**18EID11**

**Hall Ticket Number:**

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| **III/IV B.Tech(Regular / Supplementary) DEGREE EXAMINATION** | | | |
| **January, 2022** | **Electronics and Instrumentation Engineering** | | |
| **Fifth Semester** | **Analog and Digital Communications** | | |
| **Time:** Three Hours | | **Maximum:** 50 Marks | |
| *Answer Question No.1 compulsorily.* | | | (1X10 = 10 Marks) |
| *Answer ONE question from each unit.* | | | (4X10=40 Marks) |
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| 1. | a) | What should be the range of modulation index in AM for demodulating the signal without any distortion? | | CO1 |  |
|  | b) | What is the need for modulation? | | CO1 |  |
|  | c) | Calculate the efficiency of AM wave for 100% Modulation. | | CO1 |  |
|  | d) | What is the significance of Carson’s rule? | | CO2 |  |
|  | e) | What are the types of angle modulation? | | CO2 |  |
|  | f) | Compare AM and FM in terms of BW. | | CO2 |  |
|  | g) | Define bandwidth efficiency | | CO3 |  |
|  | h) | Define source encoder. | | CO3 |  |
|  | i) | Sketch the constellation diagram of BPSK. | | CO4 |  |
|  | j) | Define apogee. | | CO4 |  |
| **Unit –I** | | | | | |
| 2. | a) | With necessary expressions, waveforms and spectrums, Explain AM for an arbitrary baseband signal m(t). | | CO1 | 5M |
|  | b) | A Carrier of 750 W, 1 MHz is amplitude modulated by sinusoidal signal of 2 KHz to a depth of 50%. Calculate Bandwidth, Power in sidebands and total power transmitted | | CO1 | 5M |
| **(OR)** | | | | | |
| 3. | a) | List out the methods for generation of SSB-SC signal and explain any one of the method in detail | | CO1 | 5M |
|  | b) | Compare AM, D.S.B-SC, S.S.B-SC and V.S.B transmission. | | CO1 | 5M |
| **Unit –II** | | | | | |
| 4. | a) | Explain types of pulse analog modulation. | | CO2 | 5M |
|  | b) | Write short notes on Noise. | | CO2 | 5M |
| **(OR)** | | | | | |
| 5. |  | With a neat sketch explain the principle and operation of PCM and mention its advantages. | | CO2 | 10M |
| **Unit –III** | | | | | |
| 6. | a) | Explain linear block codes in detail. | | CO3 | 5M |
|  | b) | Explain about QPSK in detail with waveforms. | | CO3 | 5M |
| **(OR)** | | | | | |
| 7. | a) | Write a shano-fano code algorithm with example. | | CO3 | 5M |
|  | b) | Explain about Convolution codes. | | CO3 | 5M |
| **Unit –IV** | | | | | |
| 8. | a) | | Explain the concept of GSM. | CO4 | 5M |
|  | b) | | Define handoff and explain its types. | CO4 | 5M |
| **(OR)** | | | | | |
| 9. | a) | Explain Satellite Communication in detail. | | CO4 | 5M |
|  | b) | Explain CDMA. | | CO4 | 5M |

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