CATEGORY - III

PART - 3

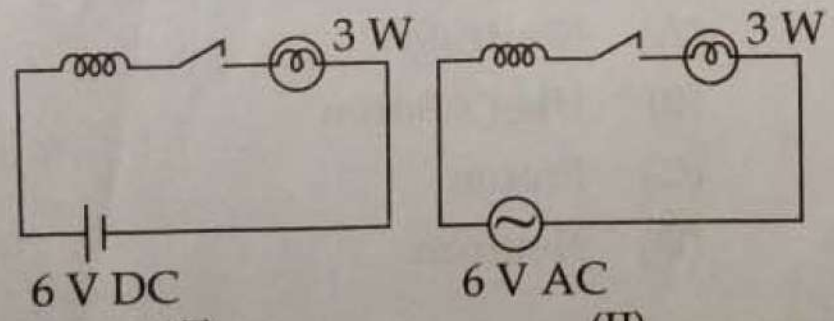
Physical Science

Question Numbers 71 to 150

71. The acceleration due to gravity does not depends on :
(A) Mass of the earth
(B) Radius of the earth
(C) Mass of the body
(D) None of these

72. If F is the force of attraction between two bodies of masses m_1 and m_2. What about the force of attraction between bodies of masses $2m_1$ and m_2 kept at a distance of 4d.
(A) $\frac{F}{4}$
(B) $\frac{F}{16}$
(C) 8 F
(D) $\frac{F}{8}$

73. Examine the circuits given below. Choose the correct statements related to the brightness of the lamps when the switch is ON.



(A) In circuit (I), lamp glows brighter since there is no self induction.
(B) In circuit (I), lamp glows least brighter since there is no self induction.
(C) In circuit (II), lamp glows brighter due to self induction.
(D) None of these.

74. Which among the following will favor the backward reaction for a reversible reaction at equilibrium ?
(A) Increasing the concentration of reactants
(B) Removal of product
(C) Increasing the concentration of any of the products
(D) Presence of catalyst

75. Calculate the amount of heat generated in a conductor of resistance 4 Ω, when 2 A electric current flows through it for 1 hr.
(A) 8 J
(B) 16 J
(C) 57600 J
(D) 960 J

76. The expression for angular velocity is :
(A) $\omega = 2\pi\nu$
(B) $\omega = \frac{2\pi}{\nu}$
(C) $\omega = \frac{\nu}{2\pi}$
(D) $\omega = \frac{1}{2\pi\nu}$

77. Which materials will you choose for the preparation of more CO_2 in less time from the given materials (marble powder, marble pieces, dil. HCl, con. HCl) ?
(A) Marble pieces and con. HCl
(B) Marble pieces and dil. HCl
(C) Marble powder and con. HCl
(D) Marble powder and dil. HCl

78. Which of the following is a redox reaction ?

(A) $CaCO_3 \rightarrow CaO + CO_2$

(B) $NaOH + HCl \rightarrow NaCl + H_2O$

(C) $CaCO_3 + 2HCl \rightarrow CaCl_2 + H_2O + CO_2$

(D) $Mg + 2HCl \rightarrow MgCl_2 + H_2$

79. The numerical value of N/n (where 'N' is the number of molecules in a given sample of gas and 'n' is the number of moles of the gas) :

(A) 9.1×10^{-24}

(B) 1.66×10^{-19}

(C) 6.022×10^{23}

(D) 9.011×10^{23}

80. Find the odd one out.

(A) Mesons

(B) Fermionic condensate

(C) Super fluid

(D) Bose-Einstein condensate

81. The process of converting ac to dc is called :

(A) Rectification

(B) Amplification

(C) Oscillation

(D) Diffraction

82. Law of Octaves was put forward by :

(A) G.N. Lewis

(B) J.A.R. Newlands

(C) J.W. Dobereiner

(D) J.L. Meyer

83. The pseudo-transition elements are :

(A) Cr, Mo, W

(B) Ag, Au, Pt

(C) Cu, Ag, Au

(D) Zn, Cd, Hg

84. How many galvanic cells can be constructed between the metals : Mg, Zn, Ni and Pb ?

(A) 3

(B) 4

(C) 5

(D) 6

85. When the product of pressure and volume is plotted against pressure, at constant temperature for a given amount of gas, the line obtained is :

