

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.*

- | | | |
|----|--|-----|
| 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.*

- | | | |
|----|--|-----|
| 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)
