Enrollment No……

Bachelor of Engineering
Seventh Semester Main Examination, Dec-2020
Satellite Communication [EC702]
Branch: EC

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of eight.
2. All question carry equal marks.

Q.1 (a) What is polarization of an antenna? Also explain linear polarization and elliptical polarization.
(b) Describe and explain different steps involved in launching a Geostationary satellite.

Q.2 (a) Define Apogee and perigee.
(b) Define Kepler's laws of orbiting bodies and derive an equation to show the third law is true for any orbiting satellite.

Q.3 (a) How does the earth coverage provided by a satellite depend upon its altitude?
(b) Explain sun transit outage.

Q.4 (a) Explain TDMA frame structure and synchronization in TDMA network?
(b) Distinguish between multiple accesses and multiplexing.

Q.5 (a) Why is it preferable for a remote sensing satellite to be in a sun-synchronous orbit?
(b) Describe the characteristics and uses of geostationary orbit.

Q.6 (a) With the help of block schematic explain in detail TT and C (Tracking, Telemetry and Command) Subsystem.
(b) What are the factors that affect the link design of a satellite?

Q.7 (a) What is antenna gain to noise temperature (G/T) ratio. What is the significance of Earth stations antenna gain to noise temperature ratio?
(b) Mention the services available from DBS system?

Q.8 (a) Why thermal control is used in space segment?
(b) What are the important components of an earth station?

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Bachelor of Engineering
Seventh Semester Main Examination, Dec- 2020
Optical Communication [EC703]
Branch: EC

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of eight.
2. All question carry equal marks.

Q.1 (a) Discuss the merits of optical communication.
(b) Discuss about the single mode fiber and graded index fiber.

Q.2 (a) Discuss about photonic crystal fibers.
(b) Explain MCVD technique for fabricating of optical fibers.

Q.3 (a) Discuss about the principle working of LED. Also explain the quantum efficiency.
(b) Discuss about fiber splicing techniques.

Q.4 (a) Explain the principle working LASER source.
(b) Discuss about different causes of attenuation in fibers.

Q.5 (a) Discuss the principle working of Avalanche photodiode.
(b) Derive the expression of detector response time.

Q.6 (a) Discuss about digital receiver performance and also explain eye diagram.
(b) Discuss the principle of link power budget calculation.

Q.7 (a) Discuss the principle working of passive optical star couple, isolator and circulators.
(b) Explain the principle working of Erbium doped fiber amplifier.

Q.8 (a) Explain the Burst mode receiver and MEMS technology.
(b) Discuss about the OTDR.

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Bachelor of Engineering

Seventh Semester Main Examination, Dec-2020

Microwave Engineering [EC704]

Branch: EC

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of eight.
2. All question carry equal marks.

Q.1 (a) What are waveguides? Explain the propagation of electromagnetic wave in a rectangular waveguide.
(b) How do TEM and TE wave differ? Explain strip line and micro strip lines.

Q.2 (a) Explain the working of directional coupler. Derive its scattering matrix.
(b) Explain various modes of Gunn oscillators operation. What do you mean by Gunn effect?

Q.3 (a) Explain the principle of working of reflex klystron oscillator.
(b) Define the explain VSWR. Explain the double minimum method of measuring VSWR.

Q.4 (a) Write about Detector mounts with suitable diagram?
(b) Explain the principle of operation of E- plane Tee. Also write down its properties.

Q.5 (a) What do you mean by Rising sun cavity and strapping? Explain.
(b) Wrote short note on: (i) PIN Diodes (ii) Parametric Amplifier

Q.6 (a) Differentiate between planar and cylindrical magnetrons?

(b) What are ferrites? Why are these useful in microwave?

Q.7 (a) What is dominant mode and degenerate mode? What are the techniques for limitations of modes in a rectangular waveguide?
(b) Explain the working of TWT. Why does the TWT need a slow wave structure?

Q.8 (a) Explain how can the power of a microwave generator be measured using Bolometer.
(b) Explain TRAPATT and LASER.

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Bachelor of Engineering
Seventh Semester Main Examination, Dec-2020
Computer Networks [EC705]
Branch: EC

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of eight.
2. All questions carry equal marks.

Q.1 (a) Write any two difference between connection oriented and connectionless service?
(b) What is computer network and how it is different from distributed system.

Q.2 (a) State the 7 layers of the OSI model in the correct order and briefly describe the function of each layer
(b) Explain sliding window protocol? Define Go-back N protocol in detail?

Q.3 (a) What is difference between Slotted ALOHA and pure ALOHA?
(b) How does CSMA/CD differ from CSMA/CA?

Q.4 (a) What are the functions performed by data link layer? Discus flow and error control protocols in Data Link Layer.
(b) Explain the design issues of network layer.

Q.5 (a) Explain the following protocol:
(i) SDLC (ii) LAP & LAPB
(b) How adaptive tree walk protocol works?

Q.6 (a) Explain the mechanism of stop and wait ARQ?
(b) Explain IPv4 Header Format with neat sketch and difference between IPv4 and IPv6 Protocol.

Q.7 (a) What are the advantages of Internet TCP/IP model over OSI model?
(b) Explain the difference between TCP and UDP protocols.

Q.8 (a) Write a short note on:
(i) HTTP (ii) DNS (iii) FTP

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Bachelor of Engineering
Seventh Semester Main Examination, Dec-2020
Wireless Communication [EC7011]

Branch: EC

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of eight.
2. All question carry equal marks.

Q.1 (a) Discuss about Bit Error rate.
(b) What is RAKE receiver.

Q.2 (a) Discuss outage probability.
(b) Discuss about Micro diversity, macro diversity and simulcast.

Q.3 (a) Discuss about multipath propagation and spectrum limitation in wireless communication.
(b) Discuss about the free space loss, diffraction and scattering by rough surfaces during propagation.

Q.4 (a) Discuss about time invariant and variant two path models.
(b) Discuss about WSSUS model.

Q.5 (a) Explain small scale fading with and without a dominant component.
(b) Explain Doppler spectra and temporal dependence of fading.

Q.6 (a) Explain the deterministic channel modeling methods.
(b) Explain time domain measurements of channel sounding.

Q.7 (a) Explain about Narrow band, Wide band and Directional channel models.
(b) Explain briefly about antennas for base stations.

Q.8 (a) Discuss about error probability in AWGN channels.
(b) Discuss about error probability in delay and frequency dispersive fading channels.