(A) parallel to x-axis

(B) parallel to y-axis

(C) linear with positive slope

(D) linear with negative slope

86. Which among the following acids can produce three different types of salts ?

(A) Sulphuric acid

(B) Perchloric acid

(C) Phosphoric acid

(D) Hypochlorous acid

87. Identify the elementary particle discovered in 2012 at the CERN laboratory.

(A) Neutrino

(B) Higg's Boson

(C) Proton

(D) Neutron

88. How many resistors of 150 Ω should be connected in parallel to get 4 A current from 200 V supply ?

(A) 3

(B) 5

(C) 4

(D) 2

89. A particle moving with a certain velocity is subjected to a retardation of 10 m/s^2. If the particle returns to the starting point is 20 s, calculate the initial velocity.

(A) 50 m/s

(B) 200 m/s

(C) 100 m/s

(D) 150 m/s

90. Which is the force responsible for the surface tension between the molecules on the surface of a liquid ?

(A) Adhesion force

(B) Frictional force

(C) Cohesion force

(D) Gravitational force

91. In soap manufacturing, glycerol from spent lye was removed by :

(A) distillation

(B) distillation under reduced pressure

(C) fractional distillation

(D) steam distillation

92. The power of a lens prescribed by a doctor is −1.5 D. What is its focal length ?

(A) 0.67 cm

(B) 67 cm

(C) 6.7 cm

(D) 670 cm

93. How much will a temperature of 60°C in farenheit scale ?

(A) 86°F

(B) 100°F

(C) 140°F

(D) 98°F

94. Which of the given properties does not belong to a paramagnetic material ?

(A) The relative permeability of the material is slightly greater than one.

(B) The molecules have zero magnetic dipole moments.

(C) In a non-uniform magnetic field, it moves from a weaker to a stronger field.

(D) The susceptibility varies inversely as the absolute temperature.

95. Number of atoms present in 18 g of carbon is :

(A) 12.044×10^{23}

(B) 9.033×10^{23}

(C) 6.022×10^{23}

(D) 3.011×10^{23}

96. The quantity of heat required to convert 10 kg of ice at 0°C into water at the same temperature is :

[Latent heat of fusion of ice = 335×10^3 J/kg]

(A) 670×10^3 J

(B) 3350×10^3 J

(C) 67×10^3 J

(D) 33.5×10^3 J

97. The persistence or prolongation of sound after the source has stopped to produce sound is called :

(A) Echo

(B) Transmission

(C) Interference

(D) Reverberation

98. The turning fork of frequency 256 Hz is excited and placed near a resonance column. When the inner tube is raised the sound increases gradually because :
(A) The natural frequency of turning fork is greater than the frequency of the air column.
(B) The natural frequency of turning fork is equal to the frequency of air column.
(C) The natural frequency of turning fork is less than the frequency of air column.
(D) None of these.

99. The catalyst used to reduce the rate of decomposition of H_2O_2 during its storage is :
(A) H_3PO_4
(B) MnO_2
(C) HCl
(D) Mn_2O_7

100. Who invented the discharge tube ?
(A) Eugen Goldstein
(B) Heinrich Geissler
(C) Wilhelm Roentgen
(D) Ernest Rutherford

101. The working principle of a moving coil microphone is :
(A) Mutual Induction
(B) Self Induction
(C) Motor Principle
(D) Electromagnetic Induction

102. The electronic configuration of an arbitrary element $_{21}X$ is :
(A) 2, 8, 8, 3
(B) 2, 8, 10, 1
(C) 2, 8, 9, 2
(D) 2, 8, 8, 4

103. The far point of some persons will not be at infinity. Name the defect of the eye of such persons.
(A) Near - sightedness
(B) Long - sightedness
(C) Presbyopia
(D) Cataract

104. Monomer of natural rubber is :
(A) cis-isoprene
(B) trans-isoprene
(C) cis-1, 3-butadiene
(D) trans-1, 3-butadiene

105. A n-type semiconductor is made by adding which of the given impurity atom to silicon ?
(A) Indium
(B) Boron
(C) Gallium
(D) Arsenic

106. An atom with high electronegativity has :
(A) High ionisation enthalpy
(B) Large size
(C) High density
(D) Low electron gain enthalpy

