

Self Assessment cum Scholarship Test

SAT | 2024

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MPC/BIPC :: SAMPLE QUESTIONS

MATHEMATICS

- In between 2, 20 there are 8 Arithmetic mean's then the sum of 8 means is
1) 94 2) 88 3) 80 4) 90
- If $\sin \theta_1 + \sin \theta_2 + \sin \theta_3 + \dots + \sin \theta_{10} = 10$ ($0 < \theta < 180$) then the value of $\tan\left(\frac{\theta_1}{2}\right) + \tan\left(\frac{\theta_2}{2}\right) + \tan\left(\frac{\theta_3}{2}\right) + \dots + \tan\left(\frac{\theta_{10}}{2}\right)$ is
1) 10 2) 5 3) 8 4) 9
- The probability of getting 52 Sundays in a leap year is $P(E_1)$ and the probability of getting 53 Mondays in a Non leap year is $P(E_2)$ then the value of $P(E_1):P(E_2)$ is
1) 1 : 5 2) 3 : 1 3) 6 : 1 4) 5 : 1

PHYSICS

- Three resistances 3Ω , 6Ω and 7Ω are connected in series across a potential difference of 48 v . The potential difference across 7Ω resistance is
1) 7 v 2) 21 v 3) 14 v 4) 28 v
- A body of mass 15 kg is moving with a velocity 10 m/s . A force is applied to it so that in 15 seconds, it attains a velocity of 35 m/s . The magnitude of force applied is
1) 15 N 2) 20 N 3) 25 N 4) 50 N
- If acceleration due to gravity on earth is 10 m/s^2 , then what is its value on a planet whose mass is half that of earth and radius is twice that of the earth ?
1) 10 m/s^2 2) 5 m/s^2 3) 20 m/s^2 4) 1.25 m/s^2

CHEMISTRY

- Shapes of CH_4 , NH_3 and H_2O are tetrahedral, pyramidal and v-shape respectively. Hybridisation of central atoms in these species respectively is
1) sp^3, sp, sp^2 2) sp, sp^2, sp^3 3) sp^3, sp^2, sp 4) sp^3, sp^3, sp^3
- What mass of limestone on thermal decomposition yield, 5,600 ml of CO_2 gas at STP ?
1) 25 g 2) 50 g 3) 12.5 g 4) 75 g
- IUPAC nomenclature of $\text{CH}_3 - \underset{\text{OH}}{\text{CH}} - \text{CH}_2 - \overset{\text{O}}{\parallel} \text{C} - \text{OH}$ is :
1) 4 - carboxybutan-2-ol 2) 3 - hydroxybutanoic acid
3) 3 - hydroxybutanone 4) 2 - hydroxybutanoic acid

BIOLOGY

- Food after digestion in the stomach is acidic because of the presence of
1) H_2SO_4 2) HCl 3) HNO_3 4) Pepsin
- The number of chambers in the heart of cockroach is
1) 3 2) 4 3) 13 4) 9
- What will be the genotype of F_1 plants if a plant with tall and green seeds is crossed with dwarf and yellow seeds. Tall is dominant over dwarf and yellow is dominant over green
1) TTYy 2) TtYy 3) TTYy 4) TtYY

key

- 1) 2 2) 1 3) 4 4) 2 5) 3 6) 4
7) 4 8) 1 9) 2 10) 2 11) 3 12) 2