

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

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| 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.

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| 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 $3.98 \times 10^{14} \text{m}^3/\text{s}^2$. | (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.

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| 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) |

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- 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)
