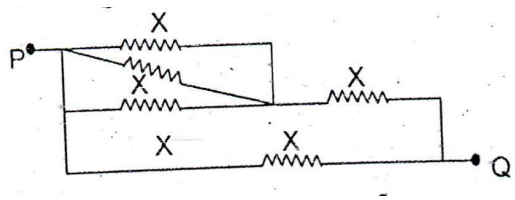
NTSE STAGE – I
(2016- 17)
SCHOLASTIC APTITUDE TEST

101. The distance travelled by a body falling freely from rest in 2nd, 3rd and 5th second of its motion are in the ratio
(1) 7 : 5 : 3 (2) 3 : 5 : 7
(3) 5 : 3 : 7 (4) 5 : 7 : 3

102. Two extremes ends of a moving train (engine and guard coach) pass a pole with speeds U and V respectively with a constant acceleration. The speed with which the middle point of the train will pass the same pole is
(1) $\frac{U+V}{2}$ (2) $\frac{V^2+U^2}{2}$
(3) $\frac{UV}{2}$ (4) $\sqrt{\frac{U^2+V^2}{2}}$

103. An athlete completes one round of circular track of radius r in 30s with uniform speed. The ratio of distance to the displacement traveled by the athlete at the end of 45s is
(1) 2r (2) $\frac{2}{3}$r
(3) $\frac{3}{2}\pi$ (4) 2π

104. Five resistances of same value 'x' are joined in an electric circuit as shown in figure. The equivalent resistance between ends P and Q is 3Ω. The value of x
(1) $\frac{1}{5}\Omega$
(2) $\frac{5}{4}\Omega$
(3) $\frac{21}{4}\Omega$
(4) $\frac{7}{4}\Omega$



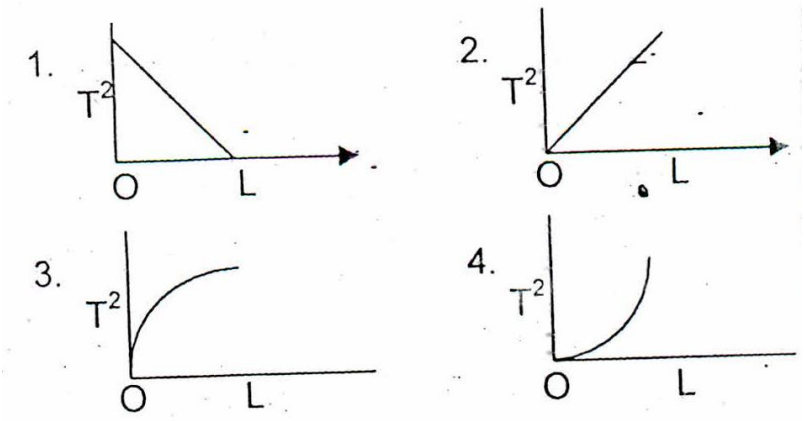
105. A bomb of mass 9 kg initially at rest explodes into two pieces of masses 3 kg and 6 kg. If the kinetic energy of 3 kg mass is 216J, then the velocity of 6kg mass will be
(1) 4 m/s (2) 3 m/s
(3) 2 m/s (4) 6 m/s

106. A glass rod is rubbed with silk, is found positively charged. This is because
(1) Electrons are transferred from glass rod to silk.
(2) Electrons are transferred from silk to glass rod.
(3) Protons are transferred from glass rod to silk
(4) Protons are transferred from silk to glass rod

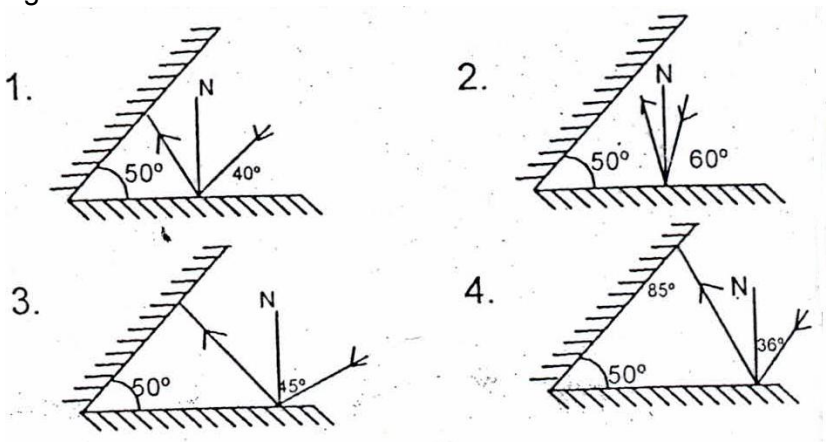
107. A ship rises up as it enters the sea from a river because
(1) Sea water is harder than river water
(2) Density of sea water is lesser than river water
(3) Large quantity of sea water pushes ship up

