

B.Sc. DEGREE EXAMINATION APRIL 2007
BRANCH IV - CHEMISTRY
FOURTH SEMESTER

REG. No. _____

COURSE : **ALLIED – CORE**
PAPER : **GENERAL PHYSICS – II**
TIME : **30 MINS.**

MAX. MARKS : 30

SECTION - A

TO BE ANSWERED IN THE QUESTION PAPER ITSELF

ANSWER ALL QUESTIONS: (30 x 1 = 30)

I CHOOSE THE CORRECT ANSWER:

1. If the distance 'x' between two point charges is doubled, the electrostatic force F between them becomes
a) 2F b) F/2 c) F/4
2. If 'r' is the distance of a point P from a cylindrical charge distribution, the electric field at P is proportional to
a) 1/r b) 1/r² c) 1/r³
3. The work done per unit charge is
a) electric field b) electric force c) electric potential
4. The capacitance of a parallel capacitor is 400 pico farad and its plates are separated by 2mm of air. If it is charged to a potential of 1500 volts, the charge on the capacitor is
a) $9 \times 10^{-2} \text{C}$ b) $8 \times 10^{-9} \text{C}$ c) $6 \times 10^{-7} \text{C}$
5. The unit of magnetic induction is
a) Weber b) weber m⁻² c) weber m²
6. The ratio of magnetization M to the magnetic field intensity H is called
a) magnetic susceptibility b) magnetic permeability c) magnetic retentivity
7. The Figure of merit of ballistic galvanometer is otherwise known as
a) current sensitiveness b) voltage sensitiveness c) charge sensitiveness
8. The device that amplifies light and produces a highly directional, high intensity beam with a very pure frequency is
a) maser b) laser c) hologram

9. Forbidden gap is very wide in
 a) insulators b) conductors c) semiconductors
10. Which of the following is a poor device for converting an ac signal into a dc?
 a) bridge type full wave rectifier
 b) center tap full wave rectifier
 c) diode as half wave rectifier
11. In all the three modes of transistor operations, which of the following is always forward biased?
 a) the emitter – base junction
 b) the base – collector junction
 c) the emitter – collector junction
12. If the two inputs to a NOR logic gate are 0 and 1 respectively, the value of the output is
 a) 1 b) 0 c) 10
13. The Boolean identity $A \cdot (B+C) = A \cdot B + A \cdot C$ is called
 a) associative law b) commutative law c) distributive law
14. Which one of the following properties of optics is employed in fibre optics?
 a) reflection b) total internal reflection c) refraction
15. He – Ne laser is an example of
 a) liquid laser b) gas laser c) diode laser

II FILL IN THE BLANKS:

16. For a charge 'q' outside the closed surface, the total normal electric flux ϕ is _____.
17. Smaller the coercive force for a magnetic material, easier for it to get _____.
18. For Maxwell's equations the value of the velocity of light in vacuum is given by _____.
19. Lorentz force is _____ when the charged particle is moving parallel to the magnetic field.

III STATE WHETHER TRUE OR FALSE:

20. Draw the transistor symbol for a NPN transistor.
21. A pure dc supply is free from ripples.
22. At absolute zero, the semiconductor behaves as a conductor.

