CATEGORY - III

PART - 3

Physical Science

Question Numbers 71 to 150

71. If we view a cyan coloured object in magenta light, it will appear in which colour ?

(A) dark

(B) red

(C) blue

(D) green

72. What is the purpose of the fractionating column ?

(A) To collect distillate

(B) To separate fractions

(C) To heat mixture

(D) To condense vapour

73. The velocity of a body of mass 10 kg changes from 60 m/s to 20 m/s in 4 s. If so the force applied is :

(A) 50 N

(B) −50 N

(C) 100 N

(D) −100 N

74. What does Boyle's law state ?

(A) $P_1V_1 = P_2V_2$

(B) $P_1/T_1 = P_2/T_2$

(C) $V_1/T_1 = V_2/T_2$

(D) $P_1V_1/T_1 = P_2V_2/T_2$

75. Which process involves the conversion of carbon dioxide into organic compounds ?

(A) Photosynthesis

(B) Respiration

(C) Fermentation

(D) Transpiration

76. The following are nichrome wires.

P. [redacted]

Q. [redacted]

R. [redacted]

S. [redacted]

(A) P has the highest resistivity

(B) S has the highest resistivity

(C) R has the highest resistivity

(D) All of them have the same resistivity

77. A person is suffering from hypermetropia. One of the reasons can be :

(A) The size of the eye ball is too long for the power of the eye lens

(B) The power of the eye lens is too high

(C) The focal length of the eye lens is too high

(D) The focal length of the eye lens is much less

78. What term describes energy unavailable for work ?

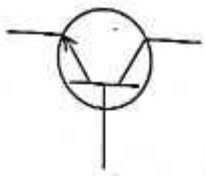
(A) Entropy

(B) Enthalpy

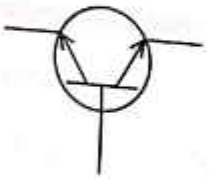
(C) Gibbs free energy

(D) Internal energy

79. The symbol of a PNP transistor is :

(A) 

(B) 

(C) 

(D) 

