

2007

Part-I

General Mental Ability Test





Directions—(Q. 1 to 12) There are four terms in each question. The relationship/ Similarity that exists between the terms left to the symbol :: is the same between the terms right to the symbol ::

Out of four terms one term is missing in each question. The missing term is one of the four alternatives given below each question. Find out the correct alternative.

1. Tree : Forest :: Grass : ?
 (A) Hill (B) Garden
 (C) Field (D) Farm
2. Head : Cap :: Finger : ?
 (A) Glove (B) Nail
 (C) Watch (D) Thumb
3. $\frac{A}{T} : 21 :: \frac{L}{X} : ?$
 (A) 36 (B) 40
 (C) 42 (D) 45
4. $\dots : \dots :: \dots : ?$
 (A) \dots (B) \dots
 (C) \dots (D) \dots
5. $\triangle : \triangle_{++} :: \square : ?$
 (A) \triangle_{+} (B) \square_{++}
 (C) \square_{++} (D) \triangle_{++}
6. ACE : GIK :: MOQ : ?
 (A) CED (B) GIR
 (C) SUV (D) SUW
7. XWV : UTS :: RQP : ?
 (A) ONM (B) ONL
 (C) MNO (D) MON
8. ORU : XAD :: GJM : ?
 (A) PSV (B) PVS
 (C) SVP (D) SPV
9. Mosquito : Malaria :: Dog : ?
 (A) Plague (B) Sting
 (C) Fang (D) Rabies
10. NFK : KFN :: AXH : ?
 (A) XAH (B) AHX
 (C) HXA (D) HAX
11. BXL : 24 :: DXH : ?
 (A) 30 (B) 32
 (C) 34 (D) 36
12. $\frac{R}{C} : 15 :: \frac{W}{J} : ?$
 (A) 12 (B) 13
 (C) 14 (D) 15

Directions—(Q. 13 to 25) Each has four terms. Three terms are alike in some way while one term is different from the others. Write the letter of the term, different from the others on your answer.

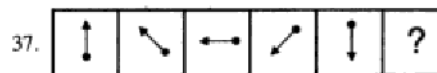
13. (A) Crow (B) Pigeon
 (C) Swan (D) Kite
14. (A) Mathematics (B) Arithmetics
 (C) Algebra (D) Geometry
15. (A) Carrot (B) Potato
 (C) Tomato (D) Beet root
16. (A) 1 2 3 3 6 (B) 1 2 4 4 8
 (C) 1 2 5 5 6 (D) 1 2 6 7 2
17. (A) Ramayana (B) Panchatantra
 (C) Mahabharata (D) Upnishad
18. (A) Moong (B) Jowar
 (C) Gram (D) Urad





19. (A) BDF (B) HJL
(C) NQR (D) TVX
20. (A) TRQ (B) NLJ
(C) HFD (D) BZX
21. (A) UVWX (B) YZAB
(C) CDEF (D) KLRS
22. (A) 29 (B) 31
(C) 39 (D) 41
23. (A) 64 (B) 125
(C) 220 (D) 343
24. (A)  (B) 
(C)  (D) 
25. (A) Mumbai (B) Kolkata
(C) Jaipur (D) Bikaner

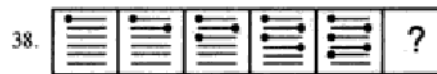
Directions—(Q. 26 to 39) Questions are based on number series. Some terms are missing in each series and are indicated by question mark (?) or (-). Find out the missing term out of the four alternatives.





26. 27, 64, 125, ____, 343
(A) 212 (B) 216
(C) 220 (D) 224
27. 8, 13, 20, ____, 40, 53
(A) 25 (B) 27
(C) 29 (D) 31
28. 3, 5, 10, 12, 24, ____,
(A) 22 (B) 23
(C) 25 (D) 26
29. 5, 11, 23, ____, 95, 191
(A) 47 (B) 48
(C) 49 (D) 50
30. E, D, ____, B, A, ____,
(A) AD (B) AC
(C) CZ (D) CA
31. H, ____, N, D, ____, A, ____, ____, H, A
(A) AHND (B) ANHD
(C) DANH (D) HDNA
32. ____, A, M, E, N, ____, M, E, N, A, ____, E
(A) NMA (B) AMN
(C) MAN (D) NAM

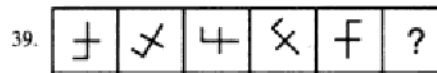
33. T, R, ____, N, ____, J
(A) CL (B) PK
(C) PL (D) LP
34. K, ____, A, A, N, ____, K, K, ____, A
(A) KAN (B) KNA
(C) NAK (D) KKN
35. __ bmz __ ab __ da __ zd
(A) mad mzb (B) dam zbz
(C) adm zbm (D) zbm adm
36. T, __ N, T, E, __, __, E, N
(A) E, N, T (B) E, T, N
(C) N, E, T (D) T, N, E







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





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

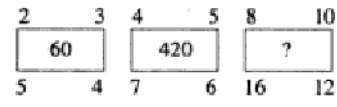


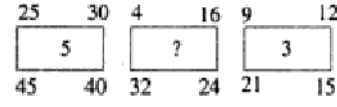
- (A)  (B) 
(C)  (D) 

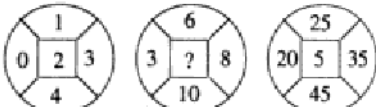
Directions—(Q. 40 to 50) In questions numbers are placed in the figure on the basis of some rules. One place is vacant which is indicated as (?). Find out the correct alternative for the vacant place.

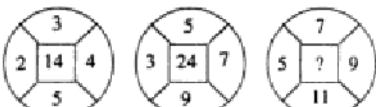
40. 
 (A) 45 (B) 47
 (C) 49 (D) 55

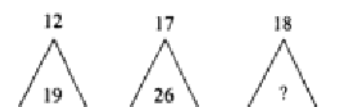
41. 
 (A) 49 (B) 50
 (C) 51 (D) 52

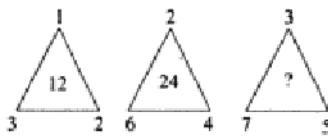
42. 
 (A) 210 (B) 220
 (C) 230 (D) 240

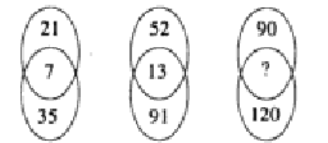
43. 
 (A) 4 (B) 8
 (C) 12 (D) 16

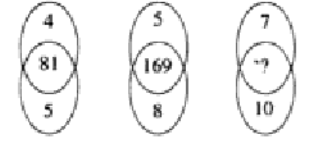
44. 
 (A) 2 (B) 3
 (C) 7 (D) 10

45. 
 (A) 28 (B) 30
 (C) 32 (D) 34

46. 
 (A) 15 (B) 20
 (C) 30 (D) 35

47. 
 (A) 25 (B) 26
 (C) 30 (D) 36

48. 
 (A) 30 (B) 23
 (C) 15 (D) 12

49. 
 (A) 289 (B) 290
 (C) 300 (D) 310

50.

8	12	18
40	?	90

 (A) 50 (B) 60
 (C) 70 (D) 80

Directions—(Q. 51 and 52) The capital letters in each of the following words are coded and written in small letters on the right side or each word. But the small letters do not appear in the same order as the letters in the word. Find out the codes for letters.

- PINK : h t l f
- JINC : t b g f
- PIN : f l t
- ICE : b f d

51. Which is the code for letter E—
 (A) h (B) l
 (C) b (D) d
52. What would be the code in correct order for the word NICE—
 (A) b d f t (B) f h b d
 (C) t f b d (D) f b t g

Directions—(Q. 53 to 56) One of the following four rules has been applied to a set of numbers. In every question find out which one of the rules is applicable.