(4) Density of sea water is greater than river water

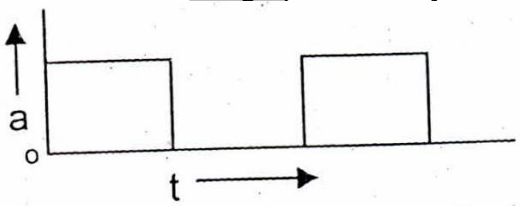
108. Which are of the following represents the correct graph between L and T^2 in simple pendulum?



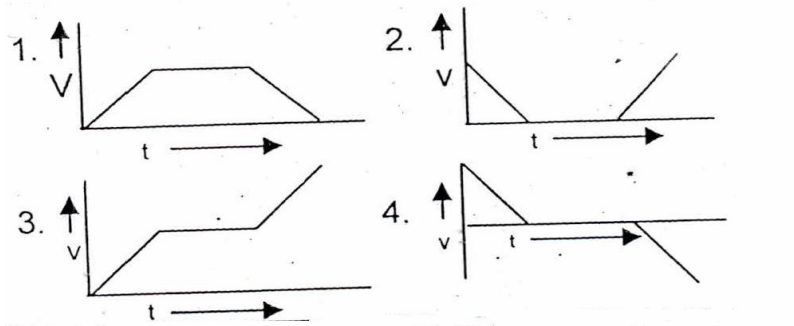
109. Which are of the following correctly depicts reflection. When two mirrors are inclined at an angle of 50° ?



110. Acceleration time graph of a body is shown below:



Which of the following velocity time graph of the same body



111. A man of 80 kg mass stands on a weighting machine in a lift which is moving upwards with a uniform speed of 5m/s. The reading of the weighing machine will be. (Take g = 10 m/s^2)

(1) zero (2) 400N

(3) 800N (4) 1200N

112. An electric bulb marked 40W – 220V is connected with an electric supply of 110v. Its electric power is
(1) 100W (2) 40W
(3) 20W (4) 10W

113. An overhead power transmission line carries a current from east to east directs as then magnetic field at a point 1. 5 cm north of the line is in
(1) North direction (2) South direction
(3) Vertically upward (4) Vertically downward

114. Total internal reflection is not possible when ray of light travels from
(1) glass to water (2) glass to air
(3) water to air (4) water to glass

115. How many grams of oxygen gas is essentially required for complete combustion of 3 moles of butane gas?
(1) 624 g (2) 312 g
(3) 128 g (4) 64 g

116. IUPAC name of 
(1) Oxoethanal (2) Glyoxal
(3) Ethanedial (4) Ethanedione

117. What is the mass of pure ethanoic acid required to neutralize 280 mL of 0.5 molar pure lime water completely?
(1) 60.4 g (2) 30.2 g
(3) 16.8 g (4) 8.4 g

118. A metal sulphate has the formula MSO_4. The phosphate of the same metal will have the formula
(1) $M_3(PO_4)_3$ (2) M_2PO_4
(3) $M(PO_4)_2$ (4) $M_3(PO_4)_2$

119. The mass of sodium chloride formed when 5.3 g of sodium carbonate is dissolve in 250ml of $\frac{1}{2}$ molar HCl solution will be
(1) 5.85 g (2) 7.32 g
(3) 11.7 g (4) 58.5 g

120. A gas mixture contains 50% helium and 50% methane by volume at S.T.P. What is the percentage by mass of the methane in the mixture?
(1) 20% (2) 40%
(3) 60% (4) 80%

121. The German silver, an alloy, has the composition
(1) Cu + Sn + Zn (2) Cu + Zn + Ni
(3) Cu + Ag + Zn (4) Ag + Hg + Sn

122. Out of the following, which is the incorrect statement?
(1) Adsorption is always an exothermic process
(2) The soap solution is not a colloidal solution below its CMC.
(3) 'Argyrol" used in eye – lotion is a colloidal solution
(4) Gold number is the number of moles of gold formed in anode mud during copper refining.

