Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 2019

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) Illustrate with figure a "Microwave radio communications link". List the advantages and disadvantages of Microwave Radio Communication. (5)

   b) Explain the need for a microwave repeater. Describe a baseband repeater with suitable diagram. (10)

2 a) Explain JPEG compression process with relevant figures. (10)

   b) Differentiate entropy coding with transform coding. (5)

3 a) Explain the following with diagram (i) Space Diversity (ii) Frequency Diversity (5)

   b) What are Group of Pictures? Discuss the features of each. (3)

   c) With a block diagram explain MPEG2 system. (7)

PART B
Answer any two full questions, each carries 15 marks.

4 a) Summarize Newton's laws. (6)

   b) Derive the expression of orbital velocity for the circular orbit. (4)

   c) Calculate the orbital period of the satellite moving in an elliptical orbit with major axis 60,000km. Given earth's geocentric gravitational constant as $3.98 \times 10^{14} m^3/s^2$. (5)

5 a) With the help of a diagram explain pagers and state its application. (6)

   b) What are the major subsections of a communication satellite. Explain the function of each block. (9)

6 a) Compare the wireless networks PAN and WLAN. (5)

   b) List out the features of UMTS. (5)

   c) Summarise the working principles of Wireless Local Loop. (5)

PART C
Answer any two full questions, each carries 20 marks.

7 a) Explain how the frequency reuse concept is significant in cellular system. (5)

   b) How co-channel and adjacent channel interferences affect cellular system capacity. (5)

   c) Derive the expression for path loss of Two Ray Ground Reflection model. (10)

8 a) Discuss in detail about GSM system architecture. (10)

   b) Explain HSCSD for 2.5G GSM. (5)

   c) What are the merits of UWB communication? (5)

9 a) With necessary schematic, explain the concept of OFDM. (6)

   b) Write a short note on DECT. (6)

   c) Explain channel assignment and handoff strategies in detail. (8)

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