical resistivity of a metal drops to zero. The transition is so sudden and complete that it appears to be a transition to a different phase of matter; this superconducting phase is described by the BCS theory.
81. (c) A central processing unit (CPU) is the electronic circuitry within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logical, control and input/output (I/O) operations specified by the instructions.
82. (b) The Epson HX-20 (also known as the HC-20) is generally regarded as the first laptop computer, announced in November 1981, although first sold widely in 1983. Hailed by *BusinessWeek* magazine as the "fourth revolution in personal computing", it is generally considered both the first notebook and handheld computer.
83. (a) Brass is an alloy made of copper and zinc; the proportions of zinc and copper can be varied to create a range of brasses with varying properties.
84. (d) Wrought iron is an iron alloy with a very low carbon content, in comparison to steel, and has fibrous inclusions, known as slag. This is what gives it a "grain" resembling wood, which is visible when it is etched or bent to the point of failure. Wrought iron is tough, malleable, ductile and easily welded.
85. (b) Galvanization, or galvanisation, is the process of applying a protective zinc coating to steel or iron, to prevent rusting. The most common method is hot-dip galvanization, in which parts are submerged in a bath of molten zinc.
86. (b) A homogeneous mixture is a type of mixture in which the composition is uniform and every part of the solution has the same properties. A homogeneous mixture in which there is both a solute and solvent present is also a solution.
87. (c) The plant epidermis consists of three main cell types: pavement cells, guard cells and their subsidiary cells that surround the stomata.
88. (a) As sugar concentration increases in the guard cells, as a result water enters the guard cells. The guard cells become turgid (swollen with water). The thin outer walls bulge out and force the inner wall into a crescent shape. In this way a stoma or pore is formed between each pair of guard cell.
89. (a) Revegetation is often used to join up patches of natural habitat that have been lost, and can be a very important tool in places where much of the natural vegetation has been cleared. It is therefore particularly important in urban environments, and research in Brisbane has shown that revegetation projects can significantly improve urban bird populations. The Brisbane study showed that connecting a revegetation patch with existing habitat improved bird species richness, while simply concentrating on making large patches of