123. A mixture of non – reacting gasses contains hydrogen and oxygen gases in the mass ratio of 1 : 4 respectively. What will be the molar ratio of the above two gases in the mixture?
(1) 16 : 1 (2) 1 : 4
(3) 4 : 1 (4) 1 : 6

124. An element 'X' has the same number of electrons in the first and the fourth shell as well as in the second and the third shell. What is the formula and nature of its oxide?
(1) XO, Neutral (2) XO_2, Acidic
(3) XO_2, Amphoteric (4) XO, Basic

125. Which of the following is not used as a food preservative?
(1) Alitame (2) BHA
(3) BHT (4) Na_2SO_3

126. Match the column – I with column – II.

	Column-I		Column-II
(a)	0.5 mole SO_2 gas	(P)	10 moles of proton
(b)	1 mole H_2O	(Q)	11.2 L at S.T.P
(c)	96g of O_2 gas	(R)	2 moles
(d)	88g of CO_2 gas	(S)	6 moles of atoms

(1) (a) – (R), (b) – (P), (c) – (Q), (d) – (S) (2) (d) – (P), (c) – (Q), (b) – (R), (a) – (S)
(3) (a) – (P), (b) – (Q), (c) – (S), (d) – (R) (4) (a) – (Q), (b) – (P), (c) – (S), (d) – (R)

127. Choose the incorrect statement:
(1) Iodine – value is a parameter to denote the degree of unsaturation of fatty acids.
(2) Cholesterol is not present in plant fats
(3) Rancidity is a reduction process of oily food materials.
(4) Tocopherol is an antioxidant.

128. Iodine present in iodised salt in our diet is essential for
(1) Synthesis of insulin (2) Synthesis of thyroxine
(3) Synthesis of adrenalin (4) Synthesis of growth hormone

129. Which of the following is not controlled by medulla in hind brain?
(1) Blood pressure (2) Salivation
(3) Body Posture (4) Vomitting

130. The breakdown of glucose to pyruvate takes place in
(1) Mitochondria (2) Nucleus
(3) Lungs (4) cytoplasm

131. The oxygen rich blood from lungs comes to the heart in
(1) Left atrium (2) Right atrium
(3) Right ventricle (4) Left ventricle

132. Growth of pollen tube in the style towards the ovule in plants is an example of
(1) Geotropism (2) Hydrotropism
(3) Phototropism (4) Chemotropism

133. The common passage of urine and sperm in human male is
(1) Seminal vesicle (2) Ureter
(3) Vas deferens (4) Urethra

134. Out of the following, which enzyme is active in acidic medium
(1) Pepsin (2) Trypsin
(3) Lipase (4) Amylase

135. Bowman capsule is found in
(1) Small intestine (2) Kidneys
(3) Heart (4) Brain

136. "Khadins" are used in Rajasthan to
(1) Check soil erosion (2) Recharge ground water
(3) Promote soil erosion (4) Trap wild animals

137. Which of these is 'not' a reflex action?
(1) Salivation on smell of food
(2) Secretion of sweat
(3) Blinking of eye in strong light
(4) Withdrawal of hand on touching hot object.

138. A food chain comprising of a snake, grass, frog and insect, the secondary consumer is
(1) Insect (2) Snake
(3) Frog (4) Grass

139. Identify the inherited trait from the following:
(1) Colour of seed of garden pea
(2) Developed musculature of a wrestler
(3) Singing ability of a person.
(4) Darkening of skin due to exposure to sunlight

140. Which of the following disease cannot be sexually transmitted.
(1) Cholera (2) HIV / AIDS
(3) Syphilis (4) Gonorrhoea

141. The simplified form of the expression given below is

$$\frac{\frac{y^4 - x^4}{x(x+y)} - \frac{y^3}{x}}{y^2 - xy + x^2}$$

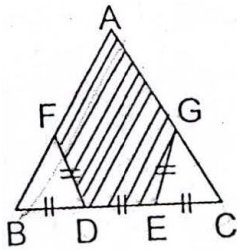
(1) 1 (2) 0
(3) –1 (4) 2

142. If $a = \frac{4xy}{x+y}$, the value of $\frac{a+2x}{a-2x} + \frac{a+2y}{a-2y}$ in most simplified form is
(1) 0 (2) 1
(3) –1 (4) 2

