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B.E.(Electronics and Tele Communication)
(Semester - VIII) (Old) Examination, November- 2019
BROAD BAND COMMUNICATION
Sub. Code : 49517

Day and Date : Thursday, 14- 11 - 2019

Total Marks : 100

Time : 2.30 p.m to 5.30 p.m.

- Instructions :
- 1) All questions are compulsory.
 - 2) Figures to right indicate full marks.

SECTION - I

- Q1) a) Draw and explain B ISDN protocol reference model. [9]
b) Draw and explain ISDN architecture. [9]
- Q2) Solve any two of the following:
- a) Draw and explain ISDN Interworking. [8]
 - b) Explain in detail B-ISDN physical layer [8]
 - c) State and explain various B-ISDN services. [8]
- Q3) Solve any two of the following.
- a) Draw and explain ISDN transmission structure. [8]
 - b) Explain in detail SONET. [8]
 - c) State and explain various switching techniques used in ISDN. [8]



P.T.O.

SECTION - II

- Q4) a) Discuss various requirements of ATM traffic and congestion control. [9]
b) State and explain various AAL services. [9]

Q5) Solve any two of the following.

- a) Draw and explain header format of ATM cell for NNI. [8]
b) Draw and explain ATM switching building block. [8]
b) State and explain VP and VC switching. [8]

Q6) Solve any two of the following.

- a) Discuss in detail ATM service categories. [8]
b) Explain in detail congestion control. [8]
c) State performance aspects of buffering switching networks in ATM. [8]



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B.E.(Electronic and Telecommunication) (Semester - VIII)

Examination, November- 2019

WIRELESS MOBILE COMMUNICATION (Revised)

Sub. Code :67817

Day and Date : Thursday, 14- 11 - 2019

Total Marks : 100

Time : 2.30 p.m to 5.30 p.m.

- Instructions :
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Assume suitable data if necessary.

Q1) Attempt any two.

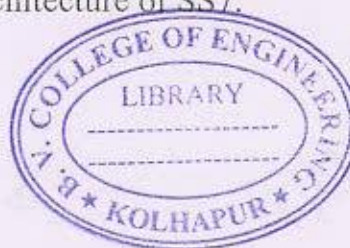
[16]

- a) Explain free space propagation model in wireless communication.
- b) What is fading? Discuss fading types along with its causes.
- c) Explain Global Cellular Network Interoperability.

Q2) Attempt any two.

[16]

- a) A mobile located 5km away from the BS and uses a vertical $\lambda/4$ monopole antenna with a gain of 2.55 dB to receive cellular radio signals. The E field at 1 km from transmitter is measured to be 10^{-3} V/m. The carrier frequency used for the system is 900 MHz.
 - i) Find the length and the effective aperture of the receiving antenna
 - ii) Find the received power at the mobile using the two-ray ground reflection model assuming the $h_t=50\text{m}$ & $h_r=1.5\text{m}$ above ground.
- b) Explain following terms with respect to mobile multipath channels
 - i) Coherence Bandwidth
 - ii) Doppler Spread
- b) Draw and explain protocol Architecture of SS7.



P.T.O.

Q3) Write notes on any three.

[18]

- a) Signal penetration into buildings.
- b) Rayleigh's fading Distribution
- c) Common Channel Signaling
- d) ISDN

Q4) Attempt any two.

[16]

- a) Give the details of evolution of public mobile & personal communication.
- b) What are hybrid spread spectrum techniques? Explain.
- c) Explain FHSS & DSSS offered by IEEE802.11.

Q5) Attempt any two.

[16]

- a) Draw & explain Bluetooth security component & protocol architecture.
- b) Explain agent advertisement & packet format.
- c) Give the details of traditional & indirect TCP.

Q6) Write notes on any three.

[18]

- a) Transmission / time out freezing & Retransmission.
- b) Tunneling & Encapsulation.
- c) Space division multiple access (SDMA).
- d) Bluetooth protocol stacks.



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B.E.(E.T.C.) (Part - IV) (Semester - VIII)

Examination, November 2019

VIDEO ENGINEERING

Sub. Code :67816

Day and Date :Wednesday , 13-11-2019

Total Marks :100

Time : 2.30 p.m.to 5.30 p.m.

- Instructions :**
- 1) All questions are compulsory
 - 2) Assume suitable data if necessary
 - 3) Figures to the right indicate full marks.