80. A body is projected vertically up with a velocity 30 m/s. The maximum height it can reach is : ($g = 10\ m/s^2$)

(A) 30 m

(B) 60 m

(C) 90 m

(D) 45 m

81. What is the volume of 440 g of CO_2 at STP ?

(A) 2.24 L

(B) 22.4 L

(C) 224 L

(D) .224 L

82. What type of steel is resistant to corrosion?

(A) Carbon steel

(B) Alloy steel

(C) Stainless steel

(D) Tool steel

83. What is the pH of a strong acid ?

(A) 7

(B) 0 - 1

(C) 2 - 3

(D) 4 - 5

84. Which non-metal does not form acidic oxides ?

(A) Carbon

(B) Nitrogen

(C) Sulphur

(D) Oxygen

85. What role does catalyst play in chemical reaction ?

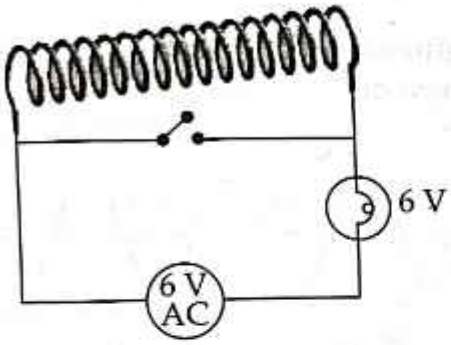
(A) Increases the activation energy

(B) Decreases the activation energy

(C) Has no effect on the reaction rate

(D) Reverses the reaction

86. If the switch is turned on in the following circuit, then



(A) The brightness of bulb will not change

(B) The brightness of bulb will decrease

(C) The brightness of bulb will increase

(D) The bulb gets damaged

87. A body is moving with a uniform speed along a circular path. If so the body has :

(A) no acceleration

(B) has an acceleration along the tangent

(C) has an acceleration along the radius towards the centre

(D) has an acceleration along the circular path

88. What is the primary reason for carbon's ability to catenate ?

(A) Electronegativity

(B) Electron affinity

(C) Orbital hybridization

(D) Atomic radius

89. Which theory describes electron shell arrangement ?

(A) Atomic theory

(B) Quantum theory

(C) Electron configuration theory

(D) Valence shell theory

90. What is Filtration ?

(A) Separation using membranes

(B) Separation by chemical reaction

(C) Separation by heat

(D) Separation by Electromagnetic force

91. What distinguishes chemical changes from physical changes ?

(A) Change in colour

(B) Change in state

(C) Change in chemical composition

(D) Change in density

92. Which of the following is a device that works based on Pascal's law ?

(A) Barometer

(B) Hygrometer

(C) Hydrometer

(D) Hydraulic jack

93. Hydrochloric acid reacts with iron to form salts and hydrogen gas. This type of reaction is called :

(A) Synthesis

(B) Decomposition

(C) Single displacement

(D) Combustion

94. What occurs when solubility limit is exceeded ?

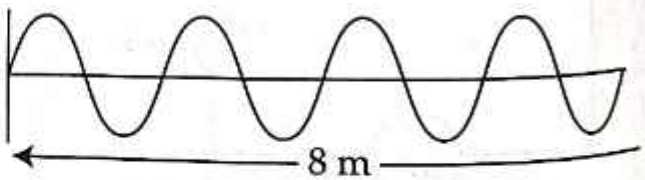
(A) Precipitation

(B) Saturation

(C) Dilution

(D) Dissolution

95. The figure shows a wave generated in 0.2 s. The speed of the wave is :



(A) 4 m/s

(B) 40 m/s

(C) 400 m/s

(D) 0.4 m/s

96. Which principle states the electrons occupy the lowest energy orbitals ?

(A) Pauli's exclusion principle

(B) Hund's rule

(C) Heisenberg Uncertainty Principle

(D) Aufbau Principle

97. A firewood is burning. At that time a piece of paraffin wax kept below it started melting. The paraffin wax got heat by means of :

(A) Conduction

(B) Convection

(C) Radiation

(D) All of these

98. An N–type semiconductor is :

(A) positive or negative

(B) positively charged

(C) negatively charged

(D) electrically neutral

99. The frequency of sound produced by Galton whistle is :

(A) less than 20 Hz

(B) 20 Hz

(C) 20 Hz to 20 kHz

(D) more than 20 kHz

100. Which metal property allows it to be shaped easily ?

(A) Conductivity

(B) Ductility

(C) Malleability

(D) Hardness

101. What is the unit of concentration equal to moles of solute per litre of solution ?

(A) Molality

(B) Molarity

(C) Normality

(D) Percent composition

102. A body of mass 250 kg is revolving around the earth in free space. Now its weight is : ($g = 10\ m/s^2$)

(A) 2500 N

(B) 25 N

(C) 25000 N

(D) zero

103. A person walks 30 m along a level ground with a load of mass 40 kg on his head. If so, the work done by the force on the load against gravity is :

(A) 12000 J

(B) 1200 J

(C) 12 J

(D) Zero

104. There is an object of weight 300 N on the earth. Its mass at the centre of the earth is : ($g = 10\ m/s^2$)

(A) 300 N

(B) 30 kg

(C) zero

(D) 30 N

105. A body of mass 5 kg is thrown vertically up with a velocity 20 m/s. Its potential energy at the maximum height is :

(A) 1000 J

(B) 100 J

(C) 10 J

(D) Zero

106. Which process extracts aluminium from bauxite ?

(A) Calcination

(B) Smelting

(C) Auto reduction

(D) Electrolysis

107. Which is the property of element that decreases from left to right in a period ?

(A) Electronegativity

(B) Atomic size

(C) Ionization energy

(D) Electron affinity

108. In the case of mercury there is a capillary depression inside a capillary tube. This is because :

(A) The cohesive force within mercury is greater than the adhesive force with the capillary tube

(B) The cohesive force within mercury is less than the adhesive force with the capillary tube.