143. If $\frac{x^2 - bx}{ax - c} = \frac{m-1}{m+1}$, has roots which are numerically equal but of opposite signs, the value of m must be
(1) (a – b) / (a + b) (2) (a + b) / (a – b)
(3) c (4) $\frac{1}{c}$

144. In the set of equations $z^x = y^{2x}$, $2^z = 2.4^x$; x + y + z = 16, the integral roots in the order x, y, z = 16,
(1) 3, 4, 9 (2) 9, –5, 12
(3) 12, –5, 9 (4) 4, 3, 9

145. ΔABC is an quilateral triangle, we have BD = EG = DF = DE = EC, then the ratio of the area of the shaded portion to area of ΔABC is



(1) $\frac{4}{11}$ (2) $\frac{7}{9}$

(3) $\frac{5}{12}$ (4) $\frac{6}{7}$

146. If A + B = 90° then $\frac{\tan A \tan B + \tan A \cot B}{\sin A \sec B} - \frac{\sin^2 B}{\cos^2 A}$ is equal to

(1) Cot^2A (2) Cot^2B

(3) $-\tan^2A$ (4) $-Cot^2A$

147. The value of the following expression is

$$\left[\frac{1}{(2^2-1)}\right]+\left[\frac{1}{(4^2-1)}\right]+\left[\frac{1}{(6^2-1)}\right]+.....+\left[\frac{1}{(20^2-1)}\right]$$

is

(1) $\frac{10}{21}$ (2) $\frac{13}{27}$

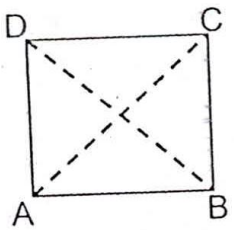
(3) $\frac{15}{22}$ (4) $\frac{8}{33}$

148. If $2^{\sin x + \cos y} = 1$, $16^{\sin^2 x + \cos^2 y} = 4$, then values of sin x and cos y respectively are

(1) $-\frac{1}{2}, \frac{1}{2}$ (2) $\frac{1}{2}, -\frac{1}{3}$

(3) 1, –1 (4) $\frac{1}{\sqrt{2}}, \frac{-1}{\sqrt{2}}$

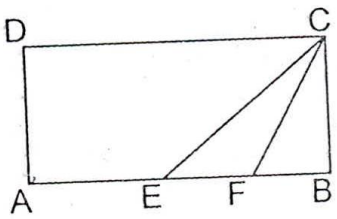
149. ABCD is a square of area of 4 square units which is divided into 4 non overlapping triangles as shown in figure, then sum of perimeters of the triangles so formed is



(1) $8\left(2+\sqrt{2}\right)$ (2) $8\left(1+\sqrt{2}\right)$

(3) $4\left(1+\sqrt{2}\right)$ (4) $4\left(2+\sqrt{2}\right)$

150. In the diagram ABCD is a rectangle with AE = EF = FB, the ratio of the areas of triangle CEF and that of rectangle ABCD is



(1) 1 : 6 (2) 1 : 8

(3) 1 : 9 (4) 1 : 10

151. If we divide a two digit number by the sum of its digits we get 4 as quotient and 3 as remainder. Now if we divide that two digit number by the product of its digits, we get 3 as quotient and 5 as remainder the two digit number is

(1) Even (2) Odd prime

(3) Odd composite (4) Odd

152. The average weight (in kg) of all the students in a class equals the number of students in the class. The increase in the average weight when a teacher to 21 kg is included equals

the decrease in average weight when a student of 19 kg is included. The strength of the class is

(1) 15 (2) 10
(3) 20 (4) 17

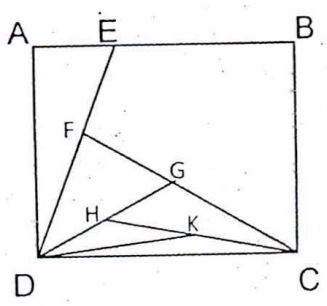
153. Four positive integers sum to 125. If the first of these numbers is increased by 4, the second is decreased by 4. the third is multiplied by 4 and the fourth is divided by 4 we find four equal numbers then four original integers are

