

AE-116

April-2015

B.Sc., Sem.-VI

ELE-309 : Electronics**(Electronic Communication System)**

Time : 3 Hours]

[Max. Marks : 70

1. What is fiber optics ? How communication takes place in it ? Explain it with necessary diagram and phenomena. Give some advantages of fiber optics communication.

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OR

Explain the following terms with necessary diagram :

- | | |
|------------------|-----------------|
| (i) Dispersion | (iv) Refraction |
| (ii) Diffraction | (v) Scattering |
| (iii) Absorption | |

2. (a) Draw the block diagram of superhetrodyne radio receiver and explain the function of each and every block in detail.

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OR

Draw the block diagram of TRF (Tuned Radio Frequency) receiver and explain its working in detail.

- (b) Define the terms sensitivity, selectivity and image frequency in radio receiver.

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OR

Explain what double spotting is, and how it arises ?

3. Draw the block diagram of a monochrome TV transmitter and describe the camera tube, video amplifiers and sound circuits shown.

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OR

Explain horizontal scanning and vertical scanning with necessary diagrams. Also, explain why blanking pulse is required in TV.

4. (a) Explain the difference between analog and digital signals. Also, draw the functional diagram of a simple microprocessor system and describe the purposes of the various circuit components.

OR

Describe crosstalk and give some possibilities for reducing its effect.

- (b) Describe three kinds of error detection codes and explain how they detect data errors.

OR

Write short note on 'echo suppressors and equalizers in data transmission circuits'.

5. Answer in short :

- (1) What is Intermediate frequency ?
- (2) What do you mean by AGC ?
- (3) A superhetrodyne receiver with an IF of 450 kHz is tuned to a signal at 1200 kHz. The image frequency is _____.
 - (a) 750 kHz
 - (b) 900 kHz
 - (c) 1650 kHz
 - (d) 2100 kHz
- (4) Give full form of ASCII.
- (5) Define 2's compliment and show one example of it.
- (6) What is the function of shift register ?
- (7) Which code is used for parity check ?
- (8) What is full form of 'EBCDIC' ?
- (9) How many number of frames per second in the U.S. Television system ?
- (10) What do you mean by 4:3 aspect ratio in Television ?
- (11) What is critical angle ?
- (12) Write Snell's law for refraction of light.
- (13) What is luminescence ?
- (14) What do you mean by diffuse reflection ?