

17439

21718

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Figures to the right indicate full marks.
 - (3) Assume suitable data, if necessary.
 - (4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any TEN of the following :

20

- (a) Define Modulation. State the types of modulation.
- (b) State need of AGC and its types.
- (c) List the types of wave propagation.
- (d) Define beamwidth and directivity for antenna.
- (e) State the values of IF for (i) AM radio receiver (ii) FM radio receiver.
- (f) Give applications of MATV.
- (g) Define :
 - (i) Critical frequency
 - (ii) Skip distance
- (h) What is Actual Height and Virtual Height ?
- (i) Draw waveforms for Amplitude modulation – modulating signal, carrier signal and AM output.

- (j) Compare vidicon and plumbicon camera tubes, respect to principle and advantage.
- (k) What is colour burst ?
- (l) Explain the terms : Hue, Saturation.
- (m) Compare analog signal and digital signal. (any 2 points)
- (n) State the importance of electronic communication.

2. Attempt any FOUR of the following :

16

- (a) Explain the concept of Pre-emphasis and De-emphasis.
- (b) Compare ground wave, sky wave, space wave propagation. (any 4 points)
- (c) Draw the radiation pattern for dipole antenna of different wavelength.
- (d) Describe the working and principle of PIL.
- (e) Draw and explain sensitivity, selectivity curves w.r.t. receiver.
- (f) Describe the concept of interlaced scanning with neat sketch.

3. Attempt any FOUR of the following :

16

- (a) Compare CATV and CCTV with any four points.
- (b) Draw and explain the generation of PAM transistorized circuit.
- (c) Write one application of following antennas :
 - (i) Loop antenna
 - (ii) Horn Antenna
 - (iii) Dish Antenna
 - (iv) Yagi-Uda.

- (d) Draw the block diagram of Super Heterodyne Receiver. State the function of each block.
- (e) Describe additive colour mixing. Draw additive colour circle diagram.
- (f) List any four CCIRB TV standards.

4. Attempt any FOUR :**16**

- (a) Describe the application of PLL as FM demodulator with the help of diagram.
- (b) Draw different layers of sky wave propagation and explain.
- (c) Explain pulse width modulation using IC 555 with neat waveforms.
- (d) Describe solid state camera based on CCD.
- (e) Draw the block diagram of PAL-D Encoder and Decoder.
- (f) Draw a sketch of horizontal blanking pulse. State the purpose of horizontal sync pulse front porch and back porch.

5. Attempt any TWO of the following :**16**

- (a) Draw structure, radiation pattern of Yagi-Uda antenna and explain it.
- (b) Draw and explain circuit diagram and working of BJT/FET modulator.
- (c) Draw and explain the circuit diagram of RF section of AM Receiver.

6. Attempt any TWO of the following :**16**

- (a) Explain with sketch photoemission technique to generate video signal.
 - (b) State comparison between AM and FM. (any 8 points)
 - (c) Draw and explain : (i) Diode Detector (ii) Practical Diode Detector.
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