Rule

- (A) Number of series are a square of some number.
- (B) Number of series are a cube of some number.
- (C) Number of series are divisible by 19.
- (D) The double of the number is added to its half.

- 53. 120, 150, 180, 200, 220
- 54. 5832, 2744, 1331, 729, 343
- 55. 171, 228, 285, 361, 399
- 56. 0.01, 0.09, 0.64, 1.21, 2.25

Directions—(Q. 57 to 59) Two figures A and B are given below. Study them and answer questions based on them by writing the correct alternative.



Fig. A

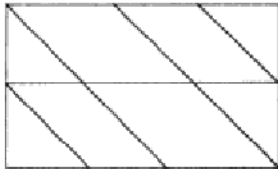
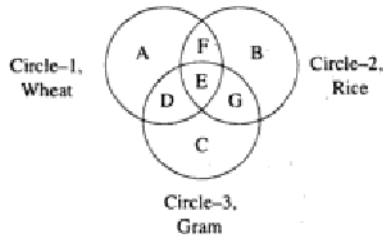


Fig. B

- 57. The number of squares in figure A is—
 (A) 6 (B) 8
 (C) 10 (D) 12
- 58. The number of parallelograms in figure B is—
 (A) 4 (B) 5
 (C) 6 (D) 7
- 59. The number of triangles in figure B is—
 (A) 2 (B) 4
 (C) 6 (D) 8

Directions—There are three circles in questions 60–62. First circle indicates the area of wheat, second rice and third indicates the area of gram. See the circle carefully. Find out the correct alternative.



- 60. The area of only gram indicates—
 (A) A (B) B
 (C) C (D) D
- 61. The area of gram and rice both indicates—
 (A) C (B) G
 (C) E (D) D
- 62. The area of wheat and rice both indicates—
 (A) F (B) E
 (C) D (D) G
- 63. Introducing Kamla, Mahesh said, "Her father is the only son of my father." How was Mahesh related to Kamla?
 (A) Brother (B) Father
 (C) Uncle (D) Son

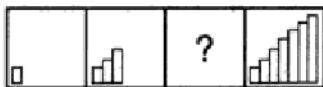
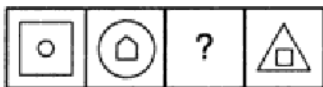
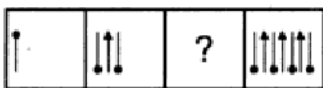
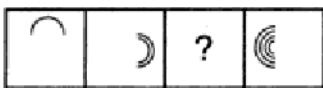
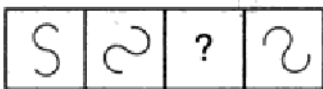
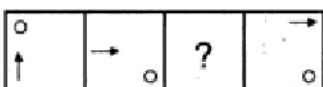
Directions—(Q. 64 to 68) are based on the following statements. At a party A, B, C, D and E are sitting in a circle. The group comprises a professor, an Industrialist and a businessman. The businessman is sitting in between the Industrialist and his wife D. A the professor is married to E, who is the sister of B. The Industrialist is seated to the right of C. Both the ladies are unemployed.

- 64. Who among them must be graduate—
 (A) B (B) A
 (C) C (D) None of these
- 65. What is A to B—
 (A) Brother
 (B) Uncle
 (C) Brother in law
 (D) Can not be determined































66. A is sitting to the right of—
 (A) Industrialist
 (B) His wife
 (C) D
 (D) Can not be determined
67. Who is the Industrialist—
 (A) D
 (B) A
 (C) B
 (D) Can not be determined
68. Who in the group is unmarried—
 (A) Professor
 (B) Industrialist
 (C) Businessman
 (D) Can not be determined
69. A is B's brother, C is D's father, E is B's mother. A and D are brothers. How is E Related to C—
 (A) Sister (B) Sister in law
 (C) Niece (D) Wife
70. A and B are married couple. X and Y are the brothers. X is the brother of A. How Y is related to B—
 (A) Brother (B) Brother in law
 (C) Son (D) Son in law

Directions—In the questions 71–90 there is a set of Problem Figures followed by a set of five other figure labelled A, B, C, D, and E called the Answer Figures. In Problem figures one block is empty with question mark sign (?). Select a suitable figure from the Answer set which will substitute the question mark so that a series is formed. The letter of that selected figure is the answer which has to be written in front of appropriate question No.

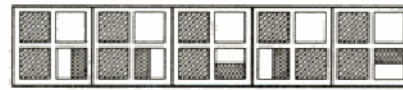
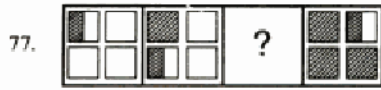
Problem Figures

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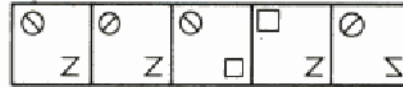
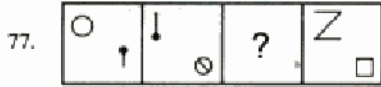
Answer Figures

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- (A)  (B)  (C)  (D)  (E) 
- (A)  (B)  (C)  (D)  (E) 
- (A)  (B)  (C)  (D)  (E) 
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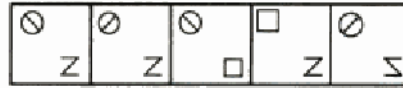
8 | N. Talent (VIII)



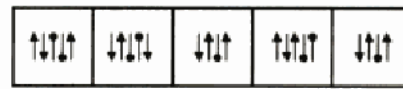
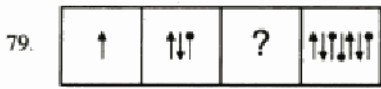
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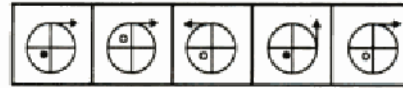
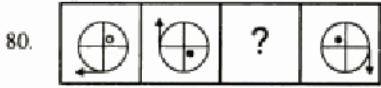
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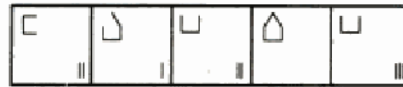
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(A) (B) (C) (D) (E)



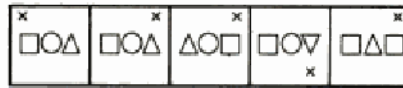
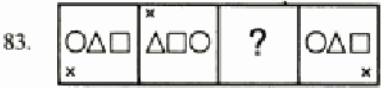
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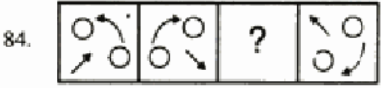
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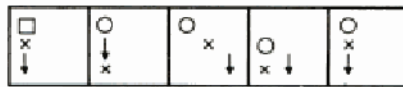
(A) (B) (C) (D) (E)



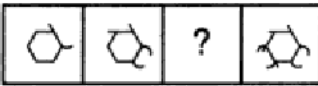
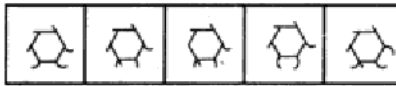
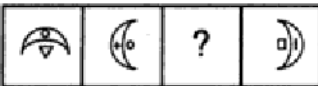

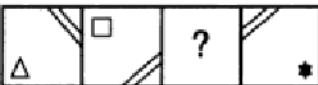

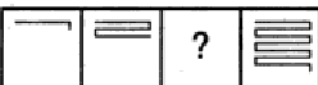
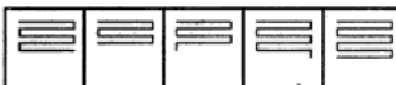
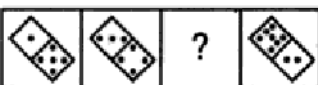

