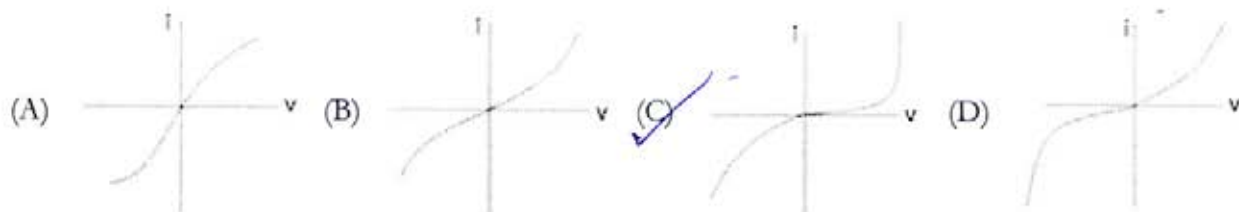


81. $2^{2^3} \div (2^2)^3$ is equal to:
 (A) 2^2 (B) 2^1 (C) 2^{-2} (D) 2^{-1}
82. Which of these devices performs the function of both input device and output device for a computer?
 (A) Joy Stick (B) Mouse (C) Modem (D) Printer
83. The sum of first n odd natural numbers is:
 (A) $n^2 - 1$ (B) n^2 (C) $(n+1)^2$ (D) $(n-1)^2$
84. If a cube is broken into 27 equal cubes, the total surface area is increased how many times?
 (A) 3 times (B) 6 times (C) 9 times (D) 27 times
85. Which of the Current (i) - Voltage (v) graphs represents a p-n junction diode characteristics?



86. Efficiency of Carnot cycle is:
 (A) $1 - \frac{Q_1}{Q_1 + Q_2}$ (B) $1 - \frac{T_1}{T_2}$ (C) $1 - \frac{T_1}{T_1 + T_2}$ (D) $1 - \frac{Q_1}{Q_2}$
87. Lufthansa Airlines is from which country?
 (A) USA (B) Malaysia (C) Germany (D) Russia
88. What is the ratio of angular speed of second's needle and hour's needle of a clock?
 (A) 1 : 60 (B) 60 : 1 (C) 3600 : 1 (D) 720 : 1
89. In a digital circuit a counter is basically a _____ which counts the number of clock pulses that have arrived at its clock input. Counters use _____ as their basic unit. Fill in the blanks respectively.
 (A) Register, Flip-flop (B) NAND gate, Register (C) Register, NAND gate (D) Flip-flop, Toggle
90. The terms Cope, Drag and Core are associated with-
 (A) Transformers (B) Castings (C) Laminar flow of liquid (D) Stellar evolution
91. French power declined in India after the battle of-
 (A) Plassey (B) Buxar (C) Talikota (D) Wandiwash
92. By which constitutional amendment did the Parliament acquire the right to amend Fundamental Rights?
 (A) 23rd (B) 24th (C) 25th (D) 26th
93. A rectangular garden has an area of 48 sq.m and perimeter of 28 m. What is the length of its diagonal?
 (A) 8 m (B) 10 m (C) 12.5 m (D) 14.14 m (approx.)
94. Cash-reserve ratio of a commercial bank is fixed by-
 (A) Ministry of Finance (B) Ministry of Commerce (C) RBI (D) Management of the commercial bank
95. If $12a + 6b = 54$, what is the average of a & b?
 (A) 2.25 (B) 4.5 (C) Data insufficient

96. A, B and C can do a piece of work in 12, 15 and 20 days respectively. How long will they take to finish the work together?
 (A) 10 days (B) 5 days (C) 8 days (D) 12 days
97. What is morphology?
 (A) Study of insects (B) Study of Human evolution
 (C) Study of forms and structural features of organisms (D) Study of interdependence of organisms and environment
98. Assume that a 1 ton air conditioner is required to cool a room of size 14' x 14' x 14'. How many 1 ton ACs would be required for a hall of size of 24' x 24' of the same roof height as that of the previous room?
 (A) 2 (B) 3 (C) 4 (D) 5
99. In the context of action of medicines on human body, match the following:

