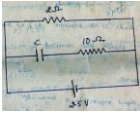
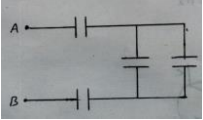


**Subject Code : NU
PHYSICS**

1. For a body in a uniformly accelerated motion, the distance travelled by the body (x) from a reference point at a time 't' is given by $x=at+bt^2+c$ where a, b and c are constants of motion. The dimensions of 'b' are
 A) $M^0 L T^{-2}$ B) $M L^0 T^{-2}$ C) $M^0 L T^{-1}$ D) $M L T^{-1}$
2. Maximum height of a bullet when fired at 30° with the horizontal is 11 m. The maximum height when it is fired at 60° with horizontal is
 A) 11m B) 6m C) 33m D) 22m
3. The meniscus of liquid in a tube in which the liquid rises due to surface tension is
 A) Concave B) Convex C) Plane D) None of these
4. A Carnot's engine operates with a source at 500K and sink at 375K. The engine consumes 600 k cal of heat in one cycle, the heat rejected to the sink per cycle is
 A) 250 k cal B) 350 k cal C) 450 k cal D) 550 k cal
5. The velocity of sound is the greatest in
 A) Water B) Air C) Vacuum D) Steel
6. A cylindrical tube open at both ends has a fundamental frequency f_0 , in air. The tube is dipped vertically into water such that half of its length is inside water. The fundamental frequency of the air column now is
 A) $\frac{3f_0}{4}$ B) f_0 C) $\frac{f_0}{2}$ D) $3f_0$
7. Ozone is present in _____ zone of atmosphere
 A) Troposphere B) Stratosphere C) Mesosphere D) Thermosphere
8. When a ray of light enters glass slab from air
 A) Its wavelength decreases C) Its frequency increases
 B) Its wavelength increases D) Neither wavelength nor frequency changes.
9. The refractive index of the material of an equilateral prism is $\sqrt{3}$. What is the angle of minimum deviation?
 A) 30° B) 45° C) 60° D) 75°
10. Optical fiber works on the principle of
 A) Refraction C) Total internal reflection
 B) Reflection D) Scattering.
11. A lens of power +2D is placed in contact with another lens of power -1D. The combination will behave like
 A) A convex lens of focal length 1m C) A convex lens of focal length 0.5m
 B) A diverging lens of focal length 1m D) A diverging lens of focal length 0.5m
12. Velocity of light, according to this theory, is greater in a denser medium than in a rarer medium
 A) Electromagnetic theory C) Corpuscular theory
 B) Quantum theory D) Huygen's wave theory.
13. If yellow light is replaced by blue light in Young's double slit experiment, the fringes will be
 A) Wider B) Narrower C) Brighter D) Fainter.
14. Which of the following cannot produce colours with white light?
 A) Dispersion B) Interference C) Diffraction D) Polarisation.

15. **Biaxial crystal among the following is**
 A) Selenite B) Tourmaline C) Calcite D) Quartz
16. **If an electric dipole is placed in a uniform electric field, it experiences**
 A) Torque only C) Both torque and net force.
 B) Net force only D) Neither torque nor net force.
17. **Eight dipoles of charges of magnitude q are placed inside a cube. The total electric flux through the cube will be**
 A) $\frac{8q}{\epsilon_0}$ B) $\frac{16q}{\epsilon_0}$ C) $\frac{q}{\epsilon_0}$ D) zero
18. **A capacitor of capacitance $C = 2\mu F$ is connected as shown in diagram. If the internal resistance of the cell is 0.5Ω , the charge on the capacitor plates is**
 A) zero B) $2\mu C$ C) $4\mu C$ D) $6\mu C$
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19. **The effective capacitance between the points A and B in the circuit shown is, if capacitances of each capacitor is $1\mu F$,**
 A) 2 B) 4 C) 3 D) 0.4
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20. **What fraction of the energy drawn from the charging battery is stored in a capacitor?**
 A) 100% B) 75% C) 50% D) 25%
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46. A)
47. A)
48. A)
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56. A)
57. A)
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59. A)
60. A)

CHEMISTRY

61. **To remove the silica impurities from the ore, the flux used is**
A) Cupric oxide B) Manganese oxide C) Calcium oxide D) Aluminium oxide
62. **The strongest reducing agent amongst alkali metals is**
A) Li B) Na C) Cs D) K
63. **Which of the following is true about metallic conductor?**
A) There is no transfer of matter C) Conduction is by electrons
B) There is no chemical change D) Conductance increases with temperature
64. **Normality of 0.1 M H_2SO_4 is**
A) 0.05 B) 0.2 C) 1 D) 0.1
65. **IUPAC name of $\text{CH}_2=\text{CHCH}(\text{CH}_3)_2$ is**
A) 1,1-Dimethyl-2-propene C) 3,3-Dimethyl-1-propene
B) 3-Methyl-1-butene D) 1-isopropylethylene
66. **The monomers of Buna-S rubber are**
A) Vinyl chloride and sulphur C) Styrene and butadiene
B) Isoprene and butadiene D) Styrene and vinyl chloride
67. **In the extraction of gold, the reducing agent used to reduce aurocyanide to gold is**
A) Carbon B) Aluminium C) Carbon monoxide D) Zinc
68. **Identify the incorrect statement**
A) Thermodynamically diamond is more stable than graphite
B) In graphite carbon is sp^2 hybridized
C) Graphite has lower melting point than diamond
D) In diamond carbon atoms are tetrahedrally bonded to each other
69. **Oxidation number of sulphur in H_2SO_3 is**

