

Roll No .....

## EC-6003 (CBGS)

### B.E. VI Semester

Examination, May 2019

### Choice Based Grading System (CBGS)

### Antenna and Wave Propagation

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. Derive mathematical analysis of radiation from a half wave Dipole.
2. Explain principle of pattern multiplication.
3. Write a note on any two types of antennas.
4. Discuss any one technique of antenna array synthesis.
5. Write a note on space wave propagation.
6. A Transmitting antenna has an affective height  $\frac{2}{\pi}$  times the physical length. This carries a current of 1600 Amperes at the base and operates at a frequency of 20kHz. If the physical

length of the antenna is 200 meters and antenna efficiency is 10% calculate :-

- i) Electric field intensity at 350 KM.
  - ii) Radiation resistance
  - iii) Power radiated
  - iv) Power input in the antenna.
7. A communication link is to be established between two stations using half wave length antenna for maximum directive gain. Transmitter power is 1kw, distance between transmitter and receiver is 100km, what is the maximum power received by the receiver. Frequency of operation is 100MHz?
8. Define the following.
- i) Retarded Potential
  - ii) Radiation Pattern
  - iii) Radiation Intensity
  - iv) Directive gain
  - v) Power gain
  - vi) Antenna Efficiency

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