(1) 16, 24, 5, 80 (2) 8, 22, 38, 57
(3) 7, 19, 46, 53 (4) 12, 28, 40, 45

154. The total number of squares on a chessboard is

(1) 206 (2) 205
(3) 204 (4) 202

155. In the figure, the area of square ABCD is 4 cm^2 and E is mid point of AB; F, G, H and K are the mid points of DE, CF, DG and CH respectively. The area of ΔKDC is:



(1) $\frac{1}{4}cm^2$ (2) $\frac{1}{8}cm^2$
(3) $\frac{1}{16}cm^2$ (4) $\frac{1}{32}cm^2$

156. If x% of y is equal to 1% of z, y% of z is equal to 1% of x and z% of x is equal to 1% of y, then the value of xy + yz + zx is

(1) 1 (2) 2
(3) 3 (4) 4

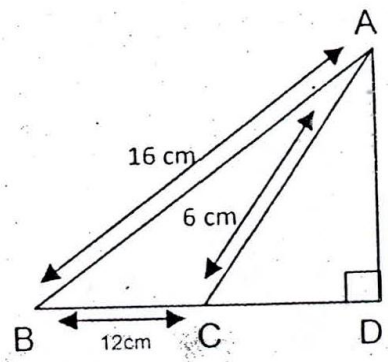
157. The volume and whole surface area of a cylindrical solid of radius 'r' units are v and s respectively. If the height of cylinder is 1 unit then $\frac{v}{s}$ is equal to

(1) $\frac{1}{2}\left(1-\frac{1}{r+1}\right)$ (2) $\frac{1}{2}\left(1+\frac{1}{r+1}\right)$
(3) $\frac{1}{2}\left(1-\frac{1}{r}\right)$ (4) $\frac{1}{2}\left(1+\frac{1}{r}\right)$

158. If the height of right circular cylinder is increased by 10% while the radius of base is decreased by 10% then curved surface area of cylinder

(1) Remains same (2) Decreases by 1%
(3) Increases by 1% (4) Increases by 0.1%

159. In the figure $\angle D = 90^\circ$ AB = 16 cm, BC = 12 cm and CA = 6 cm, then CD is:



(1) $\frac{13}{6}cm$ (2) $\frac{17}{6}cm$
(3) $\frac{19}{6}cm$ (4) $\frac{18}{5}cm$

160. If x, y, z are real numbers such that $\sqrt{x-1}+\sqrt{y-2}+\sqrt{z-3}=0$ then the values of x, y, z are respectively
(1) 1, 2, 3 (2) 0, 0, 0
(3) 2, 3, 1 (4) 2, 4, 1

161. Napoleonic code is known as
(1) Civil code of 1802 (2) Civil code of 1803
(3) Civil code of 1804 (4) Civil code of 1805

162. When was Victor Emmanuel II proclaimed king of united Italy?
(1) 1860 (2) 1861
(3) 1863 (4) 1871

163. Satyagrah of Gandhiji against oppressive planation system was started from which place?
(1) Dandi (2) Surat
(3) Ahmedabad (4) Champaran

164. Who set up the first Indian Jute mill in Calcutta in 1917?
(1) Seth Hukum Chand (2) G.D. Birla
(3) Dwaraka Nath Tagore (4) J.N. Tata

165. Where was khilafat committee formed in March 1919?
(1) Lucknow (2) Bombay
(3) Lahore (4) Ajmer

166. Who wrote about the injustice of the caste system in his book 'Gulamgiri"?
(1) B.R. Ambedkar (2) Periyar
(3) Amrit Lal Thakkar (4) Jyotiba Phule

167. The Act was made by Britishers to censor the India press was
(1) Rowlatt Act (2) Regulating Act
(3) Vernacular Act (4) Pitt Act

168 Who was the king of France during French Revolution?
(1) Louis XIV (2) Louis XV
(3) Louis XVI (4) Louis XVII

169. Which of the following book is not written by Premchand?
(1) Rangbhoomi (2) Indulekha
(3) Sevasadan (4) Godan

170. Who was propaganda minister of Hitler?
(1) Goebbels (2) Raasputin
(3) Stalin (4) Helmuth

171. Which of the following country is not included in Indo-China?
(1) Laos (2) Vietnam
(3) Cambodia (4) Japan

172. How much percent of iron ore is found in magnetite?
(1) 70% (2) 65%
(3) 60% (4) 75%

173. Which coal has highest quantity?
(1) Peat (2) Lignite
(3) Bituminous (4) Anthracite

174. During which period was the greatest damage inflicted upon Indian forest?
(1) Colonial period (2) Mughal period
(3) Maratha period (4) Gupt period