(C) The adhesive force within mercury is greater than the cohesive force with the capillary tube

(D) The adhesive force within mercury is less than the cohesive force with the capillary tube

109. What characterizes the structure of ionic compounds ?

(A) Shared electron

(B) Kernel electron interaction

(C) Molecular lattice

(D) Ionic lattice

110. What type of solution has particles from 1 to 1000 nm in diameter ?

(A) True solution

(B) Emulsion

(C) Suspension

(D) Colloidal

111. Which bond property affects polarity ?

(A) Electronegativity

(B) Bond length

(C) Bond angle

(D) Bond order

112. Which atomic model describes electron in energy levels ?

(A) Rutherford

(B) Bohr

(C) Dalton

(D) Thomson

113. When a positively charged cloud comes above a building with a lightning conductor, then :

(A) electrons will flow from the spikes to the earth

(B) electrons will flow from the earth to the spikes

(C) positive ions will flow from the spikes to the cloud

(D) negative ions will flow from the cloud to the spikes

114. The device used for electrolysis is :

(A) voltmeter

(B) voltameter

(C) pyrometer

(D) ammeter

115. During day time the land gets heated faster than the sea. This is because :

(A) The specific heat capacity of land is greater than that of the sea

(B) The specific heat capacity of land is less than that of the sea

(C) The specific heat capacity of sea is less than that of the land

(D) Major part of the earth is sea

116. What is the minimum energy for electron removal ?

(A) Atomic radius

(B) Electron affinity

(C) Electronegativity

(D) Ionization energy

117. Due to emergency situation a person used a moving coil loud speaker as a microphone. In this context its principle of working is :

(A) electromagnetic induction

(B) motor principle

(C) current carrying conductor placed in a magnetic field deflects

(D) all of these

118. In a transformer, Ns : Np = 3 : 4 and its power in the primary coil is 120 W. If so, power in the secondary is :

(A) 120 W

(B) 30 W

(C) 40 W

(D) 480 W

$\frac{N_s}{N_p} = \frac{t_s}{t_p}$

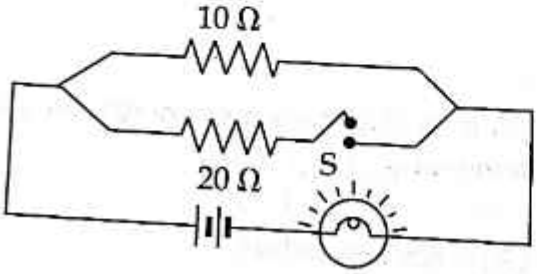
$N_s t_p = N_p t_s$

$3 \times 120 = 4 \times t_s$

$\frac{120^{3}}{360} \quad 360 = 4 t_s$

$t_s = \frac{360}{4} \; 90$

119. Observe the circuit.



If the switch is turned on then :

(A) The brightness of the bulb will decrease

(B) The brightness of the bulb will increase

(C) The brightness of the bulb does not change

(D) The heat developed in the circuit will decrease

120. Which of the following has the least optical density ?

(A) Kerosene

(B) Glycerine

(C) Water

(D) Glass

121. The unwritten and unofficial values that are not explicitly mentioned in the curriculum is :

(A) Correlated curriculum

(B) Interdisciplinary curriculum

(C) Integrated curriculum

(D) Hidden curriculum

122. The concrete operational stage of cognitive development according to Piaget, is characterized by :

(A) Egocentrism

(B) Logical thinking and conservation

(C) Abstract reasoning

(D) Sensori-motor activities

123. Common difficulties are discussed by a teacher in a session called "conference". This is associated with :

(A) Dalton plan

(B) Correlated teaching

(C) Individualised learning

(D) Peer teaching

124. Find the odd one out related to technical aspect of scientific method.

(A) Sampling

(B) Experimenting

(C) Controlling variables

(D) Hypothesizing

125. Direct instruction involves :

(A) Teacher-centered instruction

(B) Student-centered inquiry

(C) Collaborative learning

(D) Experiential learning

126. A unit plan is to be designed to :

(A) Cover a single topic in depth

(B) Focus on a single skill

(C) Integrate related topics and concepts

(D) Assess student knowledge at the end of the unit

127. Comprehensive evaluation of every student is done continuously in :

(A) OBE

(B) CCE

(C) CAM

(D) NTA

128. Which among the following should be avoided to ensure quality of a textbook ?

(A) Ambiguity in concepts

(B) Adaptability for inclusion

(C) Hierarchical content development

(D) Readability of presentation

129. Suppose a student is doing the "Neutralisation reaction" in a laboratory. Identify the basic process skill involved in this.