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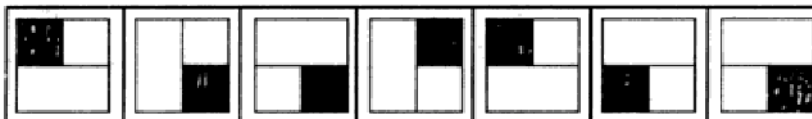
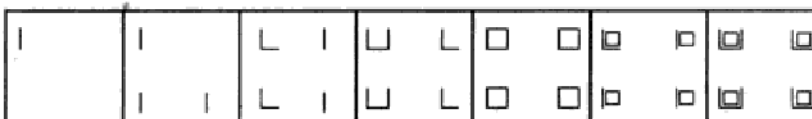
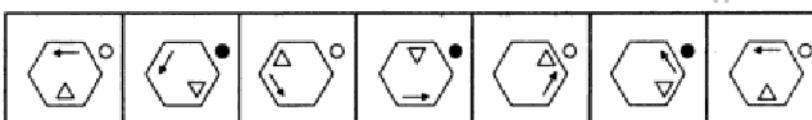
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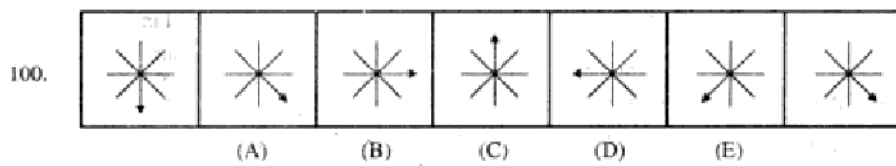
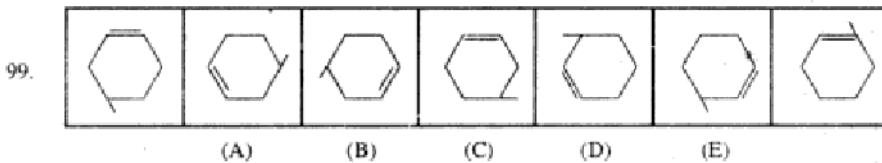
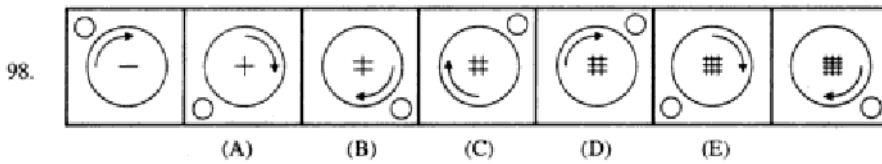
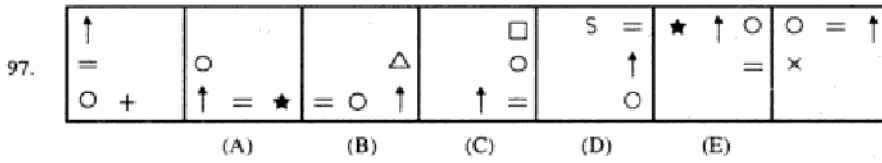
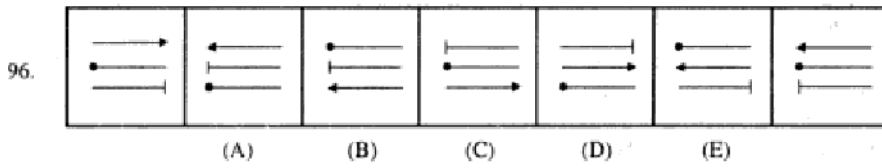
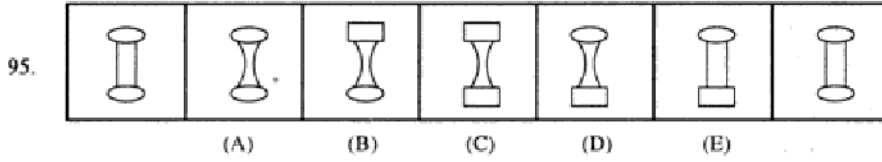
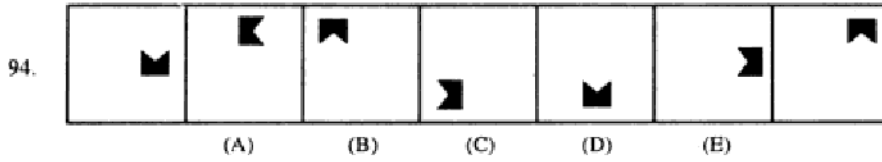


(A) (B) (C) (D) (E)

86.  
87.  
88.  
89.  
90.  

Directions—In the following question No. 91–100 there are five lettered figures and two unlettered figures on both extremes. One of the five lettered figures does not fit into the series. The letter of that figure is the answer.

91. 
 (A) (B) (C) (D) (E)
92. 
 (A) (B) (C) (D) (E)
93. 
 (A) (B) (C) (D) (E)



Part - II

Scholastic Ability test

Science

101. Energy Crops are source of—
 (A) Bio-fuels
 (B) Alcohol fuels
 (C) Coal Energy
 (D) None of the above
102. Commercial Acetic Acid is used in the preparation of—
 (A) Mead (B) Vinegar
 (C) Alcohol (D) Wine
103. Artificial heart valve is made up of—
 (A) Special Plastics (B) Ceramics
 (C) Metal alloys (D) All of the above
104. ELISA is—
 (A) Immunological test
 (B) Serological test
 (C) Both (A) and (B)
 (D) None of the above
105. Cause of Syndrome is—
 (A) Abnormalities in chromosomes
 (B) Nutrition
 (C) Life style
 (D) None of the above
106. Liver is located in—
 (A) Neck (B) Head
 (C) Abdomen (D) Thorax
107. Sinuses is related with—
 (A) Open circulatory system
 (B) Closed circulatory system
 (C) Body tissues
 (D) None of the above
108. Law of purity of gametes was proposed by—
 (A) Lamark (B) Darwin
 (C) Mendel (D) Hugo-De Vries
109. Genotype of Klinefelter syndrome is—
 (A) 44A + XXY (B) 44A + XO
 (C) 45A + XY (D) 45A + XO
110. Plague is a—
 (A) Viral Disease
 (B) Fungal Disease
 (C) Bacterial Disease
 (D) Mineral Disease
111. Permanently coloured optical glasses contain—
 (A) Cerium Oxide (B) Cerium Chloride
 (C) Silver Iodide (D) Silver Bromide
112. Water gas is—
 (A) $2H + CO$ (B) $2H + CO_2$
 (C) $H_2 + CO$ (D) $H_2 + CO_2$
113. Vermillion is—
 (A) HgS (B) $HgNH_3Cl$
 (C) $HgCl_2$ (D) $Hg(NO_3)_2$
114. On the Pouling's electro-negativity scale the element next to Fluorine is—
 (A) Nitrogen (B) Oxygen
 (C) Chlorine (D) Bromine
115. A gas has a vapour density 11.2. The volume occupied by 1 g of gas at N.T.P is—
 (A) 1L (B) 22.4L
 (C) 11.2L (D) 4L
116. What is correct way—
 (A) $\vec{v} = \vec{r} \times \vec{\omega}$ (B) $\vec{F} = \vec{a} \times \vec{m}$
 (C) $\vec{v} = \vec{\omega} + \vec{r}$ (D) $\vec{W} = \vec{F} \times \vec{d}$
117. 1st Oil Koop is located in—
 (A) Pennsylvania (B) Drumlin
 (C) Inselberg (D) Gaya
118. Diamond ring is related with—
 (A) Sun (B) Gold
 (C) Jewellery (D) Finger
119. Percentage of Carbon in Lamp Black is—
 (A) 90-95% (B) 80-90%
 (C) 98-99% (D) 25%
120. Primary source of Biological energy is—
 (A) Sun (B) Animals
 (C) Green Plants (D) Non-green plants

