$\square$ 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.

## SECTION-B

11. Compare the features of AM, FM and PM
12. An AM commercial broadcast-band receiver ( $535 \mathrm{kHz}-1605 \mathrm{kHz}$ ), 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 $e=10 \sin \left(10^{8} t+3 \sin 10^{4} t\right)$. 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.

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.

