



Dr. A S Rao Awards Council
MODEL PAPERS FOR STSE

NOTE:- Only 5 questions in subject are given as example. In actual paper there will be 25 Questions in each subject. Each Question may have more than one Correct answer. The student has to identify all the correct answers(if there are). No marks will be given for partial answers. For example, if a question has A,C,D choices as correct answers and if a student answers only A and C or A and D or C and D or A or C or D etc., no marks will be awarded to that question.

10th CLASS - MODEL PAPER

MATHS

- 1) The straight lines $ax + by + c = 0$, $bx + cy + a = 0$ and $cx + ay + b = 0$ are
A) concurrent if $a + b + c = 0$
B) coincident when $a = b = c$
C) having more than one point in common if $a + b + c = 0$
D) having more than one point in common if $a = b = c$
- 2) In $\triangle ABC$, $AB = AC$ and $A = (4, 3)$. If the equations of bisector of $\angle ABC$ and altitude from C to AB are $y = 0$ and $4x + 3y = 25$ respectively. Then
A) $B(0, 0)$ B) $C = (8, -6)$
C) the equation of AB is $3x - 4y = 0$ D) the equation of BC is $3x + 4y = 0$
- 3) $A(x_1, y_1)$ and $B(x_2, y_2)$ are end points of a diameter of a circle. x_1, x_2 are roots of the equation $2x^2 + 3x - 1 = 0$ and y_1, y_2 are roots of the equation $y^2 - 4y + 2 = 0$. Then
A) the centre of the circle is $\left(\frac{-3}{4}, 2 \right)$
B) the radius of the circle is $\frac{7}{2}$ units
C) the maximum area of $\triangle PAB$ is $3 \frac{1}{16}$ sq. units
D) the number of triangles with maximum area in the circle is 2
- 4) If $2\cos^2\theta = 1 + \cos 2\theta$ and $2\sin^2\theta = 1 - \cos 2\theta$ then
A) the value of $\sin 15^\circ = \frac{\sqrt{3}-1}{2\sqrt{2}}$ B) the value of $\cos 7\frac{1}{2}^\circ = \frac{1}{2} \sqrt{\frac{2\sqrt{2} + \sqrt{3} + 1}{2\sqrt{2}}}$
C) the value of $\cos 22\frac{1}{2}^\circ = \frac{1}{2} \sqrt{\sqrt{2} + 1}$ D) the value of $\tan 67\frac{1}{2}^\circ = \sqrt{2} + 1$



- 5) If $AA^T = I$ where $A = \begin{bmatrix} 1 & 2 & x \\ \sqrt{2} & 3 & y \\ \sqrt{2} & 3 & z \\ 0 & \frac{1}{3} & z \end{bmatrix}$ 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) $\text{Zn}_{(s)} + \text{H}_2\text{SO}_{4(aq)} \rightarrow \text{ZnSO}_{4(aq)} + \text{H}_{2(g)} \uparrow$
 - B) $\text{AgNO}_{3(aq)} + \text{NaCl}_{(aq)} \rightarrow \text{AgCl}_{(aq)} + \text{NaNO}_{3(s)} \downarrow$
 - C) $2\text{AgCl}_{(s)} \rightarrow 2\text{Ag}_{(s)} + \text{Cl}_{2(g)} \uparrow$
 - D) $\text{C}_{(s)} + \text{O}_{2(g)} \rightarrow \text{CO}_{2(g)} \uparrow + \text{Q}$
- 13) Identify redox reactions:
- A) $\text{Cu}_{(s)} + \text{O}_{2(g)} \rightarrow 2\text{CuO}_{(s)}$
 - B) $\text{Na}_2\text{SO}_{4(aq)} + \text{BaCl}_{2(aq)} \rightarrow \text{BaSO}_{4(s)} + 2\text{NaCl}_{(aq)}$
 - C) $\text{NaCl}_{(aq)} + \text{AgNO}_{3(aq)} \rightarrow \text{AgCl}_{(s)} \downarrow + \text{NaNO}_{3(aq)}$
 - D) $2\text{Fe}_2\text{O}_{3(s)} + 3\text{C}_{(s)} \rightarrow 2\text{Fe}_{(s)} + \text{CO}_{2(g)}$
- 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

KEY 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