



- 5) If $AA^T = I$ where $A = \begin{bmatrix} \frac{1}{\sqrt{2}} & \frac{2}{3} & x \\ \frac{1}{\sqrt{2}} & -\frac{2}{3} & y \\ 0 & \frac{1}{3} & z \end{bmatrix}$ then the triplet (x, y, z) is
- A) $\left(\frac{1}{3\sqrt{2}}, \frac{-1}{3\sqrt{2}}, \frac{-2\sqrt{2}}{3}\right)$ B) $\left(-\frac{1}{3\sqrt{2}}, \frac{1}{3\sqrt{2}}, \frac{-2\sqrt{2}}{3}\right)$
- C) $\left(\frac{-1}{3\sqrt{2}}, \frac{1}{3\sqrt{2}}, \frac{2\sqrt{2}}{3}\right)$ D) $\left(\frac{-1}{3\sqrt{2}}, \frac{-1}{3\sqrt{2}}, \frac{2\sqrt{2}}{3}\right)$

PHYSICS

- 6) For the reflection at a plane mirror
- A) Object distance is equal to image distance
 - B) Virtual image is formed
 - C) Image has lateral inversion
 - D) Image is of same size as that of the object but the size of the image seems to be decreased when we move the object towards the eye.
- 7) If the image of an object formed by reflection is virtual then the mirror may be
- A) Plane mirror
 - B) Convex mirror
 - C) Concave mirror if the object is between F and Pole
 - D) Concave mirror if the object is beyond F.
- 8) When an object at a distance of 15 cm is seen through a parallel sided glass slab. The vertical shift of the image formed is 2 cm. If the thickness of glass slab is 5 cm, the refractive index of the glass slab is
- A) 1.50 B) 1.55 C) 1.70 D) 1.67
- 9) Which of the following statement or statements is / are true
- A) A convex lens behaves as a converging lens if it is kept in a medium of less refractive index than the refractive index of the lens.
 - B) A convex lens behaves as a diverging lens if it is kept in a medium of greater refractive index than the refractive index of the lens.
 - C) A concave lens behaves as a converging lens if it is kept in a medium of greater refractive index than the refractive index of the lens.
 - D) A concave lens behaves as a diverging lens if it is kept in a medium of refractive index less than the refractive index of the lens



- 10) When a light ray is refracted through a prism
- A) Dispersion will follow deviation
 - B) Deviation will follow dispersion
 - C) Angle between the refracted ray and base of the prism is zero when light undergoes minimum deviation.
 - D) Angle of refraction is half the angle of prim for minimum deviation

CHEMISTRY

- 11) During chemical reaction
- A) gases are not released
 - B) may involve heat energy liberation or absorption
 - C) may form insoluble precipitates
 - D) The reactants retain their characteristic properties
- 12) Which one of the following equations show correct representation of the reaction?
- A) $Zn_{(s)} + H_2SO_{4(aq)} \rightarrow ZnSO_{4(aq)} + H_{2(g)} \uparrow$
 - B) $AgNO_{3(aq)} + NaCl_{(aq)} \rightarrow AgCl_{(aq)} + NaNO_{3(s)} \downarrow$
 - C) $2AgCl_{(s)} \rightarrow 2Ag_{(s)} + Cl_{2(g)} \uparrow$
 - D) $C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)} \uparrow + Q$
- 13) Identify redox reactions:
- A) $Cu_{(s)} + O_{2(g)} \rightarrow 2CuO_{(s)}$
 - B) $Na_2SO_{4(aq)} + BaCl_{2(aq)} \rightarrow BaSO_{4(s)} + 2NaCl_{(aq)}$
 - C) $NaCl_{(aq)} + AgNO_{3(aq)} \rightarrow AgCl_{(s)} \downarrow + NaNO_{3(aq)}$
 - D) $2Fe_2O_{3(s)} + 3C_{(s)} \rightarrow 2Fe_{(s)} + CO_{2(g)}$
- 14) Identify Olfactory indicators
- A) Red cabbage
 - B) Vanilla essence
 - C) Clove oil
 - D) Methyl orange
- 15) Identify the correct statements:
- A) Dry HCl gas is not an acid
 - B) Bases dissolve in water producing hydroxide ion
 - C) Glucose solution conducts electricity
 - D) Dissolving base in water is an endothermic reaction



BIOLOGY

16)..Which of the following conditions are developed due to monoculture?

- A) multiplication of parasites
- B) more food production
- C) less use of toxic chemicals
- D) ecosystem balance is undisturbed

17). The process of respiration in green plants occurs

- A) only when stomata are open
- B)only when photosynthesis ceases
- C)only when photosynthesis is in progress
- D)only during day time

18). Choose the correct pair of scientists and their work

- A) Gregor Mendel – Variations
- B) Watson & Crick – DNA structure
- C) Charles Darwin – Natural Selection
- D) Jean Lamarck – Golgi complex

19). The products made from petroleum are

- A) Nylon
- B) Tooth paste
- C) Waxes
- D) Plastics

20). Choose the event(s) that occur in photosynthesis

- A) Absorption of photons by cristae containing structures
- B) Reduction of carbon dioxide to carbohydrates
- C) Oxidation of carbon to carbon dioxide
- D) Conversion of light energy to chemical energy

K E Y FOR MODEL PAPER

Q.No	Answer	Q.No	Answer	Q.No	Answer	Q.No	Answer
1	A,B,D	6	A,B,C,D	11	B,C	16	B,C
2	A,B,C,D	7	A,B,C	12	A,C,D	17	A,B,C
3	A,C,D	8	D	13	A,D	18	A,B,C
4	A,B,C,D	9	A,B,C,D	14	B,C	19	C,D
5	A,C	10	A,C,D	15	A,B	20	B,D