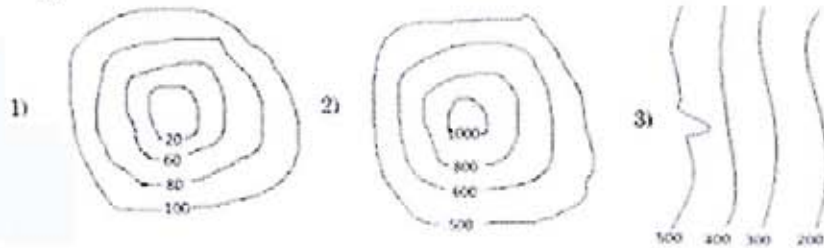
1. Receptors	a. Catalysts
2. Enzymes	b. Neurologically active
3. Tranquilizers	c. Proteins

- (A) 1-c, 2-a, 3-b (B) 1-a, 2-c, 3-b (C) 1-b, 2-a, 3-c (D) 1-a, 2-b, 3-c
100. Several nations are following a protocol which binds them to reduce emission targets. This protocol was adopted in:
 (A) Kyoto, Japan (B) Geneva, Switzerland (C) New York, USA (D) Paris, France
101. An electrical appliance has a yoke, stator winding, rotor, commutator, carbon brush. The appliance could be a-
 (A) DC motor (B) AC induction motor (C) AC generator (D) Both (B) and (C)
102. How many Fundamental Rights are guaranteed by the Constitution of India?
 (A) 7 (B) 3 (C) 5 (D) 6
103. Which of the following statement is correct?
 (A) n linear equations with n variables may have a unique solution
 (B) n linear equations with n variables may have no solution
 (C) Both A & B are correct (D) Both A & B are wrong
104. If $a : b = 4 : 3$ and $b : c = 7 : 9$, then $a : b : c = ?$
 (A) 24 : 21 : 30 (B) 12 : 15 : 21 (C) 8 : 6 : 12 (D) 28 : 21 : 27
105. Once 'X' is turned ON, even after removing the gate voltage, 'X' remains ON. 'X' is a:
 (A) Transistor (B) FET (C) Thyristor (D) MOSFET
106. The chemical reaction between cement and water is:
 (A) Hydration (B) Chlorination (C) Calcination (D) None of these
107. Statement A:
 In coordinate geometry, distance between two points is given by :

$$S = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

 Statement B: Pythagoras theorem
 Which of the following statements is correct?
 (A) Statement A is proved by Statement B (B) Statement B is proved by Statement A
 (C) Both the statements are independent (D) None of these
108. The first Indian railway train journey between Bombay and Thane was in the year-
 (A) 1857 (B) 1853 (C) 1818 (D) 1854

109. The process of 'Upsetting' pertains to-
 (A) Casting (B) Forging (C) Turning (D) Milling
110. What is the function of push rod in a diesel engine? It transfers force between -
 (A) Cam and rocker arm (B) Connecting rod and piston (C) Crankshaft and piston (D) None of these
111. Consider following contours:



Match the following a) Hill b) Pond c) Slope

- (A) 1-b, 2-a, 3-c (B) 1-a, 2-b, 3-c (C) 1-a, 2-c, 3-b (D) 1-c, 2-b, 3-a
112. $\sin^{-1}(1/2) + \tan^{-1}(1) = ?$
 (A) 30° (B) 45° (C) 75° (D) 90°

113. Which of the following statements is true?
 (A) Value of $\sin\theta$ increases with increase in θ
 (B) Value of $\cos\theta$ decreases with increase in θ
 (C) Between 0° & 90° , value of $\cot\theta$ increases with increase in θ
 (D) Between 0° & 90° , value of $\tan\theta$ decreases with decrease in θ

114. In an orthogonal projection the axis of a cylinder or a cone is denoted by-
 (A) A thin line (B) A medium dashed line (C) A sequence of long and short dashes (D) Dashes of uniform lengths

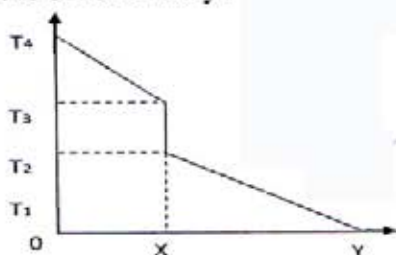
115. Glycerol can be represented by chemical formula:
 (A) $C_2H_5O_2$ (B) C_3H_7OH (C) C_3H_5OH (D) $C_3H_8O_3$

116. Which of the following phenomenon is related to the formation of clouds?
 (A) Condensation (B) Evaporation (C) Sublimation (D) Vulcanization

117. Who wrote/invented the Linux software?
 (A) Microsoft (B) Apple Inc (C) IBM (D) None of these

118. The average score of girls in a class is 75 marks. The average scores of boys in the class is 65 marks. If the average of the class is 68.75 marks, what is the ratio of boys to girls in the class?
 (A) 2 : 5 (B) 5 : 2 (C) 3 : 5 (D) 5 : 3

119. Consider that two solid bodies A and B are touching each other and transmitting heat through conduction. In the graph below, OX represents the first body and XY represents the second body.

