

Total No. of Questions : 4]

SEAT No. :

P5234

[Total No. of Pages : 2

[6188]-189

B.E. (Electronics & Telecommunications Engg.) (Insem.)

RADIATION AND MICROWAVE THEORY

(2019 Pattern) (Semester - VII) (404181)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Answer Q.1 or Q.2 and Q.3 or Q.4.
- 2) Draw neat diagrams wherever necessary.
- 3) Figures to the right indicate full marks.

- Q1)** a) Derive the fundamental equation for free space propagation. [4]
- b) The radiation resistance of an antenna is 72Ω and loss resistance is 8Ω . Calculate directivity in db if power gain is 16. [5]
- c) Explain in details the radiation mechanism of antenna with suitable diagram. [6]

OR

- Q2)** a) Explain the following characteristics of antenna in detail: [4]
- i) Radiation Pattern
 - ii) Efficiency
- b) A communication link is to be established between two stations using half wavelength antenna for maximum directivity gain 164. The distance between transmitter and receiver is 100km and transmitter power is 1 KW. Frequency of operation is 100MHz. What is the maximum power received by receiver. [5]
- c) Explain the different types of antennas. [6]

P.T.O.

- Q3)** a) Give the comparison between co-axial cable and waveguide. [4]
- b) What are micro waves. Enlighten on advantages and applications of microwave. [5]
- c) Explain the constructional details, advantages and applications of re-entrant type of cavity resonator. [6]

OR

- Q4)** a) With the help of suitable field pattern diagram, explain TE₁₀ mode in rectangular waveguide. [4]
- b) Explain the Structural details, types and applications of Striplines. [5]
- c) Determine the cut off wavelength, guide wavelength, the group velocity and phase velocity in rectangular waveguide of breadth 10cms and having a 2.5 GHz signal propagation in waveguide with dominant mode. [6]

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