90. (c) habitat was the best way to increase bird abundance. A dust storm or sand storm is a meteorological phenomenon common in arid and semi-arid regions. Dust storms arise when a gust front or other strong wind blows loose sand and dirt from a dry surface.
91. (c) Mahyco, an Indian seed company based in Jalna, Maharashtra, has developed the Bt brinjal. The genetically modified brinjal event is termed Event EE 1 and Mahyco have also applied for approval of two brinjal hybrids.
92. (d) Bullseye, also known as conventional pistol, is a shooting sport in which participants shoot handguns at paper targets at fixed distances and time limits.
93. (c) Rashtriya Ispat Nigam Ltd, (abbreviated as RINL), also known as Vizag Steel, is an Indian government-owned steel producer. Based in Visakhapatnam, RINL has been awarded the Navaratna status, with accompanying autonomy of operations, due to its strong financial performance.
94. (d) Pablo Ruiz y Picasso, also known as Pablo Picasso, was a Spanish painter, sculptor, printmaker, ceramicist, stage designer, poet and playwright who spent most of his adult life in France.
95. (d) The Securities and Exchange Board of India (SEBI) is the regulator for the securities market in India. It was established in the year 1988 and given statutory powers on 12 April 1992 through the SEBI Act, 1992.
96. (d) Infosys Ltd is an Indian multinational corporation that provides business consulting, information technology, software engineering and outsourcing services. It is headquartered in Bangalore, Karnataka.
97. (d) Regional Rural Banks are local level banking organizations operating in different States of India. They have been created with a view to serve primarily the rural areas of India with basic banking and financial services. The main purpose of RRB's is to mobilize financial resources from rural / semi-urban areas and grant loans and advances mostly to small and marginal farmers, agricultural labourers and rural artisans.
98. (b) The Reserve Bank of India is India's Central Banking Institution, which controls the Monetary Policy of the Indian Rupee. It commenced its operations on 1 April 1935 during the British Rule in accordance with the provisions of the Reserve Bank of India Act, 1934.
99. (d) The national income of a country can be measured by three alternative methods: (i) Product Method (ii) Income Method, and (iii) Expenditure Method.
100. (c) For many people, electronic banking means 24-hour access to cash through an automated teller machine (ATM) or Direct Deposit of paychecks into checking or savings accounts. But electronic banking involves many different types of transactions, rights, responsibilities - and sometimes, fees.
101. (b) $3^{34} = (3^2)^{17} = 9^{17}$
 $2^{51} = (2^3)^{17} = 8^{17}$
 Clearly, $7^{17} > 8^{17} > 9^{17}$
 or $7^{17} > 2^{51} > 3^{34}$
102. (b) Product of first fifty positive consecutive integers $= 1 \times 2 \times \dots \times 50 = 50!$
 Largest possible value of $n = \left\lfloor \frac{50}{7} \right\rfloor + \left\lfloor \frac{50}{7^2} \right\rfloor$
 $= 7 + 1 = 8$
103. (c) $(A + B + C)$'s 1 day's work $= \left(\frac{1}{40}\right)^{\text{th}}$ part of whole work
 $(A + B + C)$'s 16 days work $= \frac{16}{40} = \frac{2}{5}$ of whole work
 $(B + C)$ completes remaining work in 40 days $(B + C)$ completes $\left(\frac{3}{5}\right)^{\text{th}}$ part of work in 40 days.
 $(B + C)$ completes whole work in $\frac{40 \times 5}{3} = \frac{200}{3}$ days.
 $\frac{1}{A} + \frac{1}{B} + \frac{1}{C} = \frac{1}{40}$
 $\frac{1}{A} + \frac{3}{200} = \frac{1}{40}$
 $\frac{1}{A} = \frac{1}{40} - \frac{3}{200} = \frac{4}{200}$
 $\frac{1}{A} = \frac{1}{50}$
 A alone can complete whole work in 50 days.
104. (c) $\frac{1}{A} + \frac{1}{B} + \frac{1}{C} = \frac{1}{6}$
 $(A + B + C)$ can do $\frac{2}{6} = \frac{1}{3}$ part of work in 2 days.
 Remaining work $= 1 - \frac{1}{3} = \frac{2}{3}$
 In one hour $(A + B)$ can do $\frac{2}{3 \times 7}$ part of work
 $\frac{1}{C} = \frac{1}{6} - \left(\frac{1}{B} + \frac{1}{C}\right)$
 $\frac{1}{C} = \frac{1}{6} - \frac{2}{21} = \frac{3}{42}$
 $C = 14$ hours
105. (c) Let Pratibha can finish the work in x days then, Sonia can finish the same work in $3x$ days
 According to question
 $3x - x = 60$
 $2x = 60 \Rightarrow x = 30$
 Pratibha and Sonia can individually complete the work in 30 days and 90 days respectively.
106. (c)

107. (a) $C_1 = 2C_2$
 $\pi r_1 l_1 = 2\pi r_2 l_2$
 also, $l_2 = 2l_1$
 $\pi r_1 l_1 = 2 \times 2 \times \pi r_2 l_1$
 $\frac{r_1}{r_2} = \frac{4}{1}$

108. (b) Let r be the radius of circle.
 $\pi r^2 = 154 \text{ cm}^2$
 $r^2 = \frac{154}{22} \times 7 = 49$
 $r = 7 \text{ cm}$
 length of wire = circumference of circle
 $= 2 \times \frac{22}{7} \times 7 = 44 \text{ cm}$
 Now, Perimeter of equilateral triangle = 44 cm
 side = $\frac{44}{3} \text{ cm}$

Area of equilateral triangle = $\frac{\sqrt{3}}{4} \times \left(\frac{44}{3}\right)^2$
 $= \frac{484\sqrt{3}}{9} = 91.42 \text{ cm}^2$

Area of equilateral triangle is nearly equal to 90.14 cm²
 Hence, option (b) is correct.