121. The formula of a Metal chloride is MCl_3 . If the atomic mass of the metal is 120, its equivalent weight will be—
 (A) 40 (B) 30
 (C) 60 (D) 20
122. Cl_2O_7 is—
 (A) Amphoteric (B) Acidic
 (C) Alkaline (D) Neutral
123. $2SO_2 + O_2 \xrightleftharpoons[As_2O_3]{Pt} 2SO_3$
 In the above reaction, As_2O_3 acts as—
 (A) Positive Catalyst
 (B) Negative Catalyst
 (C) Catalyst Poison
 (D) Activator
124. Mass of 3.01×10^{23} molecules of a gas at N.T.P. is 35.5 gm. The molecular weight of the gas will be—
 (A) 7 (B) 71
 (C) 35.5 (D) 14
125. Which is an antacid ?
 (A) Formic Acid (B) Acetic Acid
 (C) Lactic Acid (D) Milk of Magnesia
126. Select the compound which contains all the three bonds *i.e.* electrovalent bond, co-valent bond and co-ordinate bond—
 (A) SO_2 (B) SO_3
 (C) KOH (D) NH_4Cl
127. Hydrogen Bomb is based on the principle of—
 (A) Nuclear Fission
 (B) Nuclear Fusion
 (C) Nuclear explosion
 (D) Chain reaction
128. Which is the Unicellular micro organism ?
 (A) Spirogyra (B) Virus
 (C) Paramecium (D) Hydra
129. Hormones are secreted by—
 (A) Spleen
 (B) Gall Bladder
 (C) Ductless glands
 (D) Kidney
130. Name the components responsible for blood clotting—
 (A) White blood cells
 (B) Red blood cells
 (C) Platelets
 (D) Plasma
131. What is the maximum life span of R.B.C. ?
 (A) 1 Year (B) 127 days
 (C) 24 hrs. (D) 8 Sec.
132. Name the mammal having smallest R.B.C.—
 (A) Camel
 (B) Kasturi Mrig (Musk Deer)
 (C) Rat
 (D) Elephant
133. Onion, Potato and Ginger are—
 (A) Root
 (B) Modified stem
 (C) Adventitious Root
 (D) Scale Leaves
134. Who discovered the blood group in human being ?
 (A) Landsteiner
 (B) Jennings
 (C) Pantien and Mast
 (D) Karl Marx
135. In which atom all the three fundamental particles (*i.e.* electron, proton and neutron) are not present ?
 (A) No such atom exists
 (B) Helium
 (C) Deuterium
 (D) Hydrogen
136. The e.m.f. of lead accumulator cell is—
 (A) 1.45 volt (B) 1.1 volt
 (C) 2.2 volt (D) 12 volt
137. The substance mixed in the preparation of photochromatic glass is—
 (A) Cerium Oxide
 (B) Silver Iodide
 (C) Lithium Oxide
 (D) Chromium Oxide
138. Which gas is filled in the electric bulb ?
 (A) Oxygen (B) Air
 (C) Argon (D) Chlorine

139. On passing a current of 2 amperes for 5 seconds in a conductor, 30 joules of energy is produced. Find out the potential difference at the two ends of the conductor—
 (A) 15 volt (B) 3 volt
 (C) 6 volt (D) 12 volt
140. In summers the electric wires of transmission line are lowered down because—
 (A) Value of 'g' increases
 (B) Gravity of earth increases
 (C) Wire are elongated on increase of temperature
 (D) Weight of wire increases
148. The only developed country in Asia is—
 (A) Japan (B) India
 (C) Pakistan (D) China
149. If I stand with face pointing southwards in which direction will my right hand point—
 (A) North (B) West
 (C) East (D) North East
150. If a match is played at 9:00 A.M. in London, at what time can it be seen on Doordarshan in India—
 (A) 12:00 Noon (B) 11:30 A.M.
 (C) 2:30 P.M. (D) 1:30 P.M.

Social Studies

141. The height of the Mount Everest is—
 (A) 8611 metres (B) 8848 metres
 (C) 8481 metres (D) 8172 metres
142. Bhakhra Nangal Project is built on the river—
 (A) Krishna (B) Kaveri
 (C) Mahanadi (D) None of these
143. Populationwise, in the world, India ranks—
 (A) First (B) Second
 (C) Fifth (D) Fourth
144. The capital of West Bengal is—
 (A) Kolkata (B) Mumbai
 (C) Jaipur (D) Ranchi
145. Kharif crops are sown in—
 (A) September
 (B) June or July
 (C) August or September
 (D) January or February
146. The unit of measuring the temperature is—
 (A) Milibar (B) Cubic metre
 (C) Celcius (D) Centimetre
147. The two major centres producing cotton textiles are—
 (A) Mumbai and Chennai
 (B) Mumbai and Ahmedabad
 (C) Varanasi and Kanpur
 (D) Jammu and Kashmir
151. The trees are tall in Equatorial region because—
 (A) There is plenty of water
 (B) The land is most fertile
 (C) There is plenty of temperature
 (D) There is high temperature and heavy rainfall
152. Which one of the following is not correctly matched—
 (A) Ostrich — Africa
 (B) Emu — Australia
 (C) Ria — South America
 (D) Harpi Eagle — North America
153. The number of States in Indian Union is—
 (A) 14 (B) 25
 (C) 28 (D) 30
154. Who completed Kutub Minar ?
 (A) Akbar (B) Jahangir
 (C) Qutubuddin (D) Iltutmish
155. Mahmood invaded India—
 (A) Two times
 (B) Ten times
 (C) Seventeen times
 (D) Twenty times
156. Who introduced token currency ?
 (A) Alauddin Khilji
 (B) Razia
 (C) Muhammad Tughluq
 (D) Firoz Tughluq

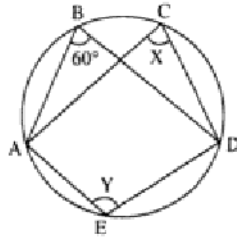
157. Who was Amir Khusro ?
 (A) Hindi Writer
 (B) Persian Poet
 (C) Sanskrit Scholar
 (D) Urdu Writer
158. The second battle of Panipat was fought in—
 (A) 1526 (B) 1556
 (C) 1576 (D) 1761
159. The third Mysore Battle was fought between—
 (A) Haider Ali and Nizam
 (B) Haider Ali and English Army
 (C) Tipu and Marathas
 (D) Tipu and English Army
160. Permanent settlement of Bengal was started in—
 (A) 1693 (B) 1793
 (C) 1893 (D) 1993
161. Curzon is famous for—
 (A) The partition of Bengal
 (B) The partition of India and Pakistan
 (C) The Doctrine of Lapse
 (D) The Subsidiary Alliance
162. Who was the father of Indian Renaissance—
 (A) Rammohan Roy
 (B) Swami Dayanand
 (C) Ramkrishna Paramhansa
 (D) Annie Besant
163. The main leader of the revolt of 1857 was—
 (A) Mahatma Gandhi
 (B) Sardar Vallabh Bhai Patel
 (C) Pt. Jawahar Lal Nehru
 (D) Nana Saheb
164. The first Governor-General of free India was—
 (A) Lord Mountbatten
 (B) Chakravati Rajgopalachari
 (C) Dr. Rajendra Prasad
 (D) Pt. Jawahar Lal Nehru
165. The Quit India movement was launched in—
 (A) 1945 (B) 1942
 (C) 1940 (D) 1935
166. The Chairman of the drafting committee of the Constitution was—
 (A) Pt. Jawahar Lal Nehru
 (B) Dr. B. R. Ambedkar
 (C) Mahatma Gandhi
 (D) Lal Bahadur Shastri
167. Which of the following is not a fundamental right—
 (A) Right against exploitation
 (B) Right to property
 (C) Right to freedom of religion
 (D) Right to freedom
168. The tenure of Rajya Sabha member is—
 (A) 5 years (B) 6 years
 (C) 3 years (D) 4 years
169. The Governor is appointed by—
 (A) The Prime Minister
 (B) The President
 (C) The Chief Justice of India
 (D) None of these
170. The real head of the State government is—
 (A) Governor
 (B) Chief Minister
 (C) Prime Minister
 (D) President
171. The Judges of the Supreme Court hold office until the age of—
 (A) 62 years (B) 65 years
 (C) 68 years (D) 60 years
172. Right to vote can be exercised by one who has completed the age of—
 (A) 18 years (B) 21 years
 (C) 25 years (D) 30 years
173. Entire election process in our country is controlled by—
 (A) Prime Minister
 (B) President
 (C) Election Commission
 (D) None of these
174. Who propounded the Principles of Panch-sheel—
 (A) Mahatma Gandhi
 (B) Pt. Jawahar Lal Nehru