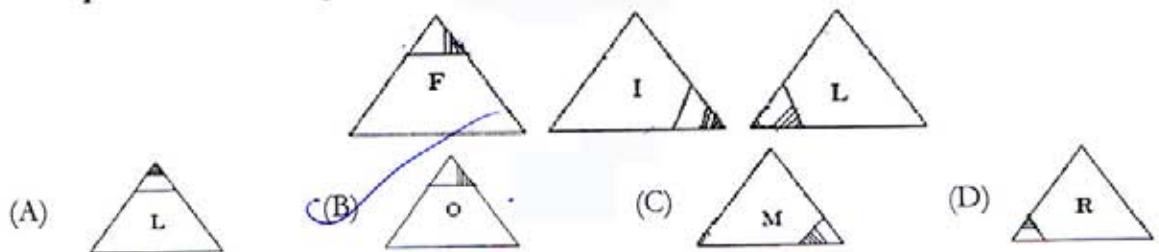


State True (T) or False(F).

- 1) Temperature gradient is more in A than in B
 2) The heat flow is determined by Fourier's law
 3) Area under the curve represents heat dissipation rate.

- (A) T, T, T (B) T, T, F (C) T, F, T (D) F, F, T

120. Radiation of a black body, in terms of its temperature follows:
 (A) Newton's law of cooling (B) ~~Plank's law~~ (C) Stefan's law (D) Einstein Bose equation
121. What are capacitor banks in the context of electricity supply to a city?
 (A) They add capacitance to the supply so that electricity is stored in case of breakdown (B) These banks are storage spaces so that capacitors are available to maintenance engineers in case of failures
 (C) They balance the inductive component of transformer coils to smoothen the supply (D) ~~They balance the inductive loads to improve the power factor~~
122. In S.I system, unit of stress is:
 (A) kg/cm^2 (B) ~~N~~ (C) ~~N/m}^2~~ (D) Watt
123. Which planet has hot turbulent atmosphere dominated by carbon-di-oxide?
 (A) Venus (B) ~~Mars~~ (C) Jupiter (D) Neptune
124. A man drives a car and reaches his destination in 4 hours. Had he increased his speed by 10 km/hr, he would have reached in 3 hours, 12 minutes. What distance did the man cover?
 (A) 80 km (B) 120 km (C) ~~160 km~~ (D) 210 km
125. In September 2014, which state was affected by flood?
 (A) Karnataka (B) Madhya Pradesh (C) Gujarat (D) ~~Jammu & Kashmir~~
126. A person puts 1 grain of rice in the first square of a chess board. In the subsequent squares he puts twice that of the previous square. How many grains would he need to put on all the squares of the chess board?
 (A) 64! (B) ~~$2^{64}-1$~~ (C) $2^{63}-1$ (D) ~~$p(64, 2)$~~
127. Orthogonal projection of an object shows a rectangle of dimensions 5 cm x 10 cm on the X - Y plane and a circle of diameter 10 cm on the Y-Z plane. What is the volume of the object?
 (A) 5000 cm^3 (B) $\pi \cdot 5^3$ (C) $\frac{\pi \cdot 10^3}{4}$ (D) 2500 cm^3
128. Strength of commonly used concrete, for constructing low rise residential buildings is:
 (A) 300 psi (B) 8000 psi (C) ~~15000 psi~~ (D) 25000 psi
129. Processing speed of computer is measured in-
 (A) MIPS (Million Instruction Per Second) (B) MHz of clock
 (C) ~~Both (A) and (B)~~ (D) None of these
130. The famous queen Chand Bibi who fought against Akbar, defended the city of -
 (A) Berar (B) Ahmadnagar (C) Golconda (D) ~~Mysore~~
131. Complete the series logically.