109. (c) Let marked price of goods be ₹ 100.
 Selling price of goods = $100 - \frac{10}{100} \times 100 = ₹ 90$
 Cost price of goods is 80% of its selling price
 $C.P. = \frac{80}{100} \times 90 = 72$
 Profit on goods = $(90 - 72) = ₹ 18$
 Profit % = $\frac{18}{72} \times 100 = 25\%$

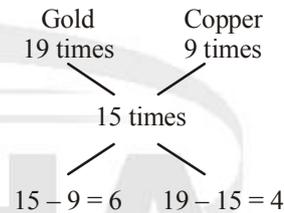
110. (a) Let marked price of the instrument be ₹ x
 Selling price, S.P. = $x - \frac{20}{100}x = 0.8x$
 Cost price, C.P. = C.P. + $\frac{25}{100}$ C.P. = $0.8x$
 $C.P. = \frac{0.8 \times 100}{125} = \frac{16}{25}x$
 $x = \frac{25}{16}$ C.P.
 Given that $\frac{25}{100}$ C.P. = 150
 $\Rightarrow C.P. = \frac{150 \times 100}{25} = 600$

Marked price $x = \frac{25}{16} \times 6,000 = ₹ 938.50$

111. (b) Let labelled price of T.V. be ₹ x
 Price after 20% discount, $x - \frac{20}{100}x = 0.8x$
 Price after 30% discount, $x - \frac{30}{100}x = 0.7x$
 According to question
 $0.8x - 0.7x = 800$
 $x = 800 \times 10 = 8000$

112. (d) Quantity of acid left = $10 \left(1 - \frac{2}{10}\right)^2 = \frac{32}{5}$
 Required ratio = $\frac{32}{5 \times 10} = \frac{16}{25} = 16 : 25$

113. (d) By rule of alligation, we have



\therefore Required ratio = $\frac{6}{4} = 3 : 2$

114. (c) Number of boys = $\frac{4}{5} \times 50 = 40$
 Number of girls = $\frac{1}{5} \times 50 = 10$

Average age of boys = $2 \times 20 = 40$
 Total ages of the boys = $40 \times 20 = 800$
 115. (c) Total marks of all three sections = $84 \times 100 = 8400$
 total marks of (B + C) = $87.5(n_2 + n_3)$
 total marks of A = $70 \times n_1$
 $n_1 + n_2 + n_3 = 100$... (1)
 $70n_1 + 87.5n_2 + 87.5n_3 = 8400$... (2)
 Multiplying equation (1) by 87.5 and subtract from equation (2)
 We get $17.5n_1 = 350$
 $n_1 = 20$

116. (b) Let ₹ 100 be the cost price for A.
 S.P. for A = $100 + 20\%$ of 100 = 120
 S.P. for B = $120 - 15\%$ of 120 = 102

Profit % = $\frac{102 - 100}{100} \times 100 = 2\%$

117. (a) Let the monthly salary of A be x , monthly salary of B is $(40000 - x)$.
 Savings of A = $(100 - 85)\%$ of $x = 0.15x$
 Savings of B = $(100 - 95)\%$ of $(40000 - x)$
 $= 0.05(40000 - x)$

$$0.15x = 0.05(40000 - x)$$

$$0.15x + 0.05x = 40000 \times 0.05$$

$$0.2x = 2000$$

$$x = 10000$$

118. (c) Let T be the speed of train and C be the speed of car.

$$\frac{120}{T} + \frac{480}{C} = 8 \Rightarrow \frac{1}{T} + \frac{4}{C} = \frac{1}{15} \quad \dots(1)$$

$$\frac{200}{T} + \frac{400}{C} = 8 + \frac{20}{60} \Rightarrow \frac{1}{T} + \frac{2}{C} = \frac{1}{24} \quad \dots(2)$$

Subtracting (2) from (1)

$$\frac{2}{C}(2-1) = \frac{1}{15} - \frac{1}{24}$$

$$\frac{2}{C} = \frac{1}{40} \Rightarrow C = 80$$

$$\frac{1}{T} = \frac{1}{15} - \frac{4}{80}$$

$$\frac{1}{T} = \frac{1}{60} \Rightarrow T = 60$$

Required ratio = 60 : 80 = 3 : 4

119. (c) Let correct time to cover journey be t hours

$$70\left(t + \frac{12}{60}\right) = 80\left(t + \frac{3}{60}\right)$$

$$70t + 14 = 80t + 4$$

$$10t = 10$$

$$t = 1 \text{ hour}$$

120. (b)

121. (c) $a^2 + b^2 + c^2 = 2a - 2b - 2$
 $(a^2 - 2a + 1) + (b^2 + 2b + 1) + c^2 = 0$
 $(a-1)^2 + (b+1)^2 + c^2 = 0$

