Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech. Degree Examinations, September 2020

Course Code: EC404

Course Name: ADVANCED COMMUNICATION SYSTEMS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Explain Frequency Modulated microwave radio system with suitable block diagram. (8)

b) Explain the basic principles involved in the compression of fixed pictures. (7)

2 a) Explain how the diversity is enhancing the performance of radio wave propagation? Explain frequency diversity and space diversity with block diagram. (8)

b) Explain the working principles of Liquid Crystal displays. Compare it with plasma and LED displays (7)

3 a) Explain Free-Space Path Loss and derive the expression. Determine the path loss for a 3.4-GHz signal propagating 20,000 m. (7)

b) With a block diagram explain the DVB-T system. (8)

PART B

Answer any two full questions, each carries 15 marks.

4 a) State Kepler's laws of planetary motion. Illustrate in each case their relevance to artificial satellites orbiting the earth. (7)

b) With the help of figure, describe Wireless Local Loop technology. (4)

c) Explain with figure a wide area paging system. (4)

5 a) Explain Global Positioning System. (7)

b) Explain WIMAX architecture with necessary figure. (8)

6 a) Explain link budget calculations in satellite communication systems. Derive the expressions for uplink and down link (8)

b) Compare the important characteristics of second-generation cellular networks, third generation wireless networks and fourth generation wireless technologies. (7)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Describe the ground reflection (two ray) model. Determine the expression for received power and total electric field at a distance 'd' and path loss for ground reflection model. (10)

b) Explain Orthogonal Frequency Division Multiplexing (OFDM).Explain the OFDM implementation of multicarrier transmission system. (10)

8 a) Discuss the 'handoff' strategies employed in the design of a mobile communication system. (10)

b) Write short notes on: - (10)

i) Enhanced Data Rate for Global Evolution (EDGE)

ii) Digital Enhanced Cordless Telecommunications (DECT) data service

9 a) Explain the fading effect due to multipath time delay and Doppler spread. (10)

b) Discuss in detail about GSM system architecture with figure. (10)

****