

Roll No.

Total No. of Questions : 09]

[Total No. of Pages : 02

B. Tech. (Sem. - 1st)
COMMUNICATION SKILLS

SUBJECT CODE : HU - 101

Paper ID : [A0124]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates :

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Five** questions from Section - B & C.
- 3) Select at,least **Two** questions from Section - B & C.

Section - A

Q1)**(Marks : 2 Each)**

- a) What is diagonal communication?
- b) What is intonation?
- c) What is memo?
- d) What is Kinesics?
- e) Give two advantages of informal business communication?
- f) Give two ways to crack the group Discussion.
- g) Differentiate between a quotation and tender.
- h) Differentiate between summary and abstract.
- i) Give the technical description of a compact disc.
- j) What is the difference between circular and order?

- Q3)** (a) Briefly describe the phenomenon of magnetic hysteresis and why it occurs for ferromagnetic and ferrimagnetic materials.
- (b) What is the difference between soft and hard magnetic materials.
- Q4)** (a) Explain the term following terms:
- (i) Population inversion.
- (ii) Semiconductor laser,
- (iii) Holography.
- (b) The light of wavelength 660 nm has a wave train of length 13.2×10^{-6} m. Calculate the coherent time.
- Q5)** (a) Find the core radius necessary for single mode operation at 820 nm of a step index fibre with $n_1 = 1.480$ and $n_2 = 1.478$.
- (b) Differentiate between material dispersion and pulse dispersion. Write down various types of losses in optical fibre.

Section - C

(8 marks each)

- Q6)** (a) An electron is moving with a speed of $0.9c$. Calculate its total energy and find the ratio of Newtonian kinetic energy to the relativistic kinetic energy.
- (b) Describe Michelson Morley experiment and show the negative results obtained from this experiment were interpreted.
- Q7)** (a) Calculate the wavelength of X - rays produced when the potential difference is 12400 volts.
- (b) Differentiate between characteristic and continuous X - rays. Give some industrial and engineering applications of X - rays.
- (c) What is Moseley's law? Give its applications.
- Q8)** (a) Derive an expression for the time independent Schrödinger wave equation.
- (b) An electron is bound by potential which closely approaches an infinite square well of width 2.5×10^{-10} m. Calculate the lowest three permissible quantum energies the electron can have.
- Q9)** (a) What do you understand by type - I and type - II superconductors? Explain with examples.
- (b) What are London equations? Find the expression for the penetration depth of a superconductor.

