

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

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

**Course Code: EE401**  
**Course Name: ELECTRONIC COMMUNICATION**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 5 marks.*

Marks

- |   |  |     |
|---|--|-----|
| 1 | Explain the advantages of FM over AM.  | (5) |
| 2 | What are the factors to be considered in selecting Intermediate Frequency?                       | (5) |
| 3 | Explain the features of interlaced scanning.   | (5) |
| 4 | Illustrate PWM and state the merits and demerits.  | (5) |
| 5 | Give comparison between TDMA and FDMA  | (5) |
| 6 | Explain CDMA referred to satellite communication.  | (5) |
| 7 | Explain the major components in a fibre optic communication link with the help of block diagram. | (5) |
| 8 | Explain the concept of frequency reuse.  | (5) |

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

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|----|--|------|
| 9  | a) Calculate the percentage power saving for the SSB signal if the AM wave is modulated to a depth of (a) 100% and (b) 50%       | (4)  |
|    | b) With the help of block diagram, explain filter method for the generation of SSB AM.   | (6)  |
| 10 | a) Describe the frequency spectra of SSB and VSB signals.  | (4)  |
|    | b) With neat circuit diagram, explain the operation of Balanced slope detector   | (6)  |
| 11 | a) Draw the block diagram of a super heterodyne AM receiver. Describe its operation stating the primary functions of each stage. | (10) |

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

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|----|---|-----|
| 12 | a) Draw the block diagram of a pulsed radar system. Explain the functions of each block.  | (5) |
|    | b) Explain with the help of a neat sketch, the working of a TV picture tube.  | (5) |
| 13 | a) Calculate the maximum range of a radar system which operates at 3cm, with a peak pulse power of 500 kW, if its minimum receivable power is $10^{-13}$ W, the | (4) |

capture area of its antenna is  $5\text{m}^2$  and the radar cross sectional area of target is  $20\text{m}^2$ .

- b) Explain the schematic for PAM generation process using flat top sampling. (6)
- 14 a) Explain the block schematic for PCM generation process. (6)
- b) Explain the principles of differential PCM system? (4)

#### PART D

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

- 15 a) Explain the block diagram of an earth station used for satellite communication. (6)
- b) What are the advantages of optical fibre communication? (4)
- 16 a) Explain any two detectors used in optical fibre communication. (6)
- b) Explain the networking capability of Zig-Bee? (4)
- 17 a) Identify any three features of Bluetooth and explain how does it benefit for wireless applications? (5)
- b) Explain cell splitting technique. (5)

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