Tsi12P

Tenkasi District Common Examinations
Third Revision Test - February 2023

13-02-2023

Standard 12

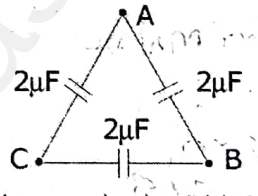
PHYSICS

Time Allowed: 3.00 Hours | Maximum Marks: 70

PART - I

Answer ALL the questions: **15×1=15**

1) For light incident from air on a slab of refractive index 2, the maximum possible angle of refraction is
   a) 30° b) 45° c) 60° d) 90°
2) Light transmitted by Nicol prism is
   a) partially polarized b) unpolarised
   c) plane polarised d) eliptically polarised
3) The Accelerating potential to produce 1A° wave length of electronics
   a) 100 V b) 10 V c) 12.27 V d) 148.7 V
4) Threshold wavelength of a metal surface having work function 3.313 eV is
   a) 4125 A° b) 3750 A° c) 6000 A° d) 2062.5 A°
5) What is the remaining sample after 12 seconds of a sample having half life time 3 seconds
   a) 3.125% b) 6.25% c) 12.5% d) 1.625%
6) What is the energy equal to 1 atomic mass unit?
   a) 14.94×10^{-11} J b) 931 MeV c) 931×10^{3} KeV d) All the above
7) The primary use of a zener diode is
   a) Rectifier b) Amplifier c) Oscillation d) Voltage regulator
8) The materials used in Robotics are
   a) Aluminium and Silver b) Silver and Gold
   c) Copper and Gold d) Steel and Aluminium
9) Three capacitors are connected in triangle as shown in figure. The equivalant capacitance between two points A and C is



   a) 1μF b) 2μF
   c) 3μF d) ¼μF
10) A carbon register of (53±2.65) KΩ to be marked with rings of different colours for its identification. The colour code sequence will be
   a) yellow-green-violet-gold b) green-orange-red-gold
   c) violet-orange-orange-silver d) green-orange-orange-gold
11) A non conducting charged ring carrying a change of q mass m and radius r is rotated about its axis with constant angular speed w. Find the ratio of its magnetic moment with angular momentum is
   a) q/m b) $2q/m$ c) $q/2m$ d) $q/4m$
12) In a RLC circuit $X_L \neq X_C$. then power factor of two circuit is
   a) 0 b) 1 c) in between 0 and 1 d) $1/\sqrt{2}$
13) When the current changes from +2A to −2A is 0.1 second an emf of 8 V is induced in a coil. The co-efficient of self-induction of the coil is
   a) 0.2 H b) 0.4 H c) 0.8 H d) 0.1 H
14) Which of the following is an electromagnetic wave?
   a) α-rays b) β-rays c) γ-rays d) all of them
15) Solar spectrum is best example for
   a) line emission b) line absorption c) band emission d) band absorption

PART - II

II. Answer ANY SIX questions. Question No. 24 is compulsory: **6×2=12**

16) What is electric flux? Give its unit.
17) What is temperature co-efficient of resistance.

18) Give the Fleming's Left Hand Rule.
19) What are the methods of producing induced emf?
20) Give the use of IR waves.
21) Write the Law of 'Rayheigh's Scattering'.
22) Write the any four uses of photo cells.
23) Draw the common base (CB) configuration circuit of transistor.
24) Calcualte the disinteguation energy when stationary $^{232}_{92}U$ nucleus decays to thorium $^{228}_{90}Th$ with the emission of α-particle. The atomic masses are of $^{232}_{92}U$ = 232.037156U. $^{228}_{90}Th$ = 228.028741U and $^{4}_{2}He$ = 4.002603U

PART - III

Answer ANY SIX questions. Question No. 33 is compulsory: **6×3=18**

25) Give the uses of internet.
26) Mention any two advantages and disadvantages of Robotics.
27) Obtain the expression for the energy of the electron in the n^{th} orbit.
28) Write down the laws of photo electric effect.
29) Write note on Nicol Prism.
30) Obtain the expression of the energy stored in an induction.
31) What are the special features of Lowrentz Magnetic Force?
32) Obtain the Gauss Law from Coulomb's Law.
33) Calculate the equivalent resistance in the following circuit and also find the values of current I, I_1 and I_2 in the given circuit.

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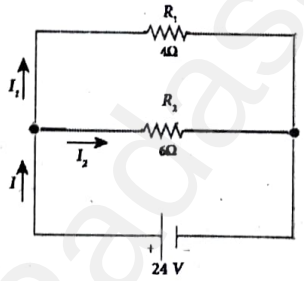

PART - IV

IV. Answer ALL the questions: **5×5=25**

34) a) Obtain the condition for bridge balance in Wheatstone's bridge.

(OR)

b) Obtain the equation for bandwidth in Young's double slit experiment.

35) a) Obtain the Long Makan's Formula.

(OR)

b) Explain the function of half wave rectifier with neat circuit diagram.

36) a) Get the equation for electric field produced by the dipole at its axial line.

(OR)

b) Explain the construction and working of cyclotron.

37) a) Explain the construction and working of Transformer.

(OR)

b) What are the type of spectrum? Explain the types of emission spectrum.

38) a) Wrtie about the Hydrogen atomic spectrum.

(OR)

b) Describe briefly Davission-Garmen experiment. Which demonstrated the wave nature of electrons.