- (C) Rajiv Gandhi
(D) Lal Bahadur Shastri
175. World Human Rights Day is celebrated on—
(A) 14 November (B) 26 January
(C) 10 December (D) 5 September
176. Which country is situated in the east of India—
(A) Pakistan (B) China
(C) Nepal (D) Bangladesh
177. Our Republic Day is—
(A) 26 January (B) 15 August
(C) 2 October (D) 14 November
178. In the Panchayati Raj System the 'Panchayat Samiti' is constituted at the—
(A) Village level (B) Block level
(C) City level (D) District level
179. The highest authority of Indian Army is—
(A) President
(B) Prime Minister
(C) Chief Minister
(D) Governor
180. Which of the following is not a permanent member of U.N.O.—
(A) China (B) Russia
(C) France (D) India
184. The value of $\operatorname{cosec}^2 30^\circ \cdot \sec^2 45^\circ - \sec^2 60^\circ$ will be—
(A) 3 (B) 4
(C) 5 (D) 6
185. The volume of a cylinder whose diameter is equal to its height is—
(A) $\pi r^2 h$ (B) $\frac{\pi h^3}{4}$
(C) $\frac{\pi r^3}{8}$ (D) $2\pi r^3$
186. Mean of 2, 4, 3, 5, 6, 9, 7 and a is 6. Find a —
(A) 12 (B) 6
(C) 8 (D) 7
187. The total surface area of a cube whose side is $a\sqrt{2}$ cm is—
(A) $24 a^2$ (B) $12 a^2$
(C) $28 a^2$ (D) $25 a^2$
188. A washing machine is sold at a profit of 16%. Had it been sold for Rs. 100 more, the profit would have been 20%. Find its C.P.—
(A) Rs. 2000 (B) Rs. 2500
(C) Rs. 1500 (D) Rs. 1800
189. Find the height of a pole which casts a shadow 20 metres long at a time and place where the shadow of a stick one metre long is 55 cm.
(A) $\frac{400}{11}$ m (B) $\frac{1100}{4}$ m
(C) $\frac{11}{4}$ m (D) $\frac{4}{11}$ m

Mathematics

181. The value of $\frac{1}{\sqrt{0.09}} \times \sqrt{5.76}$ is—
(A) 8 (B) 0.8
(C) 0.08 (D) 64
182. Solve the following equation for x .
 $3 + 2^x = (27)^{1/3} + (64)^{1/2}$
(A) 2 (B) 3
(C) 4 (D) 1/3
183. The simplification $\left(\frac{1}{2}\right)^{-3/2} + \left[\left(\frac{1}{2}\right)^3\right]^{-1/2}$ gives—
(A) $\left(\frac{1}{2}\right)^{-2}$ (B) $\left(\frac{1}{2}\right)^{-3/5}$
(C) 0 (D) 1
190. Sumant is one third the age of his father. In 14 years he will be one half the age of his father. Determine their present ages—
(A) 14 years, 42 years
(B) 7 years, 21 years
(C) 10 years, 30 years
(D) None of these
191. Solve the following—
 $\frac{2}{Y} - \frac{11}{10} = \frac{2}{5} + \frac{1}{Y}$
(A) $\frac{2}{3}$ (B) $\frac{3}{2}$
(C) $\frac{2}{5}$ (D) $\frac{11}{10}$

192. Three bells ring at intervals of 10, 15 and 20 minutes. If they all ring together at 9:00 A.M. at what time they will next ring together—
 (A) 10 AM (B) 11 AM
 (C) 9:30 AM (D) 10:20 AM
193. Find the rational number between $\frac{5}{12}$ and $\frac{3}{7}$
 (A) $\frac{15}{84}$ (B) $\frac{71}{168}$
 (C) $\frac{1}{84}$ (D) $\frac{5}{7}$
194. If the set A = {15, 16, 17, 18}, B = {15, 18, 20}, then the set A-B will be—
 (A) {16, 17} (B) {16, 18}
 (C) {20} (D) {15, 16, 17, 18}
195. A path 5 m wide runs round the inside of a square park of side 100 m. Find the area of the path—
 (A) 25 m² (B) 1900 m²
 (C) 500 m² (D) 1000 m²
196. The acute angles of a right triangle are in the ratio 3 : 2. Find the values of these angles—
 (A) 54°, 36° (B) 108°, 72°
 (C) 36°, 108° (D) 45°, 30°
197. Find the measure of $\angle Y$ —



- (A) 60° (B) 120°
 (C) 90° (D) 30°
198. The total surface area of a cuboid made by two cubes of 12 cm side each will be—
 (A) 1740 Sq. cm
 (B) 1640 Sq. cm
 (C) 1540 Sq. cm
 (D) 1440 Sq. cm

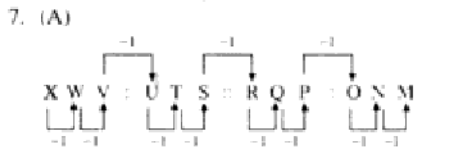
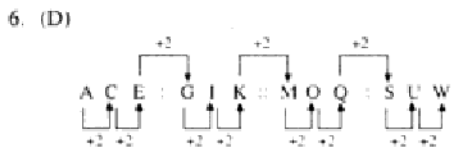
199. The value of $x(2y - 3z) + y(3z - 2x) + 3z(x - y)$ will be—
 (A) $2x - 3y - 2z$
 (B) 0
 (C) $x - y - z$
 (D) $x + y - z$
200. If one angle of a quadrilateral is greater than 180° then quadrilateral is—
 (A) Convex quadrilateral
 (B) Parallelogram
 (C) Concave quadrilateral
 (D) Trapezium

Answers with Hints

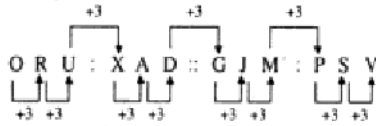
1. (B) As 'Tree' is found in 'forest' similarly, 'Grass' is found in 'Garden'.
 2. (A) As 'Cap' is used on 'Head' similarly, 'Glove' is used on 'Finger'.
 3. (A) A = 1 and T = 20 hence $\frac{A}{T} = 1 + 20 = 21$.
 Similarly, L = 12 and X = 24,
 hence $\frac{L}{X} = 12 + 24 = 36$
 4. (D) $\dots : \dots$ i.e. both the above dots shift to bottom.
 Similarly, $\dots : \dots$

5. (C) $\triangle : \triangle$ i.e. there are three side of the triangle hence three + + + appear in next \triangle .