(A) Inferring

(B) Experimenting

(C) Controlling variables

(D) Interpreting data

130. Which among the following is most suitable for representing Avogadro Law ?

(A) Line graph

(B) Pie graph

(C) Bar graph

(D) Area graph

131. Identify the domain that is NOT involved in Mc Cormack and Yager's Taxonomy.

(A) Process domain

(B) Creativity domain

(C) Application domain

(D) Understanding domain

132. Identify the most appropriate one. A science teacher encourages students to respect scientists for their valuable contributions. Here the teacher is trying to develop :

(A) Scientific interest

(B) Scientific literacy

(C) Scientific attitude

(D) Scientific appreciation

133. Identify the method demanding maximum sensory experience.

(A) Heuristic method

(B) Recapitulatory method

(C) Biographical method

(D) Demonstration method

134. The domain which gives more importance to the statement, "Science education should help students to move along unexplored directions", is :

(A) Knowledge domain

(B) Attitude domain

(C) Creativity domain

(D) Process domain

135. A student is allowed to discover knowledg through his/her own effort in :

(A) Project method

(B) Problem based learning

(C) Inductive method

(D) Heuristic method

136. Which among the following is tentatively formulated ?

(A) Definition

(B) Hypothesis

(C) Concept

(D) Principle

137. Which among the following is a flexible way of scientific enquiry ?

(A) Product approach

(B) Subject centered approach

(C) Process approach

(D) Teacher centered approach

138. To overcome the challenges of professional development, it is important to :

(A) Rely solely on traditional methods

(B) Embrace innovative approaches and technologies

(C) Ignore the needs of teachers

(D) Discourage collaboration and sharing

139. Who is known as the "Missile Woman" of India ?

(A) Tessy Thomas

(B) Kalpana Chawla

(C) Sunitha Williams

(D) Ritu Karidhal

140. The first aid used for acid burn in a laboratory is :

(A) Sodium carbonate

(B) Sodium hydroxide

(C) Sodium bicarbonate

(D) Sodium oxide

141. The process of learning by doing and reflecting on the experience is :

(A) Cognitive learning

(B) Experiential learning

(C) Rote learning

(D) Passive learning

142. Find out the wrong pair from the following.

(A) Richard Suchmann - ITM

(B) Vygotsky - Social Learning

(C) Gagne - Signal Learning

(D) Schon - Experiential Learning

143. "How" aspect of teaching is reflected mostly in :

(A) Objectives

(B) Learning experience

(C) Content

(D) Evaluation

144. Identify the odd one from among the following.

(A) Support system

(B) Principle of Reaction

(C) Nurturant effect

(D) Developmental phase

145. Identify the Mill's Canon which does not necessarily bring forth the cause of a phenomenon.

(A) Method of Residues

(B) Method of Agreement

(C) Method of Concomitant variation

(D) Joint Method

146. A student arrives at the concept of surface tension with the support of the teacher. Here the role of the teacher according to constructivism is of a :

(A) Narrator

(B) Moderator

(C) Scaffolder

(D) Mediator

147. If a student justifies the reason for floating small insects over the surface of water, then he/she has achieved the objective.

(A) Analysis

(B) Application

(C) Evaluation

(D) Synthesis

148. Which among the following are related to a person with scientific attitude ?

(i) Does not believe in cause-effect relationship

(ii) Suspends judgement in case of insufficient data

(iii) Does not believe in superstitions

(iv) Rigid in accepting the view's of others

(A) (i) and (ii) are correct

(B) (ii) and (iii) are correct

(C) (ii) and (iv) are correct

(D) (iii) and (iv) are correct

149. Which among the following is negative exemplar of Physical change ?

(A) Melting candle

(B) Stretched rubber band

(C) Burning wick of candle

(D) Melting sulphur

150. Find the missing word.

John Dewey : Project method
Jerome S. Bruner : .....

(A) Dalton Plan

(B) Discovery method

(C) Heuristic method

(D) Scientific method

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