175. A chemical compound called 'texol' extracted from the Himalyan yew is used to cure which disease?
(1) Tuberculosis (2) Cancer
(3) Asthma (4) Fever

176. In which year was the 'Project Tiger' launched?
(1) 1974 (2) 1970
(3) 1972 (4) 1973

177. Which crop is kharif crop in North and Rabi in south India?
(1) Rice (2) Sugar cane
(3) Sesame (4) Cotton

178. In which industry limestone is used as a raw material?
(1) Cotton textiles (2) Iron and steel
(3) Cement industry (4) Jute industry

179. Which one of the following is the type of plate boundary of the Indian plate along the Himalayan Mountain?
(1) Ocean-continent convergence (2) Divergent-boundary
(3) Transform boundary (4) Continent-continent boundary

180. Which of the following island groups lies to South East India?
(1) Andaman and Nicobar Islands (2) Lakshadweep
(3) Maldives (4) Sri Lanka

181. Which of the following is the main form of degradation in the irrigated areas?
(1) Gully erosion (2) Wind erosion
(3) Siltation of land (4) Salinisation of soils

182. River Narmada originates from which of the following hills
(1) Amarkantak (2) Satpura
(3) Vindyachal (4) Mahabaleshwar

183. Which one of the following is not a good argument in favour of democracy?
(1) People feel free and equal in democracy
(2) Democracy resolves conflict in a better way than other
(3) Democratic government is more accountable to the people
(4) Democratic counties are more prosperous than others

184. Who prepared the constitution of India in 1928?
(1) B.R. Ambedkar (2) Rajendra Prasad
(3) Jawahar Lal Nehru (4) Moti Lal Nehru

185. Who appoints the chief election commissioner of India?
(1) The Prime Minister (2) People of India
(3) President of India (4) Chief justice of India

186. Main recommendations of Mandal commission was
(1) reservation of Schedule caste
(2) reservation of schedule tribe
(3) reservation for socially and educationally backward
(4) reservation for minorities

187. In America Legislature is called
(1) Upper house (2) Congress
(3) Lower house (4) Cabinet

188. Which one of the following state was born out of cultural, ethnicity and geography?
(1) Kerala (2) Nagaland
(3) Mizoram (4) Assam

189. In modern democracy power sharing arrangements can take in following way
(1) Among different organs of government (2) Among government at different level
(3) Among different social groups (4) All of them

190. Which one of the following subject is of union list?
(1) Police (2) Trade
(3) Foreign Affairs (4) Commerce

191. "Religion can never be separated from politics" said by
(1) Sardar Patel (2) Jawahar Lal Nehru
(3) Mahatma Gandhi (4) Indira Gandhi

192. Who interprets the constitution of India?
(1) Lok Sabha (2) Rajya Sabha
(3) Both (Lok Sabha & Rajya Sabha) (4) The Supreme Court of India

193. Which one of the following is not a function of political party?
(1) To fill the political offices (2) Contest the election
(3) To pass the Budget (4) Do not shape the Public Opinion

194. What is the time period of government budge in India?
(1) From 1st January to 31st December (2) From 1st March to 30th April
(3) From 1st April to 31st March (4) From 1st April to 31 December

195. After which five year plant there were three annual plans.
(1) First five year plan (2) Third five year plan
(3) Fourth five year plan (4) Fifth five year plan

196. How many days of guaranteed work is provided by National Rural Employment Guarantee Act.
(1) 200 days (2) 100 days
(3) 300 days (4) 500 days

197. Which one of the following agency issues one rupee currency note in India?
(1) Reserve Bank of India (2) Ministry of Finance
(3) Commerce Ministry (4) Commercial Banks

198. Selling of part of public sector enterprises is called
(1) Globalization (2) Privatization
(3) Disinvestment (4) Liberalization

199. Blue revolution is associated with which activity
(1) Indigo cultivation (2) Fisheries
(3) Poultry farming (4) Availability of drinking water

200. Which one of these is not a feature of money?
(1) Medium of exchange (2) Source of Income
(3) Store of value (4) Unit of account