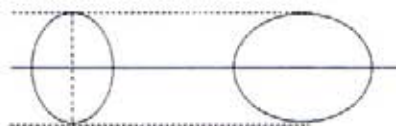


132. The heart of the 'Microwave oven' that produces the microwave range of radiation is called-
 (A) Cyclotron (B) Oscillotron (C) Variable frequency oscillator (D) ~~Magnetron~~

133. Intensity of earthquake is measured in -

- (A) Barometer scale (B) Pyrometer scale (C) Tachometer scale (D) Richter scale

134. Consider the following orthogonal projections of an object is and answer what could this object be:



- (A) Circle (B) Sphere (C) Ellipse (D) Spheroid

135. Find the next number in the series.

33, 34, 32, 35, 31, 36, _____

- (A) 30 (B) 37 (C) 38 (D) 29

136. Soaps are manufactured by:

- (A) Reaction of alkalies with glycerol (B) Reaction of fats with soluble hydroxides
(C) Reaction of calcium and magnesium ions with dilute sulphuric acid (D) Reaction of dodecyl benzene with H_2SO_4 and then NaOH

137. A map mentions the scale 1 cm = 1 km.

The scale is in the ratio:

- (A) 1 : 10^3 (B) 1 : 10^4 (C) 1 : 10^5 (D) 1 : 10^6

138. Acid rain is caused by:

- (A) CO & CO_2 (B) SO_2 & O_2 (C) SO_2 & NO_2 (D) NO_2 & O_2

139. Find the next number in the series.

1, 2, 6, 24, 120, _____

- (A) 240 (B) 480 (C) 560 (D) 720

140. India's first war of Independence (related to Meerut mutiny) was in:

- (A) 1835 (B) 1857 (C) 1892 (D) 1905

141. Which of the following is NOT used for measurement of temperature?

- (A) Thermocouples (B) Thermistors (C) Pyrometers (D) All are used

142. The transformer equation $V_1 I_1 = V_2 I_2$ is the manifestation of-

- (A) Ampere's law (B) Coloumb's law (C) Law of energy conservation (D) Biot Savart's law

143. Match the following :

1. Magnetic flux density	a. Tesla
2. Self inductance	b. Weber
3. Magnetic flux	c. Henry

- (A) 1-b, 2-c, 3-a (B) 1-c, 2-a, 3-b (C) 1-a, 2-b, 3-c (D) 1-a, 2-c, 3-b

144. Currently which 5 year plan is under execution in India?

- (A) 12th (B) 13th (C) 14th (D) 15th

145. In a certain code, "All The Best" is written as 534; "Best of Luck" is written as 675; "The Good Luck" is written as 478. In this code "Good" would be written as:

- (A) 8 (B) 7 (C) 6 (D) 5

146. Tachymeter (or Tacheometer) is an instrument for measuring-
- (A) rpm (B) Torque (C) Rotational kinetic energy (D) Distances
147. If 'h' is the depth of water held by a dam and 'A' is the cross section area of the water and 't' is the thickness of wall of the dam, then the maximum pressure on the wall of the dam will depend upon:
- (A) A, h & t (B) A & h (C) h & t (D) h
148. Angle between two sides of a regular polygon having n vertices is:
- (A) $\frac{360}{n}$ (B) $90 + \frac{180}{n}$ (C) $\frac{180}{n}$ (D) $180 - \frac{360}{n}$
149. In a computer system, there are softwares and languages at various levels, like High level Language (HL), Machine Language (ML), Compiler (C). Which of the following is the correct indicative representation from user (U) to the computer (COMP)?
- (A) $U \rightarrow HL \rightleftharpoons C \rightleftharpoons ML \rightleftharpoons Comp$ (B) $U \rightleftharpoons C \rightleftharpoons ML \rightleftharpoons HL \rightleftharpoons Comp$
- (C) $U \rightleftharpoons C \rightleftharpoons HL \rightleftharpoons ML \rightleftharpoons Comp$ (D) $U \rightleftharpoons ML \rightleftharpoons HL \rightleftharpoons C \rightleftharpoons Comp$
150. An eating disorder of excessive weight loss usually due to undue concern about body shape is known as:
- (A) Anorexia nervosa (B) Appetitis (C) Autotrophic disorder (D) Autotrophic syndrome