This equation is possible if

$$a-1=0, b+1=0 \text{ and } c=0$$

$$a=1, b=-1, c=0$$

$$3a-2b+c = 3 \times 1 - 2 \times (-1) + 0$$

$$= 3 + 2 = 5$$

122. (b) $a + b + c = 3$

Squaring both sides

$$a^2 + b^2 + c^2 + 2(ab + bc + ca) = 9$$

$$6 + 2(ab + bc + ca) = 9$$

$$ab + bc + ca = \frac{3}{2}$$

$$\text{given } \frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 1$$

$$\Rightarrow ab + bc + ac = abc = \frac{3}{2} \quad [\text{from (1)}] \quad \dots(1)$$

123. (d) $a^2 - 4a - 1 = 0$

$$a^2 - 4a = 1$$

$$a(a-4) = 1$$

$$a-4 = \frac{1}{a}$$

$$a - \frac{1}{a} = 4 \quad \dots(1)$$

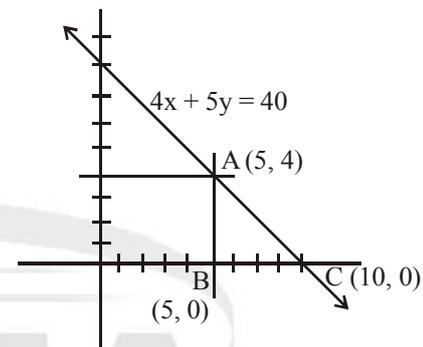
$$\text{We have } a^2 + 3a + \frac{1}{a^2} - \frac{3}{a}$$

$$\left(a^2 + \frac{1}{a^2}\right) + 3\left(a - \frac{1}{a}\right)$$

$$\left(a - \frac{1}{a}\right)^2 + 3\left(a - \frac{1}{a}\right) + 2$$

$$4^2 + 3 \times 4 + 2 = 30$$

124. (a)



$$\text{Area of } \triangle ABC = \frac{1}{2} \times BC \times AC$$

$$= \frac{1}{2} \times (10-5) \times 4 = \frac{1}{2} \times 5 \times 4$$

$$\text{Area} = 10 \text{ sq unit.}$$

125. (d) $Kx + 2y = 2 \quad \dots(1)$

$$3x + y = 1 \quad \dots(2)$$

divide eqn (1) by (2)

$$\frac{K}{2} + y = 1$$

for system of equation to be coincident

$$\frac{K}{2} = 3$$

$$K = 6$$

126. (d) $x = 2 + \sqrt{3}$

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

$$x^2 + \frac{1}{x^2} = \left(x + \frac{1}{x}\right)^2 - 2$$

$$= (2 + \sqrt{3} + 2 - \sqrt{3})^2 - 2$$

$$= 16 - 2 = 14$$

127. (c) $a = 4.965 \approx 5, b = 2.343 \approx 2$

$$c = 2.622$$

$$a - b = c$$

taking cube both sides

$$a^3 - b^3 - 3a^2b + 3ab^2 = c^3$$

$$a^3 - b^3 - c^3 - 3ab(a - b) = 0$$

$$a^3 - b^3 - c^3 - 3abc = 0$$

128. (d) $x + y + z = 0$

$$y + z = -x$$

$$y^2 + z^2 + 2yz = x^2$$

$$\Rightarrow y^2 + z^2 = x^2 - 2yz \quad \dots(1)$$

$$\frac{x^2 + y^2 + z^2}{x^2 - yz} = \frac{x^2 - 2yz + x^2}{x^2 - yz} = \frac{2(x^2 - yz)}{x^2 - yz}$$

$$= 2$$

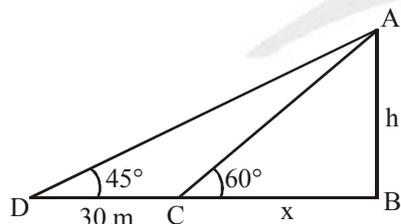
129. (d) $(\sin^2 1^\circ + \sin^2 89^\circ) + (\sin^2 2^\circ + \sin^2 88^\circ) + \dots$
 $+ (\sin^2 44^\circ + \sin^2 48^\circ) + \sin^2 45^\circ$
 $= (\sin^2 1^\circ + \cos^2 1^\circ) + (\sin^2 2^\circ + \cos^2 2^\circ) + \dots$
 $+ (\sin^2 44^\circ + \cos^2 44^\circ) + \sin^2 45^\circ$

