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G1011

Pages: 2

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

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

Course Code: EE401

Course Name: Electronic Communication

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions, each carries 5 marks.*

- |   |  | Marks |
|---|--|-------|
| 1 | With the help of block diagram, explain the working of balanced modulator.                   | (5)   |
| 2 | Draw the block diagram of super heterodyne receiver and explain the function of mixer stage. | (5)   |
| 3 | Explain the block diagram of a colour television transmitter                                 | (5)   |
| 4 | Differentiate between PPM and PWM with sketches.   | (5)   |
| 5 | Explain the significance of TDMA for satellite communication?                                | (5)   |
| 6 | Explain the role of earth station in the satellite communication systems?                    | (5)   |
| 7 | With a block schematic explain the operation of GPS.   | (5)   |
| 8 | Explain how cell splitting improves the capacity.  | (5)   |

**PART B**

*Answer any two full questions, each carries 10 marks.*

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|----|--|-----|
| 9  | a) A modulating signal $v_m(t) = 5 \sin(6280 t)$ is used to modulate a carrier signal $v_c(t) = 15 \sin(62800 t)$ . Determine the modulation index, side band frequencies, amplitudes and bandwidth. Also draw the frequency spectrum. | (5) |
|    | b) When do you prefer VSB signals to SSB. Why?   | (5) |
| 10 | a) With a neat schematic explain the function of each block in FM transmitter using Armstrong Modulator.   | (6) |
|    | b) Explain following parameters of Radio receiver: i) adjacent channel selectivity and ii) image frequency rejection.  | (4) |
| 11 | a) Draw typical AGC circuit for a super heterodyne receiver and explain its working.   | (5) |
|    | b) Explain the working principle of a FET reactance modulator for FM generation.   | (5) |

**PART C**

*Answer any two full questions, each carries 10 marks.*

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|----|--|-----|
| 12 | a) Derive the basic radar equation, as governed by the minimum receivable echo power $P_{min}$ . | (5) |
|----|--|-----|

- b) Differentiate between interlaced scanning and progressive scanning. (5)
- 13 a) Draw and explain the block diagram of an HDTV system. (5)
- b) Explain the block diagram of monochrome TV receiver. (5)
- 14 a) State the significance of Nyquist rate in sampling process. (4)
- b) Explain the role of encoder and decoder in PCM. (6)

**PART D**

*Answer any two full questions, each carries 10 marks.*

- 15 a) Differentiate between FDMA and CDMA? (4)
- b) Write notes on step index and graded index fibres. (6)
- 16 a) Explain the schematic diagram of a WiFi cellular architecture. (4)
- b) What is co-channel interference and how is it reduced? (6)
- 17 a) Explain the features of any photodiode as an optic light detectors. (5)
- b) Draw and explain the schematic diagram of a typical optical fibre link. (5)

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**PART B****PART C**