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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (Automation & Robotics) (2012 & Onwards)
B.Tech. (Electronics & Electrical) (2012 to 2017)
B.Tech. (Electrical & Electronics) (2013 Onwards)

(Sem.-5)

# **COMMUNICATION SYSTEMS**

Subject Code : BTEEE-501

M.Code: 70481

Time: 3 Hrs.

Max. Marks : 60

## **INSTRUCTIONS TO CANDIDATES :**

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

# **SECTION-A**

### Answer briefly :

- 1. What is multilevel phase and amplitude modulation techniques?
- 2. Distinguish between bandpass and baseband transmission.
- 3. State the relationship between modulation index, peak frequency deviation and modulating frequency.
- 4. Distinguish between frequency deviation and carrier frequency swing.
- 5. What is the need of pre-emphasis in frequency modulation?
- 6. Define Nyquist rate and Nyquist Interval.
- 7. What do you mean by data compression?
- 8. Differentiate between coherent, non-coherent and differential-coherent detectors.
- 9. List the advantages of digital representation of analog signal.
- 10. Compare three main SSB generation systems in terms of their characteristics.

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#### **SECTION-B**

- 11. Compare the features of AM, FM and PM
- 12. An AM commercial broadcast-band receiver (535kHz-1605 kHz), an input filter is used with Q- factor of 54. Determine its bandwidth at low and high ends of RF spectrum.
- 13. Explain stereophonic FM broadcast receiver.
- 14. Explain the operation of binary frequency shift keying.
- 15. What do you mean by Multiplexing? Explain with diagram time division Multiplexing.

#### SECTION-C

- 16. What is the significance of noise triangle in FM? Compare the phasor diagram of FM and AM.
- 17. State and prove sampling theorem.
- 18. The equation of an angle modulated voltage  $e = 10 \sin (10^8 t + 3 \sin 10^4 t)$ . What form of angle modulation is this? Calculate the carrier and modulating frequencies, the modulation index and deviation and power dissipated in 100  $\Omega$  resistors.

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NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

**2** | M-70481

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