$$= 1 + 1 + \dots + 1 \text{ (44 times)} + \frac{1}{2}$$

$$= 44 \frac{1}{2}$$

130. (c) $\frac{(\cos \theta + \sin \theta)(\cos^2 \theta + \sin^2 \theta - \sin \theta \cos \theta)}{(\cos \theta + \sin \theta)}$
 $+ \frac{(\cos \theta - \sin \theta)(\cos^2 \theta + \sin^2 \theta + \sin \theta \cos \theta)}{(\cos \theta - \sin \theta)}$
 $= 2 \cos^2 \theta + 2 \sin^2 \theta - \sin \theta \cos \theta + \sin \theta \cos \theta$
 $= 2$

131. (a)



In $\triangle ABC$, $\tan 60^\circ = \frac{h}{x}$

$$x = \frac{h}{\sqrt{3}} \quad \dots(1)$$

In $\triangle ABD$, $\tan 45^\circ = \frac{h}{30 + x}$

$$1 = \frac{h}{30 + x} \text{ or } h = 30 + x$$

Putting value of x from (1)

$$h = 30 + \frac{h}{\sqrt{3}}$$

$$\text{or } h \frac{(\sqrt{3} - 1)}{\sqrt{3}} = 30 \Rightarrow h = 15(3 + \sqrt{3}) \text{ m}$$

132. (d) $\sin 17^\circ = \frac{x}{y}$

$$\cos 17^\circ = \sqrt{1 - \frac{x^2}{y^2}} = \frac{\sqrt{y^2 - x^2}}{y}$$

$$\sec 17^\circ - \sin 73^\circ$$

$$= \sec 17^\circ - \cos 17^\circ$$

$$= \frac{y}{\sqrt{y^2 - x^2}} - \frac{\sqrt{y^2 - x^2}}{y}$$

$$= \frac{y^2 - y^2 + x^2}{y\sqrt{y^2 - x^2}} = \frac{x^2}{y\sqrt{y^2 - x^2}}$$

133. (c) $\operatorname{cosec} \theta + \cot \theta = \sqrt{3}$

$$\frac{1}{\sin \theta} + \frac{\cos \theta}{\sin \theta} = \sqrt{3}$$

$$\frac{1 + \cos \theta}{\sin \theta} = \sqrt{3}$$

$$\frac{2 \cos^2 \frac{\theta}{2}}{2 \sin \frac{\theta}{2} \cos \frac{\theta}{2}} = \sqrt{3}$$

$$\cot \frac{\theta}{2} = \sqrt{3}$$

$$\tan \frac{\theta}{2} = \frac{1}{\sqrt{3}}; \frac{\theta}{2} = 30^\circ; \theta = 60^\circ$$

$$\operatorname{cosec} \theta = \operatorname{cosec} 60^\circ = \frac{2}{\sqrt{3}}$$

134. (c) $\cos \alpha + \sec \alpha = \sqrt{3}$

taking cube both sides

$$\cos^3 \alpha + \sec^3 \alpha + 3 \cos \alpha \sec \alpha (\cos \alpha + \sec \alpha) = 3\sqrt{3}$$

$$\cos^3 \alpha + \sec^3 \alpha + 3\sqrt{3} = 3\sqrt{3}$$

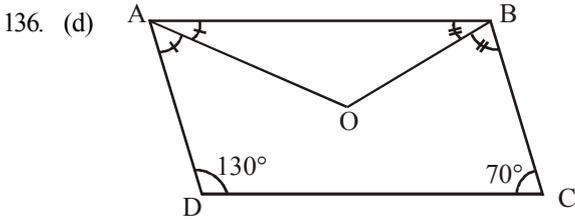
$$\cos^3 \alpha + \sec^3 \alpha = 0$$

135. (a) $\sin \theta + \cos \theta = \sqrt{2} \cos \theta$

$$\sin \theta = (\sqrt{2} - 1) \cos \theta$$

$$\cot \theta = \frac{1}{\sqrt{2} - 1}$$

$$\cot \theta = \frac{1}{\sqrt{2} - 1} \times \frac{\sqrt{2} + 1}{\sqrt{2} + 1} = \sqrt{2} + 1$$



