Con. 3064-11.   (REVISED COURSE)   RK-2619

(3 Hours)   [Total Marks : 100

N.B. : (1) Question No. **1** is **compulsory**.

(2) Attempt any **four** questions out of remaining **six** questions.

(3) Assume **suitable** data if **required**.

(4) **Figures** to the **right** indicate **full** marks.

1. Attempt any **four** questions :—   20

(a) Explain interlaced scanning with block diagram.

(b) Give applications of LEO, MEO and GEO satellites.

(c) What is Doppler Effect ? How is it made use of in radar ?

(d) Find the length of a half wave dipole at 0·06 GHZ, 0·6 GHZ and 6 GHZ.

(e) Explain different fiber losses.

2. (a) Define and explain the terms :—   10

  (i) Apogee   (ii) Perigee   (iii) Ascending Node

  (iv) Descending Node   (v) Major axis and Minor axis.

(b) Explain clearly the working principles of various multiple communication systems   10
  (TDMA, FDMA and CDMA).

3. (a) Draw a composite video signal for atleast three successive lines and explain   10
  the different signal components present in it.

(b) Explain PAL encoder and decoder with neat block diagram.   10

4. (a) Explain the difference between driven and parasitic elements in an antenna array.   10
  Describe Yagi Uda antenna and log periodic antenna with respect to their radiation
  pattern, dipole spacing, dipole lengths and applications along with the sketch.

(b) What is UHF and Microwave antenna ? Explain parabolic reflector antenna with   10
  different types of feed.

5. (a) Explain pulsed dopper radar and MTI radar with neat block diagram. 10

   (b) What are the radar performance factors ? 5

   (c) Calculate the maximum range of a radar system, which operates at 4cm with a 5
   pick pulse power of 500 kW, if it's minimum receivable power is 10^{-13} W, the
   capture area of its antenna is 4 m^2 and the radar cross sectional area of the target is 20 m^2

6. (a) Explain different optical sources and optical detectors with suitable diagrams. 10

   (b) Justify selection of 4·43 MHz as colour subcarrier frequency. 5

   (c) What is half line discrepancy in TV system ? How it is overcome ? 5

7. Write short notes (any **three**) :— 20

   (a) Kepler's Laws

   (b) Plasma and LCD TV

   (c) Look angles

   (d) Antenna coupling.