NEW STANDARD ACADEMY

Marks: 60

Date : 27-05-24 **CLASS : 12TH NEET** **Time: 3 HRS**

PHYSICS

1. What happens to the resistance of a wire when its length. Is increased to twice its original length?
2. The resistance of a wire is ohm. What will be its new resistance if it is stretched to n times its original lengh?
3. The resistance of a conductor at 20°C is 3.15Ω and at 100°C is 3.75 Ω. Determine the temperature coefficient of resistance of conductor. What will be the resistance of conductor at 0°C?
4. Resistivity of the material of a conductor of uniform cross- section varies along its length as $\rho = \rho_0(1+\alpha x)$. *Find* the resistance if its length is L and area of cross- section is A.
5. . A rectangular metal block has dimensions 3cm × 1cm × 1cm. The ratio of the resistance measured between the two opposite rectangular faces to that measured between the two square faces of the block is:
6. A wire has a resistance of 10 ohm. Its resistance if it is stretched by one-tenth of its original length is:
7. A capacitor having capacity of $2\mu F$ is charged to 200v and then the plates of the capacitor are connected to a resstance wire. The heat produced in joule will be
8. The electric field in a certain region is given by $\vec{E} = (5\hat{\imath} - 3\hat{\jmath})\frac{kV}{m}$. The potential difference V_B-V_A between point A and B Having co- ordinates(4,0,3)m and (10,3,0) m respectively , is equal to
9. If potential (in volts) in a region is expressed as V (*x,y,z*) = *6xy+y+2yz*, the electric field (in N/C) at point (1,1,0) is ?
10. A Capacitor is charged by a battery. The battery is removed and another identical uncharged capacitor is connected in parallel. What is the effect on total electrostatic energy of system.

CHEMISTRY

1. The half-life period for a first order reaction is 69.3 S. Its rate constant will be?
2. What is the order of a reaction which has a rate expression, rate =$k[A]^{3/2}[B]^{-1}$
3. Thermal decomposition of a compound is of the first order. If 50% of a sample of the compound is decomposed in 120 minutes, how long will it take for 90% of the compound to decompose?
4. For a reaction $2NO_2+F_2 \longrightarrow 2NO_2F$ The experimental rate law is r = $k[NO_2][F_2]$.Propose the mechanism of the reaction.
5. The rate constant at 25°C is 3.46×10^{-5} sec^{-1} and Ea is 52.86kJ/mol. Caculate the frequency factor A.
6. The rate constants of a reaction are $1\times 10^{-3}sec^{-1}$ and $2\times 10^{-3}sec^{-1}$ at 27°C *and* 37°C respectively. Calculate the activation energy of the reaction.
7. The reaction between $Cr_2O_7^{2-}$ and HNO_2 in an acidic medium is
   $Cr_2O_7^{2-} + 5H^- + 3HNO_2 \longrightarrow 2Cr^{3+}+3NO_3^-+4H_2O$ the rate of disappearance of $Cr_2O_7^{2-}$ is found to 2.4×10^{-4} mol $L^{-1}s^{-1}$ during measured time interval. What will be the rate of disappearance of HNO_2 during the same time interval?
8. The following reaction was carried out in water:
   $CI_2+2I^- \longrightarrow I_2+2CI^-$
   The initial concentration of I^- was 0.25 mol L^{-1} and the concentration after 10 s was 0.23 mol L^{-1} .Calculate the rate of disappearance of I^- and rate of appearance of I_2.

9. What do you understand by a first order reaction?
   Show that for a first order reaction time required to complete a definite fraction of the reaction to independent of initial concentration.
10. Explain the difference between order and molecularity of reaction with examples

BIOLOGY

1. Mention the contribution of S.L Miller's experiments to origin of life.
2. Are the thorn of Bougainvillea and tendril of cucurbita homologous or analogous? What type of evolution has brought such similarity in them?.
3. What is abiogenesis theory who disproved it ?
4. Give the name of first oxygen –producing organisms .How it Produce.
5. What is a darwinism explain its ?
6. What do N-glycosidic linkages in a polynucleotide chain join? Explain with structural diagram .
7. What is the difference between core DNA and linker DNA in nucliosome?
8. What is function of DNA polymerase III?
9. Give the D=difference between Divergent and Convergent evolution
10. What is lamarkism explain with example