A) +6 B) +2 C) +3 D) +4

70. Ethyl alcohol reacts with iodine and sodium hydroxide to give
A) C_2H_5ONa B) CHI_3 C) CH_3CHO D) CH_3Cl_2OH
71. A carbocation is formed by
A) Heterolytic cleavage of bond C) Catalytic cleavage of bond
B) Homolytic cleavage of bond D) Isolytic cleavage of bond
72. Benzene is converted into toluene by
A) Gregnard reaction B) Friedel Craft's reaction C) Wurtz reaction D) Perkin reaction
73. Molecular weight of $Ca(OH)_2$ is 74. Its equivalent weight is
A) 7.4 B) 74 C) 37 D) 148
74. As the temperature is raised from $20^\circ C$ to $30^\circ C$, the kinetic energy of the gas changes by a factor
A) 2/3 B) 303/293 C) 293/303 D) 3/2
75. The temperature of a system increases during
A) Isothermal expansion C) Isothermal compression
B) Adiabatic expansion D) Adiabatic compression
76. Which of the following values of enthalpy of formation shows that the compound is least stable?
A) 225 kJ/mole B) -240 kJ/mole C) 25 kJ/mole D) -280 kJ/mole
77. Heat of neutralization of weak acid with strong base is less than that of strong acid with strong base, because
B) Salt of weak acid and strong base is unstable
C) Neutralization of weak acid is incomplete
D) Complete dissociation of the weak acid requires absorption of energy
E) Strong acid does not dissociate completely in the presence of weak acid
78. On heating isopropyl chloride with sodium in dry ether, the product formed is
A) Pentane B) Hexane C) Methyl pentane D) 2,3-Dimethyl butane
79. The compound formed when calcium acetate is dry distilled is
A) Acetone B) Acetaldehyde C) Formaldehyde D) Acetyl acetone
80. Which of the following can be used to distinguish between methanoic acid and ethanoic acid?
A) Tollen's reagent B) $FeCl_2$ solution C) Na_2CO_3 solution D) Alcoholic KOH solution
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BIOLOGY

- 121. Algae have great economic importance to man because**
A) They can be grown in tanks
B) They help to restore the fertilities of the soil
C) Because of high protein content, some algae may be used as future food
D) Both b & c
- 122. In which plant group the gametophytic generation is dominating the sporophytic generation ?**
A) Pteridophyta B) Bryophyta C) Cycas D) All the above
- 123. Gymnosperms and angiosperms are similar in the respect that**
A) Both have triploid endosperm C) Both have fruits
B) Both have naked seeds D) Both have haploid pollen
- 124. Which of the following tissues is composed of mainly dead cells ?**
A) Phloem B) Epidermis C) Xylem D) Endodermis

125. **Sunken stomata are present in**
 A) Mesophytes B) Xerophytes C) Epiphytes D) All the above
126. **When stomata are present only on the lower side of a leaf , the condition is called ?**
 A) Epistomatic B) Hypostomatic C) Amphistomatic D) Ventrostomatic
127. **Plants die when over fertilized because the fertilizer**
 A) Damages wall of root hairs
 B) Blocks absorption of nitrogenous ions
 C) Causes dehydration of plants by exosmosis
 D) Upsets soil environment by poisoning soil bacteria
128. **If a cell A with OP = 5 and TP = 4 is surrounded by cells with OP and TP = 1
 What will be the action of water movement ?**
 A) Water will not move up
 B) Water will move up
 C) From cell A to other cells
 D) From other cells to cell A
129. **The phenomenon of uptake of water at the expense of energy by the cell and usually against the gradient is known as**
 A) Osmosis B) Active absorption C) Passive absorption D) Imbibition
130. **Which contributes most to the transport of water from soil to the leaves of a tree ?**
 A) Root pressure C) Capillary rise of water inside the xylem
 B) Cohesion of water and transpiration pull D) Atmospheric pressure theory
131. **According to proton exchange theory, mechanism of stomatal movement is due to**
 A) K^+ ions accumulation in guard cells during day time
 B) H^+ ions are pumped out from guard cells and K^+ ions are pumped into the guard cells
 C) Water potential of the guard cells is decreased and water enters into the guard cells
 D) All the above
132. **Hygrometer is an instrument used to measure**
 A) Wind speed B) Wind direction C) Temperature D) Humidity
133. **The gradient of turgor pressure as the possible mechanism of nutrient translocation was given by**
 A) Curtis B) Dixon & Jolly C) Munch D) Lloyd & Noggle
134. **The sight of light reaction is**
 A) Grana lamellae B) Stroma lamellae C) Unit membranes D) Stroma
135. **In case of C4 path way CO_2 combines with**
 A) PGA B) PEPA C) Ribulose Bisphosphate (RUBP) D) OAA
136. **Impure air is purified in the presence of light by the green plants was first said by**
 A) De Saussure B) Priestly C) Van Helmont D) Ingenhouz
137. **A bisexual flower, which always remains closed is called**
 A) Cleistogamous B) Dichogamous C) Chasmogamous D) Geitonogamous
138. **A fruit in which the pricarp is differentiated into outer epicarp middle fleshy or fibrous mesocarp and hard endocarp is a**
 A) Drupe B) Hesperidium C) Pepo D) Cypsela
139. **Marriage between colour blind woman and normal man results in**
 A) Daughters carrier and sons colour blind C) 50% colour blind and 50% normal children
 B) All colour blind children D) 25% colour blind and 25% normal children
140. **The possible blood group of children born to parents having A x AB blood groups are**

A) O,A,B

B) O,A,B,AB

C) O, A

D) A, B, AB

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151. A)

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155. A)

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158. A)

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