

**Scheme – E**

**Sample Question Paper**

**Course Name : Electronics Engineering Group**

**Course Code : ET/EN/EJ/EX/ED/EI**

**Semester : Fifth**

**Subject : Digital Communication**

**Marks : 100**

**12188**

**Time: 3 Hours**

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**Instructions:**

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

**1. (a) Attempt any THREE of the following.**

**12 Marks**

- a) Define the following terms w.r.t. FM
  - i) Deviation
  - ii) Deviation Ratio
  - iii) Maximum Deviation Ratio
  - iv) Band Width
- b) Sketch waveform of PWM, PPM, Unipolar PAM, Bipolar PAM
- c) State Aspect Ratio, Frame Frequency, Field Frequency, Horizontal. Scan frequency for CCIR-B Standards.
- d) Draw & Explain Block Diagram of FAX Transreceiver

**Q1. (b) Attempt any ONE of the following.**

**06 Marks**

- a) What is RS-232? State its electrical characteristics, State functions of each pin of 9-pin RS232 connector
- b) What is data compression? Which are different methods for data compression. Which method is used in FAX for data compression

**Q2. Attempt any FOUR of the following.**

**16 Marks**

- a) Draw the Block diagram of Electronics Communication System. Explain each block briefly.
- b) What is Keying? Define ASK & FSK
- c) Draw & explain Composite Video Signal
- d) Explain the concept of Hand-off technique
- e) Draw & explain the Block Diagram of MODEM

f) Sketch & Label OSI Reference Model & state protocols used at all layers.

**Q3. Attempt any FOUR of the following. 16 Marks**

- a) Compare AM & FM.
- b) Define Sampling Theorem & Niquist Criteria.
- c) Draw & explain Block Diagram of B/W TV Transmitter.
- d) Explain Scanning Mechanism in FAX Machine.
- e) Draw DTH System & working of it.

**Q4. (a) Attempt any THREE of the following. 12 Marks**

- a) Define Quantization Error & Describe Quantization Process.
- b) Define Compatibility & Reverse Compatibility.
- c) Draw & explain Colour Burst Signal.
- d) Compare GSM & CDMA.

**Q4. (b) Attempt any ONE of the following. 06 Marks**

- a) Draw & explain the Block Diagram of PAL-D Receiver
- b) Explain the concept of Cellular Phone & Frequency Reuse.

**Q5. Attempt any FOUR of the following. 16 Marks**

- a) Calculate the Band Width of AM-DSB if the carrier signal frequency is 200KHZ & Modulating Signal Frequency is 500HZ. Sketch the frequency spectrum of AM.
- b) Draw & explain Different Tones in telephony system
- c) Compare LAN & WAN ( Any four points)
- d) Draw Foster seeley Discriminator & its operation.
- e) Compare NTSC & CCIR-B Standards ( Any four points)
- f) Give the advantages & dis-advantages of PCM ( Any four points)

**Q6. Attempt any FOUR of the following. 16 Marks**

- a) Define FM with wave forms and state Amplitude & Frequency equation of FM
- b) State the meaning of term DTMF? State the features of DTMF.
- c) Compare Synchronous & Asynchronous Data communication. (Any four points)
- d) Explain Quadrature Amplitude Modulation.
- e) Draw Bus Topology & Give two advantages & disadvantages