Similarly, $\square : \square$



8. (A)



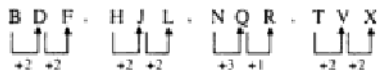
9. (D) As, 'Mosquito' is the cause of 'Malaria' similarly, 'Dog' is the cause of 'Rabies'.
10. (C) As, N F K : K F N the letter are written in reverse order similarly, A X H : H X A.
11. (B) B X L $\Rightarrow 2 \times 12 = 24$ On writing, the order number according to english alphabet. Similarly, D X H $\Rightarrow 4 \times 8 = 32$.

12. (B) $\frac{R}{C} = 18 - 3 = 15$

Similarly, $\frac{W}{J} = 23 - 10 = 13$.

13. (C) Only swan swims in water but all the rest fly in air.
14. (A) All the rest are branches of Mathematics.
15. (C) All the rest grow underground.
16. (D) In all the rest one digit is repeated.
17. (B) All the rest are religious books.
18. (B) All the rest are pulses.

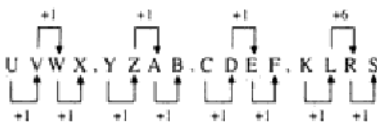
19. (C)



20. (A)

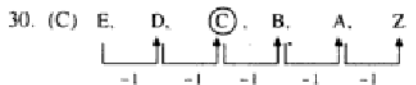
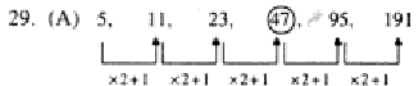
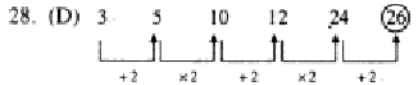
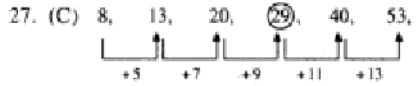
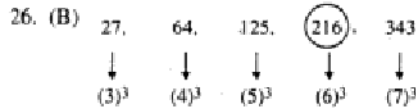


21. (D)



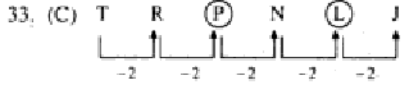
22. (C) All the rest are prime numbers.
23. (C) All the rest numbers are perfect cube.
24. (A) All the rest are rectilinear figures.

25. (D) All the rest are capitals.



31. (A) H A N D / H A N D / H A

32. (D) N A M E / N A M E / N; A, M, E



34. (B) K (K) / A A / N (N) / K K / (A) A

35. (C) (a) b m z (d) / a b (m) z d / a (b) (m) z d

36. (A) T (E) N / T E (N) / (T) E N

37. (B) In each subsequent figure the design moves through 45° anticlockwise.

38. (C) In each subsequent figure one black circle is increase at the end of one line. This increased circle increases at right and left respectively.

39. (D) In each subsequent figure the whole design moves Through 45° clockwise.

40. (C) $(1 + 2)^2 = 9, (2 + 3)^2 = 25$ similarly, $(3 + 4)^2 = 49$.

41. (A) $\left(\frac{20}{5}\right)^2 = 16, \left(\frac{35}{7}\right)^2 = 25$,
 Similarly, $\left(\frac{63}{9}\right)^2 = 49$.

42. (D) L.C.M. of 2, 3, 4 and 5 = 60, L.C.M. of 4, 5, 6 and 7 = 420.

Similarly, L.C.M. of 8, 10, 12 and 16 = 240.

43. (A) In first figure each of the outer numbers is the multiple of 5. In third figure also it so. Hence in second figure each outer number should be multiple of 4.

44. (B) $(0 + 1 + 3 + 4)^{1/3} = 2$,

$$(20 + 25 + 35 + 45)^{1/3} = 5$$

$$\therefore ? = (3 + 6 + 8 + 10)^{1/3} = 3$$

45. (C) $2 + 3 + 4 + 5 = 14$,

$$3 + 5 + 7 + 9 = 24$$

Similarly, $? = 5 + 7 + 9 + 11 = 32$

46. (D) $\frac{1}{2}(10 + 12 + 16) = 19$,

$$\frac{1}{2}(15 + 17 + 20) = 26$$

similarly, $? = \frac{1}{2}(12 + 18 + 40) = 35$

47. (C) $(3 + 2 + 1) = 6$

$$\Rightarrow 6 \times 2 = 12$$

$$(6 + 4 + 2) = 12$$

$$12 \times 2 = 24$$

$$\therefore (7 + 5 + 3) = 15$$

$$\Rightarrow 15 \times 2 = 30$$

48. (C) $\frac{21 + 35}{7} = 8$,

$$\frac{52 + 91}{13} = 11$$

and $\frac{90 + 120}{15} = 14$

49. (A) $(4 + 5)^2 = 81$,

$$(5 + 8)^2 = 169$$

$$\therefore ? = (7 + 10)^2 = 289$$

50. (B) $8 \times 5 = 40$,

$$18 \times 5 = 90$$

$$\therefore ? = 12 \times 5 = 60$$

For 51 and 52.

Code for I is f

Code for N is t

Code for P is l

Code for C is b

Code for E is d

Code for K is h

and Code for J is g

51. (D) 52. (C)

53. (D) $48 \times 2 + 48 \times \frac{1}{2} = 120$,

$$60 \times 2 + 60 \times \frac{1}{2} = 150,$$

$$72 \times 2 + 72 \times \frac{1}{2} = 180,$$

$$80 \times 2 + 80 \times \frac{1}{2} = 200$$

and $88 \times 2 + 88 \times \frac{1}{2} = 220$.

54. (B) $5832 = (18)^3$,

$$2744 = (14)^3,$$

$$1331 = (11)^3,$$

$$729 = (9)^3$$

and $334 = (7)^3$

55. (C) $171 \div 19 = 9$

$$228 \div 19 = 12,$$

$$285 \div 19 = 15,$$

$$361 \div 19 = 19$$

and $399 \div 19 = 21$

56. (A) $0.01 = (0.1)^2$,

$$0.09 = (0.3)^2,$$

$$0.64 = (0.8)^2,$$

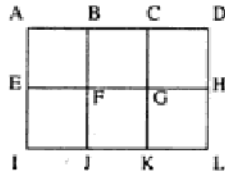
$$1.21 = (1.1)^2,$$

and $2.25 = (1.5)^2$

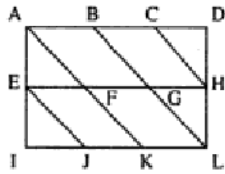
57. (B) No. of squares in fig (A) is 8 :

ABFE, BCGF, CDHG, EFJI

FGKJ, GHLK, ACKL, BDLJ



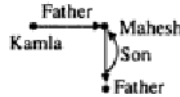
58. (D) No. of parallelograms in fig (B) is 7.
 ABGF, BCHG, EFKJ, FGKL, ACHF, EGLJ and ABLK.



59. (C) No. of triangles in fig (B) is 6.
 AEF, EIJ, CDH, GHL, AKI and BDL.

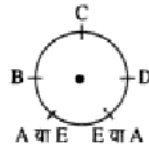
60. (C) 61. (B) 62. (A)

63. (B)



∴ Mahesh is the father of kamla.

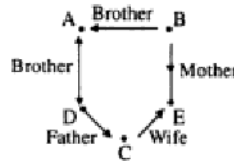
For 64 to 68.



- A → Professor
- E → Wife of A and sister of B
- F → Industrialist
- C → Businessman
- D → Wife of businessman.

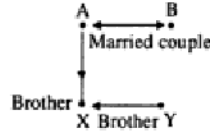
64. (B) A is the professor hence he must be graduate.
 65. (C) A is the brother-in-law of B.
 66. (D) 67. (C) 68. (B)

69. (D)



E is the wife of C.

70. (B)



Y is the brother-in-law of B.