$$A + B + C + D = 360$$

$$A + B = 360 - (130 + 70) = 160^\circ$$

$$\frac{A}{2} + \frac{B}{2} = 80^\circ$$

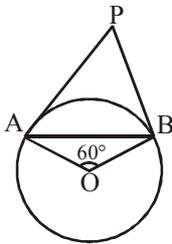
In $\triangle AOB$,

$$\frac{A}{2} + \frac{B}{2} + O = 180^\circ$$

$$O = 180^\circ - 80^\circ = 100^\circ$$

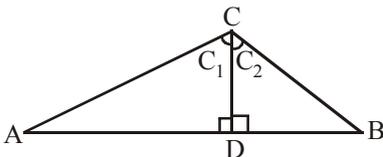
137. (d)

138. (c)



In $\triangle AOB$, $\angle A + \angle B + \angle O = 180^\circ$
 $\angle A + \angle B = 180 - 140 = 40^\circ$
 $\angle A = \angle B = 20^\circ$ {AO = BO}
 $\angle PAO = 90^\circ$
 $\angle PAB + \angle BAO = 90^\circ$
 $\angle PAB = 90^\circ - 20^\circ = 70^\circ$

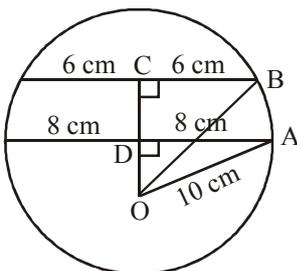
139. (c)



In $\triangle ADC$,
 $A + D + C_1 = 180^\circ$; $A + C_1 = 180^\circ - 90^\circ = 90^\circ$
 In $\triangle BDC$,
 $B + D + C_2 = 180^\circ$; $B + C_2 = 180^\circ - 90^\circ = 90^\circ$
 $A + C_1 = B + C_2$
 $C_1 - C_2 = B - A$

140. (b)

141. (b)



In $\triangle ADO$,

$$OD = \sqrt{(AO)^2 - AD^2}$$

$$= \sqrt{100\text{cm}^2 - 64\text{cm}^2} = 6\text{ cm}$$

In $\triangle BCO$,

$$OC = \sqrt{OB^2 - CB^2}$$

$$= \sqrt{100\text{cm}^2 - 36\text{cm}^2} = 8\text{ cm}$$

distance between chords = $OC - OD = 2\text{CM}$

142. (a)

Let n be the number of sides.

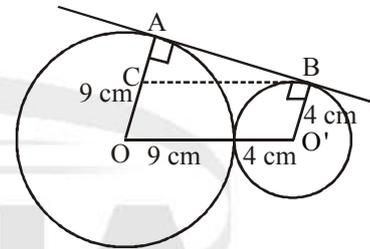
$$(n - 2) \times 180^\circ = 140^\circ \times n$$

$$180n - 360 = 140n$$

$$40n = 360$$

$$n = \frac{360}{40} = 9$$

143. (d)



In figure, $AC = AO - CO$
 $= 9\text{ cm} - 4\text{ cm} = 5\text{ cm}$ {CO = BO'}

Also, $CB = OO' = 13\text{ cm}$

In $\triangle ABC$

$$AB = \sqrt{CB^2 - AC^2}$$

$$= \sqrt{(13\text{cm})^2 - (5\text{cm})^2}$$

$$= 12\text{ cm}$$

144. (b)

Number of students scoring less than 50%

$$= (240 + 220 + 300 + 280 + 210) = 1250$$

Number of student scoring exact 50%

$$= (30 + 20 + 0 + 35 + 15) = 100$$

$$\text{Ratio} = 1250 : 100 = 25 : 2$$

145. (a)

146. (c)

Number of students scoring 50% or more marks

$$= (600 - 240) + (400 - 220) + (375 - 300) + (350 - 280) + (300 - 210)$$

$$= 360 + 180 + 75 + 70 + 90 = 775$$

147. (b)

Profit during 2006 = $(60 - 35) = 25$

Profit during 2007 = $(50 - 40) = 10$

$$\text{Difference} = 25 - 10 = 15$$

148. (c)

$$\text{Average Income} = \frac{40 + 60 + 50 + 65 + 70}{5} = \frac{285}{5} = 57$$

Income during 2005 and 2007 is less than average

149. (b)

$$\text{Required \%} = \frac{50 - 40}{40} \times 100 = 25\%$$

150. (c)

It is clear from the graph.