107. In which colour does a red flower appears in green light ?
(A) Green
(B) Red
(C) Dark
(D) Yellow

108. Sulphide ores are usually concentrated by :
(A) Levigation
(B) Magnetic separation
(C) Leaching
(D) Froth flotation

109. 32 g of O_2 and 28 g of N_2 at STP occupy separately a volume of :
(A) 224 L
(B) 22.4 L
(C) 21.4 L
(D) 11.2 L

110. Find the amount of energy obtained when 1 kg matter is converted to energy :
(A) 9×10^{16} J
(B) 9×10^{8} J
(C) 6×10^{8} J
(D) 6×10^{16} J

111. Give the IUPAC name of neopentane.
(A) 2, 2-dimethylpropane
(B) 2-methylpentane
(C) n-pentane
(D) 3-methylpentane

112. Which law given below helps to find the direction of rotation of an armature of a dc motor ?
(A) Maxwell's Right Hand Screw Rule
(B) Maxwell's Right Hand Thumb Rule
(C) Fleming's Right Hand Rule
(D) Fleming's Left Hand Rule

113. The reaction takes place in atom bomb is :
(A) Controlled Nuclear Fission.
(B) Uncontrolled Nuclear Fission.
(C) Controlled Nuclear Fusion.
(D) Uncontrolled Nuclear Fusion.

114. An object which is immersed completely in a fluid experiences a buoyant force which is _____ of the fluid displaced by it.
(A) less than the weight
(B) equal to the weight
(C) greater than the weight
(D) slightly greater than the weight

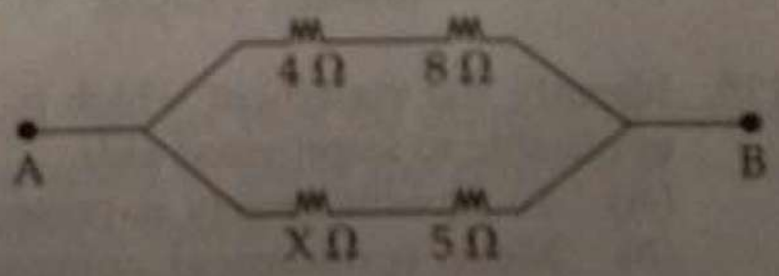
115. Choose the correct statement.
(A) Size of an atom decreases down the group
(B) Metallic character increases across the period
(C) Ionisation enthalpy increases down the group
(D) Electronegativity increases across the period

116. If the absolute temperature of a gas is doubled and the pressure is reduced to one half, the volume of the gas will :
(A) remain unchanged
(B) become twice
(C) increase four fold
(D) be halved

117. The number of isomers of Hexane (C_6H_{14}) is :
(A) 8
(B) 7
(C) 6
(D) 5

118. An example of a polar covalent compound is :
(A) CCl_4
(B) CH_4
(C) HCl
(D) KCl

119. In the circuit given below 4 Ω is the effective resistance between the points A and B. Then find the resistance of the resistor X.



(A) 1 Ω
(B) 4 Ω
(C) 2 Ω
(D) 6 Ω

120. When a ray of light enters from air to glass obliquely, the refracted ray :
(A) Deviates towards the normal
(B) Deviates away from the normal
(C) Does not deviates
(D) Gets reflected in the same path

121. Identify the odd one.
(A) Assimilation
(B) Assumption
(C) Accommodation
(D) Equilibration

122. Identify the correct sequence.
(A) Terms → Facts → Principles → Concepts → Theories
(B) Terms → Concepts → Facts → Principles → Theories
(C) Terms → Facts → Concepts → Principles → Theories
(D) Terms → Principles → Theories → Facts → Concepts

123. Zone of proximal development is the contribution of :
(A) Piaget
(B) Bruner
(C) Paulo Friere
(D) Vygotsky

124. Which among the following does not comprise in-service professional enrichment program of teachers ?
(A) Refresher course
(B) Workshop
(C) Staff meeting
(D) Conferences

125. Identify the statement which is LEAST applicable to improvised aids.
(A) To provide variety in presentation
(B) More economical compared to original material
(C) Secures motivation and interest among students
(D) To show the expertise of the teacher

126. If a Physics teacher purposefully compares the functioning of levers with that of the movements of human body, then it is :
(A) Incidental correlation
(B) Intrinsic correlation
(C) Systematic correlation
(D) Internal correlation