- 71. (B) In each subsequent figure two designs are increased.
- 72. (B) In each subsequent figure the inner design after becoming larger comes out while a new design takes place inside.
- 73. (C) In each subsequent figure one arrow and one pin increase in such a way that all the arrows remain in one direction while all the pin remain in other direction. Besides, in each subsequent figure the directions of all designs reverse.
- 74. (E) In each subsequent figure one semicircle is increased and the whole design after shifting one side clockwise, moves through 90° in the same direction.
- 75. (C) In each subsequent figure the design reverses after moving through 45° clockwise.
- 76. (D) In each subsequent figure circle shifts to next end along diagonal while arrow moves through 90° and 270° clockwise and then shift half way along diagonal.
- 77. (B) In each subsequent figure half black square is completely blackened and the halfpart next square along anticlockwise is blackened.
- 78. (E) In each subsequent figure the lower right design after enlarging and reversing shifts to upper left corner while a new design takes place at lower right corner.

79. (A) In each subsequent figure an arrow and a pin increase in such a way that new pair is in reverse order and reversed in direction from the previous pair.
80. (E) In each subsequent figure the whole design moves through 90° clockwise while small is changed from white to black and viceversa.
81. (C) In each subsequent figure the design moves through 90° anticlockwise at its own place. Besides, one side from this design comes out and shifts to right lower corner in the shape of vertical direction.
82. (D) In each subsequent figure the design moves through 45° anticlockwise and one white and one black leaf is increased respectively clockwise.
83. (B) In each subsequent figure each of the three central designs shifts one place to left while the design X shifts one side clockwise.
84. (E) In each subsequent figure the whole design moves through 90° anticlockwise while the directing of the arrows reverse.
85. (E) In each subsequent figure the existing design shifts half side anticlockwise while a new design takes place in the top left corner.
86. (D) In each subsequent figure one line is increased anticlockwise and an arc is increased clockwise. Besides, the directions of all the arcs are reversed.
87. (B) In each subsequent figure the whole design moves through 90° anticlockwise. The inner design comes out and a new design takes place inside.
88. (D) In each subsequent figure the whole design shift one place clockwise and except line, the other design takes a new shaps.
89. (A) In each subsequent figure 3, 4 and 5 lines are increasing respectively.
90. (E) In each subsequent figure two black dots are increasing in upper rectangle but one dot is decreasing in lower rectangle.
91. (A) In each subsequent figure the black position is shifting one place anticlockwise but it is not so in fig (A).
92. (D) In each subsequent figure the number of lines is increasing by 2, 3, 4, 5, 6 and 7 respectively but it is not so in fig. (D)
93. (A) In each subsequent figure arrow is shifting one place anti-clockwise and Δ is shifting one place clockwise and the reverses. Circle is changing from white to black and viceversa at its own place but it is not so in fig (A).
94. (E) In each subsequent figure the design is shifting two and one place respectively anticlockwise. Besides it moves through 90° clockwise each time. But it is not so fig. (E)
95. (D) From fig (1) to (A) two st. lines in the middle are changed into curvedlines. From (A) to (B) the upper oval is changed into rectangle. From (B) to (C) the lower oval is changed into rectangle. Later on this is continued. But in fig (D) it is not so.
96. (A) From fig (1) to (A) the design —| shifts from bottom to centre but no change in its direction. From (A) to (B), this design remains at its own place but moves through 180° . From (B) to (C) this design shifts from centre to upward. The same order of change continues. But it is not so fig (A).
97. (E) In each subsequent figure the design at the right is shifting half line anticlockwise, takes a new shape. From the other three designs two of them shift one side anticlockwise while remaining other shifts half side clockwise. But in fig (E) it is not so.
98. (D) In each subsequent figure the arrow shifts clockwise vertical and horizontal line is increased respectively. The small circle shifts one side anticlockwise. But in fig (D) it is not so.
99. (A) In each subsequent figure the extended side of the hexagon shifts 2 and 3 sides respectively anticlockwise. The other line shifts two sides anti-clockwise and comes from out to inside and vice versa after two steps. But is not so in fig (A).

100. (B) In each subsequent figure, the arrow shifts one and two places respectively in anticlock direction. But it is not so fig (B).
 101. (A) 102. (B) 103. (C) 104. (A) 105. (A)
 106. (C) Liver is situated in the right upper part of the abdomen, just below the diaphragm.
 107. (A) 108. (C) 109. (A) 110. (C) 111. (A)
 112. (C) 113. (A) 114. (B)
 115. (A) Vapour density of gas

$$= 11.2$$

$$\begin{aligned} \text{Hence molecular weight of gas} \\ &= 2 \times \text{V.D.} \\ &= 2 \times 11.2 \\ &= 22.4 \end{aligned}$$

$$\begin{aligned} \therefore 22.4 \text{ g of a gas at NTP occupy} \\ &= 22.4 \text{ L} \end{aligned}$$

$$\begin{aligned} \therefore 1 \text{ g of the gas will occupy} \\ &= \frac{22.4}{22.4} \\ &= 1 \text{ Litre} \end{aligned}$$

116. (A) 117. (A) 118. (A) 119. (C) 120. (A)
 121. (A) Atomic weight of Cl = 35.5
 Atomic weight of M = 120

\therefore 106.5 g of Cl combines with 120 g of metal

$$\begin{aligned} \therefore 35.5 \text{ g of Cl will combine with} \\ &= \frac{120 \times 35.5}{106.5} \\ &= 40 \text{ g} \end{aligned}$$

Hence the equivalent weight of metal is 40.

122. (B) Cl_2O_7 is an acidic oxide because on reacting with water it gives an acid

$$\text{Cl}_2\text{O}_7 + \text{H}_2\text{O} \rightarrow 2\text{HClO}_4$$

 Perchloric acid

123. (C)

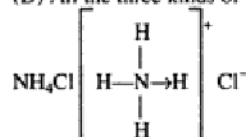
124. (B) $\therefore 3.01 \times 10^{23}$ molecules of a gas weigh

$$= 35.5 \text{ g}$$

$$\begin{aligned} \therefore 6.02 \times 10^{23} \text{ molecules of gas will weigh} \\ &= \frac{35.5 \times 6.02 \times 10^{23}}{3.01 \times 10^{23}} \\ &= 71 \text{ g} \end{aligned}$$

125. (D)

126. (D) All the three kinds of bond are present in



127. (B) 128. (C) 129. (C) 130. (C)

131. (B) The average life span of erythrocytes (RBCs) is 120 days.

132. (C) 133. (B) 134. (A) 135. (D) 136. (C)

137. (B) 138. (C)

139. (B) $H = V \times I \times t$

$$30 = V \times 2 \times 5$$

$$\Rightarrow V = 3 \text{ volt}$$

140. (C) 141. (B)

142. (D) Bhakra Nangal Project is a joint venture of Punjab, Rajasthan and Haryana. Bhakra Nangal Project is India's biggest multi-purpose river valley project. It has been constructed across the Sutlej river at Bhakra.

143. (B) The five most densely populated countries of the world are—

1. China [1277.6 million]
2. India [1027.0 million]
3. USA [281.4 million]
4. Indonesia [212.1 million]
5. Brazil [170.1 million]

144. (A)

145. (B) Kharif crops are grown in the month of June or July and harvested in October. Rice, groundnut, jute, tobacco, jowar, bajra, corn etc. are some common kharif crops. They are monsoon irrigated crops.

146. (C) 147. (B) 148. (A) 149. (B) 150. (C)

151. (D) 152. (B)

153. (C) There were previously 25 states in the Indian Union but since, year 2000 three new states namely, Chattisgarh, Uttaranchal and Jharkhand came into existence. Hence presently there are 28 states in the Indian Union.