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144. (d) Let the number be x

$$\frac{x}{7} - \frac{7}{19} \times x = 624$$

$$x \left(\frac{19}{7} - \frac{7}{19} \right) = 624$$

$$x \left(\frac{361 - 49}{7 \times 19} \right) = 624$$

$$x = \frac{624 \times 133}{312}$$

$$x = 266$$

$$\text{Sum of digits } (2 + 6 + 6) = 14$$

145. (c) $A = l \times b$

$$A' = \left(l + \frac{15}{100}l \right) \left(b - \frac{15}{100}b \right) = 1.15l \times 0.85b$$

$$A' = 0.9775A$$

$$\% \text{ change} = \frac{A - 0.9775A}{A} \times 100 = 2.25\%$$

$$\text{Area decreased as } A' < A$$

146. (b) $8 \text{ C.P.} = 6 \text{ S.P.}$

$$\text{S.P.} = \frac{8}{6} \text{ C.P.} = \frac{4}{3} \text{ C.P.}$$

$$\text{gain \%} = \frac{\frac{4}{3} \text{ C.P.} - \text{C.P.}}{\text{C.P.}} \times 100 = 33\frac{1}{3}\%$$

147. (d) Quantity of salt = 5% of $6l = 300 \text{ ml}$
 Quantity of water = $6000 \text{ ml} - 300 \text{ ml} = 5700 \text{ ml}$
 Quantity of water left after evaporation
 = $(5700 - 100) \text{ ml} = 4700 \text{ ml}$

$$\% \text{ of salt} = \frac{300 \text{ ml}}{(4700 + 300) \text{ ml}} \times 100 = 6\%$$

149. (c) Let total distance be d .

$$\text{time taken for } 60\% \text{ distance} = \frac{0.6d}{40} = \frac{3d}{200} \text{ h}$$

$$\text{time taken for } 20\% \text{ distance} = \frac{0.2d}{30} = \frac{d}{150} \text{ h}$$

$$\text{time taken for remaining } 20\% \text{ distance}$$

$$= \frac{0.2d}{10} = \frac{d}{50} \text{ h}$$

$$\text{average speed} = \frac{d}{\frac{3d}{200} + \frac{d}{150} + \frac{d}{50}}$$

$$= \frac{200 \times 150 \times 50}{22500 + 10000 + 30000} = \frac{200 \times 150 \times 50}{62500}$$

$$= 24 \text{ kmph}$$

150. (c)

151. (a) Part 'A' of the statement is wrong. It will be as 'If I had realized'. The Past perfect tense suits here and it denotes the sentence to be in Active voice.

152. (b) Part 'B' of the statement is wrong. The word 'enhanced' given here is wrong. The correct word that will suit the statement is 'topper'. Correct application of word enriches the meaning of the sentence.

153. (b) Part 'B' of the sentence is wrong. The correct form of sentence is 'It is I am who should be responsible for the delay'.

154. (b) Part 'B' of the sentence is wrong. The preposition 'of' is missing in that part. 'Of' is applicable after the word 'evils'.

155. (b) Part 'B' of the sentence is wrong. It will be arranged as 'over extensively'. In the part 'B' 'extensively over' is denoting wrong application of words which is acting as a breach to the meaning of the sentence.

156. (a) The correct word that will fit the blank is 'impudence'. 'Impudence' means 'not to show the proper respect'. Hence, the word suits the meaning of the sentence.

157. (b) The correct word that will fit the blank is 'feeble'. 'Feeble' means 'weak'. Hence, the word suits the meaning of the sentence.

158. (a) The correct word that will fit the blank is 'retrieve'. 'Retrieve' means to 'get or bring back'. Hence, the word aptly suits the meaning of the sentence.

159. (c) The correct word that will fit the blank is 'over'. As it is given in the sentence, 'makeover' means to 'renew or renovate something'. Hence the preposition 'over' will suit the meaning of the sentence.