127. If the concept of light is included in different grades by keeping the linkage and continuity, then it is :
(A) Concentric approach
(B) Topical approach
(C) Spiral approach
(D) Historical approach

128. Which among the following is an intellectual or shrewd guess that is provisionally formulated to guide investigation ?
(A) Hypothesis
(B) Concept
(C) Objective
(D) Reinforcement

129. Identify Revised Bloom's Taxonomy from among the following.
(A) Knowledge → comprehension → application → analysis → synthesis → evaluation
(B) Remembering → understanding → applying → analysing → evaluating → creating
(C) Knowledge → application → comprehension → synthesis → analysis → evaluation
(D) Remembering → applying → understanding → analysing → creating → evaluating

130. Mills' canons come under the category of :
(A) Induction
(B) Investigation
(C) Instruction
(D) Discovery

131. If a student is ready to change his views in the light of authentic evidence, he/she has developed.
(A) Scientific literacy
(B) Scientific interest
(C) Scientific attitude
(D) Scientific appreciation

132. The book entitled "From Classical to Quantum Mechanics" was authored by :
(A) ECG Sudarsan
(B) Vikram Sarabhai
(C) Max Planck
(D) Robert Boyle

133. Which among the following is NOT a process skill ?
(A) Observing
(B) Measuring
(C) Recognising
(D) Communicating

134. Which among the following does NOT belong to Gagne's hierarchy of learning ?
(A) Chaining
(B) Rule learning
(C) Problem solving
(D) Engaging

135. Identify the odd one.
(A) Charts
(B) Posters
(C) Flash cards
(D) Peg boards

136. The principle of curriculum construction that enables learner to adjust with confronting situations is :
(A) Creative principle
(B) Forward looking principle
(C) Conservative principle
(D) Child centred principle

137 Select the incorrect statement from the following.
(A) Massive participation of institutions are expected in science fairs
(B) Observance of days of scientific importance can be done through science club
(C) Systematic planning required for organizing science fairs is less than that in science exhibition
(D) Systematic science club activities bring forth creative talents of students

138. Which among the following gives provision for self testing for students ?
(A) Workbook
(B) Handbook
(C) Supplementary reader
(D) Resource unit

139. Which among the following is NOT an observable and measurable behavioral change ?
(A) Identifying
(B) Illustrating
(C) Justifying
(D) Understanding

140. If a Teacher teaches the concept of metals by showing various metallic substances, then it comes under :
(A) Deductive method
(B) Discovery method
(C) Inductive method
(D) Enquiry method

141. If a Teacher uses the example of ripples in water to teach the concept of wave theory, then it is :
(A) Analogy
(B) Graphic organiser
(C) Hypothesis
(D) Reflection

142. Which among the following is NOT a characteristic of a good textbook according to Vogel ?
(A) Organisation of the content
(B) Illustrations used
(C) Publicity of the author
(D) Mechanical appearance

143. Identify the higher order question from among the following.
(A) Oozing of blood through nose may occur during mountaineering. Justify.
(B) Why do wet bristles of a shaving brush cling together ?
(C) List down the features of surface tension.
(D) Compare rolling friction with that of sliding friction.

144. Which among the following is not mandatory in a lesson plan ?
(A) Objectives
(B) Learning experiences
(C) Content analysis
(D) Grouping technique

145. Fill in the blanks.
Lesson plan : Teaching; Blueprint : _____
(A) Demonstration
(B) Achievement test
(C) Curriculum
(D) Administration

146. Scientific attitude can be least developed through :
(A) Actively participating in laboratory experiments
(B) Indulging in reading scientific articles
(C) Taking efforts for enhancing rote memorization
(D) Actively contributing to science club activities

147. Science is the pursuit of truth in a truthful manner. Identify the function of science implied here.
(A) Moral function
(B) Social function
(C) Vocational function
(D) Recreational function

148. Syntax is mainly associated with :
(A) Models of teaching
(B) Audio visual aids
(C) Reflective practices
(D) Improvised aids

149. Which among the following statements is LEAST related to Science ?
(A) Science means pursuit of knowledge
(B) Science is exclusively the product of investigation
(C) Science is a way of investigation
(D) Science is what scientists do

150. Identify the statement which can be best considered as a concept.
(A) Mercury is a liquid metal
(B) Honey is a viscous liquid
(C) Metals are mostly solids
(D) Sodium is a very active metal

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