154. (D) Construction of Qutub Minar was started by Qutubuddin Aibak but only one of its storey was constructed in front of him and the rest of the monument was completed by Iltutmish.
155. (C)
156. (C) Token currency in copper coins was introduced by Muhammad Tughlaq in 1329 and 1330. However, the experiment proved to be unsuccessful as the minting of copper coins was not kept under the monopoly of the state. Hence, was no difference between the coins minted at government treasury and those made by artisans.
157. (B)
158. (B) The second battle of Panipat was fought on 5 November, 1556 between Afghan arms under the leadership of Hemu and Mughal army under the leadership of Bairam Khan in which the Afghans were defeated.
159. (D)
160. (B) Permanent settlement was introduced by Governor General Lord Cornwallis on 22 March 1793 A.D. It was initially introduced in Bengal, Bihar and Orissa and later in Uttar Pradesh, Banaras and North Karnataka. In this system 10/11 part or 89% or 10/11 or 9/10 part was given to the company whereas 1/11 part was kept by the Jamindars.
161. (A) Bengal was partitioned in 1905 by Lord Curzen in order to suppress the aroused feeling of nationalism among the Indians.
162. (A) 163. (D)
164. (A) First Governor General of free India was Lord Mountbatten while the first Indian Governor General of free India was C. Rajgopalachari.
165. (B) 166. (B)
167. (B) According to the 44th Constitutional Amendment Act [Article 19] the 'Right to acquire, hold and dispose of property' has been amended. The effect of the change is that this right is no more a fundamental right but it is a legal right now.
168. (B) 169. (B) 170. (B) 171. (B) 172. (A)
173. (C) 174. (B)
175. (C) The Universal Declaration of Human Rights was adopted by the United Nations on December 10, 1948, since then, 10 December is celebrated as Human Rights Day all over the world.
176. (D)
177. (A) Our constitution was enforced on 26 January, 1950, since then 26 January is being celebrated as the republic day of India.
178. (B) Panchayati Raj system is a three-tier system. In it gram panchayat is constituted at village level, panchayat samiti at block level and Zila Parishad is constituted at district level.
179. (A)
180. (D) The five permanent members of the United Nations Organization are—China, France, Russia, Britain and U.S.A.
181. (A) Exp. = $\frac{1}{\sqrt{0.09}} \times \sqrt{5.76} = \frac{1}{0.3} \times 2.4$
= 8
182. (B) $\therefore 3 + 2^x = (27)^{1/3} + (64)^{1/2}$
 $\Rightarrow 3 + 2^x = 3 + 8$
 $\Rightarrow 2^x = 2^3$
 $\therefore x = 3$
183. (D) Exp. = $\left(\frac{1}{2}\right)^{-3/2} + \left[\left(\frac{1}{2}\right)^3\right]^{-1/2}$
= $\left(\frac{2}{1}\right)^{3/2} + \left(\frac{1}{8}\right)^{-1/2}$
= $\left(\frac{2}{1}\right)^{3/2} + (8)^{1/2}$
= $2\sqrt{2} + 2\sqrt{2}$
= 4
184. (B) Exp. = $\operatorname{cosec}^2 30^\circ \cdot \sec^2 45^\circ - \sec^2 60^\circ$
= $(2)^2 \times (\sqrt{2})^2 - (2)^2$
= $4 \times 2 - 4$
= $8 - 4$
= 4

185. (D) $\therefore h = 2r$
 \therefore Volume of the cylinder $= \pi r^2 h$
 $= \pi r^2 \times 2r$
 $= 2\pi r^3$

186. (A) $\therefore 6 = \frac{2+4+3+5+6+9+7+a}{8}$
 $\Rightarrow 48 = 36 + a$
 $\therefore a = 48 - 36$
 $= 12$

187. (B) Total surface area of a cube
 $= 6(\text{side})^2$
 $= 6 \times (a\sqrt{2})^2$
 $= 12a^2$

188. (B) Let the C.P. be Rs. x
 \therefore First S.P. $= \frac{x(100+16)}{100}$
 $\therefore \frac{x \times 116}{100} + 100 = \frac{x(100+20)}{100}$
 $\Rightarrow 116x + 10000 = 120x$
 $\Rightarrow 4x = 10000$
 $\therefore x = \frac{10000}{4}$
 $= \text{Rs. } 2500$

189. (A) Let the height of the pole be x metres.
 $\therefore \frac{x}{20} = \frac{1}{0.55}$
 $\therefore x = \frac{20}{0.55}$
 $= \frac{400}{11}$ metres

190. (A) Let the present age of Sumant be x years
 \therefore Present age of the father
 $= 3x$ years
 $\therefore \frac{x+14}{3x+14} = \frac{1}{2}$
 $\Rightarrow 2x+28 = 3x+14$
 $\therefore x = 14$
 \therefore Present ages of Sumant and his father are 14 years and 42 years.

191. (A) $\therefore \frac{2}{y} - \frac{11}{10} = \frac{2}{5} + \frac{1}{y}$
 $\Rightarrow \frac{2}{y} - \frac{1}{y} = \frac{2}{5} + \frac{11}{10}$
 $\Rightarrow \frac{1}{y} = \frac{15}{10}$
 $\therefore y = \frac{10}{15}$
 $= \frac{2}{3}$

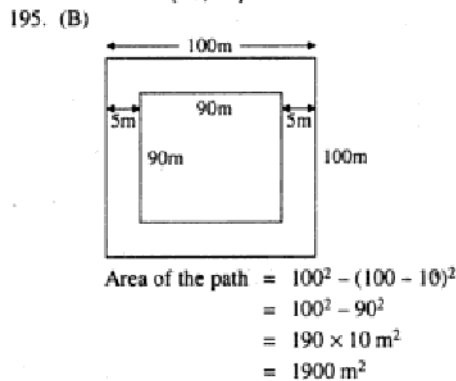
192. (A)

2	10, 15, 20
5	5, 15, 10
	1, 3, 2

\therefore L.C.M. of 10, 15 and 20 minutes
 $= 2 \times 2 \times 3 \times 5$ minutes
 $= 60$ min
 $= 1$ hr
 They will next ring together at
 $= 9:00 \text{ A.M.} + 1:00$
 $= 10 \text{ A.M.}$

193. (B) Reqd. rational number
 $= \frac{1}{2} \left(\frac{5}{12} + \frac{3}{7} \right)$
 $= \frac{1}{2} \left(\frac{35+36}{84} \right)$
 $= \frac{71}{168}$

194. (A) Set A - B
 $= \{15, 16, 17, 18\} - \{15, 18, 20\}$
 $= \{16, 17\}$



196. (A) \because Ratio of acute angle
 $= 3 : 2$

$$\therefore \text{One acute angle} = \frac{3 \times 90^\circ}{(3+2)} = 54^\circ$$

$$\text{and other acute angle} = 90^\circ - 54^\circ \\ = 36^\circ$$

197. (B) \because As per question, ABDE is a cyclic quadrilateral

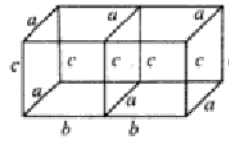
$$\Rightarrow 60^\circ + Y = 180^\circ$$

$$\Rightarrow Y = 180 - 60$$

$$\therefore \angle Y = 120^\circ$$

198. (D) Total surface area of a cuboid
 $= 2(a \times 2b + 2b \times c + c \times a)$

$$= 2(24 \times 12 + 24 \times 12 + 12 \times 12) \\ = 2(288 + 288 + 144) \\ = 1440 \text{ sq. cm.}$$



199. (B) Given Exp.

$$= x(2y - 3z) + y(3z - 2x) + 3z(x - y) \\ = 2xy - 3zx + 3yz - 2xy + 3zx - 3yz \\ = 0$$

200. (C) The quadrilateral whose one angle is greater than 180° , will be concave quadrilateral.