Brahma Valley College of Technical Education, Anjaneri, Nashik
Prelim Exam

Course & Code: EJ6E **Date:** 11/03/2014
Subject: ACS(12271) **Time:** 9.30 am to 12.30 pm

1. A) Attempt any three : (12 Marks)

a. Define cutoff frequency, group velocity, guide wave length and phase velocity of a wave guide and write its formula.
b. List the applications of reflex klystron and magnetron (4 applications each).
c. What is radar ? State the factors affecting maximum radar range.
d. Define Azimuth and Elevation angle of commn. system. List the orbit of satellite and explain any one.

B) Attempt any one : (8 Marks)

a. Draw and explain 2 cavity klystron amplifier, its principle of operation, working and give any four application.
b. Explain the working of MTI radar with the help of block diagram and with suitable waveform.

2. Attempt any four : (16 Marks)

a. State how fibers are classified. Explain any two with its diagram.
b. Compare transmission line with wave guide on the basis of frequency range, power handling capacity, fading and applications in detail.
c. Draw the construction of E-H Plane Tee and explain its working.
d. State the display methods of radar and explain any one with the diagram.
e. Explain (1) wave guide bends (2) wave guide corner with suitable diagram.

3. Attempt any four : (16 Marks)

a. What is wave guide ? Explain TE and TM mode in rectangular wave guide.
b. A rectangular wave guide has a dimension of a = 4 cm and b = 3 cm; f = 5 GHz. Find the possible mode which exists in the rectangular wave guide.
c. What is meant by splicing technique ? Explain it with diagram. Explain any one splicing technique.
d. Explain different types of Bending loss and dispersion loss in FOC.
e. Draw the block diagram of OTDR. Explain its working and state any 2 applications.

4. a) Attempt any two : (8 Marks)

a) Draw the block diagram of pulsed radar and explain its working.
b) Draw and explain the cross sectional diagram of FOC. List any four advantages of FOC.
c) Compare LED and LASER (8 valid each points).

b) Attempt any one : (8 Marks)

a. Draw the block diagram of satellite sub system. Explain any two sub system
b. Draw and explain the construction of Gunn diode. State two applications of Gunn diode.

5. Attempt any four : (16 Marks)

a) Explain foot print and station keeping. Give four advantages of Geostationary satellite.
b) Explain different types of attenuation and scattering loss in FOC.
c) A silica optical fiber has a refractive index of 1.50 and cladding refractive index of 1.47. Find (a) Critical angle (b) Numerical aperture of the fiber (c) Acceptance angle.
d) Draw electromagnetic spectrum, show the light wave spectrum and explain.
e) Sketch the block diagram of fiber optic communication. State functions of each block.

6. Attempt any four : (16 Marks)

a) Explain the applications of FOC in industrial and commercial field.
b) Explain the construction and working of photo diode with neat diagram.
c) Why dominant mode is preferred for transmission of wave through wave guide? Give an example. Whether TEM mode exists in wave guide ? Explain in detail.
d) State 4 methods of Radar scanning. What is radar Bacon ? Give any two applications.
e) What is uplink and downlink freq.? Why both are having different frequencies? Writeite uplink and downlink frequencies for C band, X band, Ku band and Ka band.