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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S7 (S, FE) / S3 (PT) (S, FE) Examination December 2023 (2015 Scheme)



Course Code: EE401

Course Name: ELECTRONIC COMMUNICATION

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks.

Marks

- 1 What is the necessity of modulation in communication system? (5)
- 2 What is the function of AVC circuit in radio receivers? (5)
- 3 What is meant by interlaced scanning? How does it improve the performance? (5)
- 4 Explain quantization and its significance in PCM. (5)
- 5 Explain any four disadvantages of FDMA technique in comparison with other MA techniques? (5)
- 6 Why do we require a light source in optical fiber communication system? Explain the working principle of any one type of light source commonly used in OFCS. (5)
- 7 What is meant by cell sectoring in cellular communication? Explain different methods. (5)
- 8 Explain the schematic of WiMax architecture. (5)

PART B

Answer any two full questions, each carries 10 marks.

- 9 a) How does the modulation index affect the performance of AM systems? (4)
b) Derive the expression for FM signal and mention the advantages of FM systems. (6)
- 10 a) Show the block diagram and explain the working of a super heterodyne receiver. (6)
b) With suitable sketches explain how does phase modulation helps to develop frequency modulation. (4)
- 11 a) With necessary diagrams explain the working of balanced slope detector for an FM receiver. (7)
b) An AM transmitter releases a total power of 50 kW at a percentage modulation (3)

of 65. Calculate the carrier power? What is the percentage of power saving if the carrier and one of the side band are suppressed?

PART C

Answer any two full questions, each carries 10 marks.

- 12 a) With necessary diagrams explain the relevance of blanking periods in TV systems. (5)
- b) Explain the features of any one type of TV picture tube. (5)
- 13 a) With suitable schematics explain the relevance of the following blocks in PCM. (6)
- i) Sampler and Hold circuit and
- ii) Shift register
- b) Conduct a critical comparison between PAM and PPM techniques. (4)
- 14 a) With necessary diagrams explain the working of Delta modulation. (4)
- b) With the help of block diagram and timing diagram, explain the operation of pulsed radar unit. (6)

PART D

Answer any two full questions, each carries 10 marks.

- 15 a) Explain the operation of TDMA system in satellite communication system. (5)
- b) Explain any two modifications in pn junction photodiode to improve the performance as photo detectors in optical communication systems. (5)
- 16 Explain the significance of the following technologies in modern communication systems. (10)
- i) Blue tooth
- ii) GPS
- 17 a) With the help of suitable layout, describe the steps in Mobile to Mobile call processing in cellular communication system. (5)
- b) Explain the term frequency reuse in the context of wireless communication. (5)