160. (c) The correct word that will fit the blank is 'augurs'. 'Augurs' means 'something that will proceed well'. Hence, the word suits the meaning of the sentence.

161. (d) 'Persist' means 'to insist'.

162. (c) 'Eventually' means 'finally'.

163. (c) 'Impeccable' means 'flawless'.

164. (c) The opposite of 'predilection' is 'aversion'.

165. (b) The opposite of 'pompous' is 'humble'.

166. (c) The opposite of 'serene' is 'ruffled'.

167. (d) In the sentence, 'to carve out a niche' means 'to develop a specific position for him'. The word 'niche' means 'a specialized area or sector'.

168. (c) The alternative meaning of the phrase 'to the letter' is 'in every detail'.

169. (c) The meaning of the idiom 'to read between the lines' is 'to understand the inner meaning'. So, the critic's work is to understand the inner meanings.

170. (a) The meaning of the idiom 'put my foot down' is 'to take a firm stand'. So, as the meaning of the sentence implies that where discipline matters, one should take a firm stand.

171. (d) The idiom 'stood his ground' means 'refuse to yield'. So, as the meaning of the sentence implies, the convict claimed his innocence and refused to yield for the blames that were laid upon him.

172. (a) The sentence requires an improvement. The underlined portion must be rectified to 'you despair of the success of your undertaking'.
173. (d) The statement requires no improvement. The underlined portion of the statement suits best with the meaning of the statement.
174. (c) The underlined portion of the statement requires an improvement. It may be rectified as 'here is something pretty that Vinita can wear to the party'.
175. (a) The underlined portion requires an improvement. It may be rectified as 'of owning'. So, the sentence will be as 'I have dreamt all my life of owning a beautiful maroon colored car'.
176. (a) The underlined portion in the sentence requires an improvement. It may be rectified as 'he watched the sun go down'. So, the sentence will be 'sitting on the top of the hill he watched the sun go down'.
177. (b) The underlined portion of the sentence has to be rectified. 'Soon to' may be replaced with 'about to'. So, the sentence will be as 'the office is about to close'.
178. (a) The underlined portion of the sentence needs to be rectified. It may be replaced with 'out of the way'. So, the sentence will be as 'He has achieved nothing out of the way worth mentioning'.
179. (c) 'On' may be replaced with 'upon'. So, the sentence will be as 'I prevailed upon him to vote for you'.
180. (b) The underlined portion may be replaced with 'the student made studying his top priority'. So, the sentence will be as 'Eager to pass his final exams the student made studying his top priority'.
181. (c) The underlined portion in the sentence may be replaced with 'unless he is invited'. So, the sentence will be as 'Mr.Dev will not go to the wedding reception unless he is invited'.
182. (c) Belief in many Gods-Polytheism.
183. (b) Cluster of flowers on a branch-Inflorescence.
184. (b) A person who believes that only selfishness motivates human action-Cynic.
185. (b) A highly skilled musician-Virtuoso.
186. (d) A method of boiling briefly to cook food slightly Par-boil.
187. (a) The group, especially in arts, regarded as being the most experimental Avant-garde.
188. (a) One who helps people by giving them money or other aid Benefactor.
189. (a) Among the four options 'plebeian' is correctly spelt word.
190. (b) Among the four options 'surroundings' is the correctly spelt word.
191. (b) The writer felt unusually solitary because he was missing the company of other holiday makers.
192. (c) "I left all signs of habitation behind me"
This means that he had come very far from places where people lived.
193. (b) It became darker than the writer expected because the nights are longer in October than midsummer.
194. (d) The writer found it difficult to keep to the path because of the poor visibility and dew on grass.
195. (d) When he settled himself on the fork of the tree the writer tried to sleep but without much success.
196. (d) At the beginning of the passage the writer expresses her opinion that in many countries progress is synonymous with utmost cruelty to nature.
197. (b) In the passage the term 'exploiting' nature suggests 'sarcasm'.
198. (b) Nehru objected to the phrase 'conquest of Everest' since it sounds pompous and boastful.
199. (c) Gandhiji's statement 'It is decreasing in the jungles but it is increasing in the towns!' refers to man's selfishness.
200. (d) The writer is of opinion that tribal people can be prevented from combing forest or food to provide employment and purchasing power for daily necessities.