

Seat No. : _____

SK-119

September-2020

B.Sc., Sem.-VI

CC-309 : Electronics

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (i) All questions in Section-I carry equal marks.
 - (ii) Attempt any **three** questions in Section-I.
 - (iii) Question-9 in Section-II is compulsory.

Section – I

1. Write the following :
 - (A) Draw diagram and explain reflection and refraction. 7
 - (B) Draw diagram and explain light scattering, critical angle and Fresnel reflection. 7

2. (A) Draw diagram and explain dispersion and diffraction. 7
(B) Explain Snell's Law with equation and diagram. Calculate critical angle of incidence between two substances with different refractive indices where $n_1 = 2$ & $n_2 = 1.927$. 7

3. Write the following :
 - (A) Draw the superheterodyne receiver and explain it in detail. 7
 - (B) How is the IF selected ? Draw the circuit of a two-stage IF amplifier and explain it. 7

4. (A) Draw the TRF receiver and explain it in detail. 7
(B) Explain operation of diode detector and principles of simple AGC. 7

5. Write the following :
 - (A) Draw and explain basic monochrome TV system transmitter and receiver. 7
 - (B) With diagram explain horizontal and vertical scanning of TV system. 7

6. (A) With the help of waveforms explain horizontal & vertical sync separation. 7
 (B) Explain blanking pulses with TV video waveform. 7
7. Write the following :
 (A) Discuss the difference between analog and digital signals. 7
 (B) Explain Parity-check Codes in detail. 7
8. (A) Explain binary code in detail with diagrams. 7
 (B) Explain noise and crosstalk in data transmission circuits. 7

Section – II

9. Attempt any **Eight** : 8
- (A) Fiber is immune to interference from lighting, crosstalk, and _____ radiation.
- (B) Light has wavelength range between _____ μm and $0.7 \mu\text{m}$.
- (C) Reflections in many directions are called _____ reflection.
- (D) The refractive index is defined as $n =$ _____.
- (E) The sensitivity of a radio receiver is its ability to amplify _____ signals.
- (F) The selectivity of a receiver is its ability to _____ unwanted signals.
- (G) Image frequency is defined as the signal frequency plus twice the _____ frequency.
- (H) Modulation index in demodulated wave is defined as $m_d =$ _____.
- (I) The beam intensity is affected by the _____ on the screen at that point.
- (J) The information applied to the _____ coils is in the form of a sawtooth wave.
- (K) Difference between the blanking level and the blank level is known as the _____ interval.
- (L) VHF tuner must cover the frequency range from 54 to _____ MHz.
- (M) An analog signal is best illustrated by a _____ wave.
- (N) Echo suppressors or echo _____ are used on long distance circuits.
- (O) _____ code is a 5-bit code used in telegraphy and paper-tape systems.
- (P) ASCII code is based on a _____ progression.