

Electronic Science Department
Kurukshetra University Kurukshetra

Information to the candidates for the entrance test for M.Tech. (Nano Sc. & Technology)

There will be 50 questions of Multiple Choice type, each carrying 2 marks. All are to be attempted.

The syllabus for the entrance test will comprise of the topics on Electronics, Mathematics, Physics, Chemistry, Computers, BioChemistry and BioTechnology and will be of M.Sc. level. In addition, there may be some questions of Conceptual and General aptitude type.

Some Sample Questions are given below:

1. The capacity of a parallel plate capacitor is C . Its capacity, when the separation between the plates is halved, will be
(a) $4C$ (b) $2C$
(c) $C/2$ (d) $C/4$
2. Two balls carrying charges $+8\mu\text{C}$ and $-5\mu\text{C}$ attract each other with a force F . If a charge $-3\mu\text{C}$ is added to both, the force between the balls will be
(a) $2F$ (b) F
(c) $F/2$ (d) zero
3. Two inputs of NAND gates are shorted. This gate is equivalent to
(a) OR gate (b) AND gate
(c) NOT gate (d) XOR gate
4. Which particles act as a current carrier in a metallic conductor?
(a) only electrons (b) only ions
(c) electrons and proton (d) electrons and ions
5. The most variable component of the atmosphere is
(a) Oxygen (b) Nitrogen
(c) Water vapour (d) Helium
6. A fast moving, flowing sea wave generated by an earthquake that occurs beneath the ocean is
(a) Tsunami (b) Syncline
(c) Mudflow (d) Magma
7. Which of the following are important water pollutants?
(a) Carbon dioxide (b) Methane
(c) Oxides of nitrogen (d) None of the above
8. AIDS is characterized by a reduction in

- (a) helper T-Cells (b) Killer T-Cells
(c) Suppressor T-Cells (d) B-lymphocytes

9. Cancer cells are more easily damaged by radiation than the normal cells because they are

- (a) Non-dividing (b) Different in structure
(c) Undergoing rapid division (d) starved of mutation

10. The pH of a solution is 3.0. Its H^+ concentration would be

- (a) 10^3 M (b) 3 M
(c) 10^{-3} M (d) 0.3 M

11. A nitrogenous base present in RNA but not in DNA is

- (a) Thymine (b) Cytosine
(c) Guanine (d) Uracil

12. Resonance is due to

- (a) de-localization of σ electrons (b) delocalization of π electrons
(c) migration of H-atoms (d) migration of protons

13. In a series combination of R, L and C to an A.C. source at resonance if $R = 20$ ohm, then impedance Z of the combination is

- (a) 400 ohm (b) 1 ohm
(c) 20 ohm (d) zero ohm

14. Polymerization of $CF_2 = CF_2$ results in the formation of

- (a) Teflon (b) Rayon
(c) Orlon (d) PVC

15. Which of the following is used as a source of light radiation in the visible range

- (a) Deuterium Lamp (b) Tungsten filament
(c) Nernst Glower (d) None of these