No. of Printed Pages : 03 **Roll No. .....**

CC-286

M. Sc. EXAMINATION, Dec. 2017

(Third Semester)

(Main & Re-appear)

PHYSICS

PHY-611-B

Digital Communication

Time : 3 *Hours*] [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Discuss in detail about elements of communication system with their block diagram. **20**

2. Write short notes on the following : **20**

(i) Impulse and step response

(ii) Ideal and real filter

(iii) Power spectral density

(iv) Noise figure.

Unit II

3. (a) State and prove Shannon Hartley Theorem. **10**

(b) Define rate of information and capacity of discrete memory less channel. **10**

4. (a) Discuss communication channel in continuous communication system. **6**

(b) Explain the encoding procedure by convolution codes. **14**

Unit III

5. (a) Compare base band and passband modulation techniques. **8**

(b) Explain amplitude shift keying and frequency shift keying. **12**

6. (a) Discuss different types of MODEM in communication. **6**

(b) Explain block diagram of USART 8251 with its control and status word. **14**

Unit IV

7. Discuss wave propagation in optical fibres. Explain material dispersion and mode propagation. **20**

8. (a) What types of losses are observed in optical fibre communication ? **10**

(b) Discus data communication network. **10**