

Seat  
No.

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मानव - 010

## Antenna Theory & Design

P. Pages : 1

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any five** questions.

1. a) Sketch and explain 6-elements yagi antenna with design consideration. 10  
b) Derive the expression of power density and radiation resistance with respect to infinitesimal dipole. 10
2. a) Explain in detail various forms of antenna arrays with neat diagram and design considerations. 10  
b) Explain in detail the Broadside array with derivation of array factor and radiation pattern. 10
3. a) Explain the following antennas with neat diagram design consideration and merits & Limitation. 20  
i) Biconical antenna.  
ii) Log periodic antenna.
4. a) Derive the expression for the field distribution across the aperture of a parabolic reflector. 10  
b) Explain the parabolic reflector antenna with radiation mechanism. 10
5. a) Explain in detail the Taylor synthesis of sum patterns. 10  
b) Explain woodward-Lawson sampling method. 10
6. a) Explain the method of moment and its Applications to a wire antenna. 10  
b) Describe Pocklington's integral equation method of moment. 10
7. a) Explain the strengths and weaknesses of FDTD modeling. 10  
b) Explain E-plane analysis of Horn antenna. 10

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