Q1) Solve any two [16]

- a) Explain need of VSB transmission & what is positive and negative modulation?
- b) Draw and explain vertical sync Pulses for even field scanning of television transmission.
- c) State CCIR -B standards for black and white picture transmission.

Q2) Solve any two [16]

- a) Explain with neat block diagram PAL-D decoder.
- b) With neat diagram explain chromaticity Diagram.
- c) Explain generation of luminance and color difference signals.

Q3) Solve any two [18]

- a) Explain signal quantization and encoding in DTV system.
- b) With suitable diagram explain delta gun color picture tube and discuss its drawbacks.
- c) Explain the terms (1) Hue (2) Saturation (3) Automatic degaussing (4)Purity and convergence.



P.T.O.

Q4) Solve any two [16]

- a) What is stereoscopic effect? Explain basic arrangement of 3D - TV system .
- b) Define MAC signals. Explain in detail D2MAC Packet signal
- c) Explain HDTV System in detail.

Q5) Solve any two [16]

- a) Compare LCD performance with plasma
- b) Explain CATV in detail.
- c) What are the applications of CCTV? Explain in detail line powered and mains powered CCTV system.

Q6) Write short note (Any three) [18]

- a) Video conferencing
- b) LED TV
- c) Block converter
- d) Video phone.



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B.E. (Electronics and Telecomm.) (Part - IV) (Semester - VII)
Examination, November - 2019
SATELLITE COMMUNICATION
Sub. Code : 67628

Day and Date : Saturday, 23 - 11 - 2019

Total Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Draw diagrams wherever necessary.
 - 4) Use of nonprogrammable calculator is allowed.

SECTION - I

Q1) Answer any two from the following: [16]

- a) Derive the equation of time period of a satellite, when it is revolving in circular orbit.
- b) Explain Telemetry, tracking, command and monitoring system with the help of block diagram.
- c) A satellite at a distance of 40,000 km from a point on the earth's surface radiates a power of 10 W from an antenna with a gain of 17 dB in the direction of observer. Find the flux density at the receiving point and power received by antenna at this point with an effective area of 10 m².

Q2) Answer any two from the following: [16]

- a) Derive the link equation. Explain how it is essential for the calculation of power received in radio link. How this equation can be extended to accommodate antenna losses and atmospheric attenuation
- b) The earth rotates once per sidereal day of 23hr 56min 4.09sec. Using equation of orbital period, show that the radius of GEO is 42,164.17 km
- c) Explain the need of attitude control and brief about forces acting on a satellite



P.T.O.

Q3) Answer any two from the following:

[18]

- a) Suppose we have a 4-GHZ receiver with the following gains and noise temperature:

$$T_{in} = 25K \quad G_{RF} = 23 \text{ dB} \quad T_{IF} = 1000K$$

$$T_{RF} = 50K \quad G_{IF} = 30dB \quad T_m = 500K$$

Calculate the system noise temperature assuming that the mixer has a gain $G_m = 0$ dB. Recalculate the system noise temperature when the mixer has 10 dB loss. How can the noise temperature of the receiver be minimized when the mixer has a loss of 10 dB?

- b) List all the satellite subsystems and explain them in short
- c) Write a note on -
- Orbital Perturbations
 - Orbital effects in communications systems performance
 - Molniya orbit

SECTION - II

Q4) Answer any two from the following:

[16]

- a) Explain with the help of diagram, satellite network components.
- b) Explain Orbit considerations for elliptical orbit and inclined orbits.
- c) Explain in detail C-band and Ku-Band Home satellite TV.

Q5) Answer any two from the following three

[16]

- a) Write a note on satellite network topologies- mesh and star.
- b) What is the significance of Molniya and Sun synchronous orbits?
- c) Explain satellite radio broadcasting.

Q6) Answer any two from the following three

[18]

- a) Explain in detail- satellite on board connectivity with transparent processing.
- b) Explain Delay and throughput considerations in the satellite communication links.
- c) Which are the codes used in GPS receivers? Explain in detail.

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B.E. (Electronics and Telecommunication) (Semester - VII)

Examination, November - 2019

EMBEDDED SYSTEMS

Sub. Code : 67629

Day and Date : Tuesday, 26 - 11 - 2019

Total Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

- Instructions :**
- 1) All questions are compulsory.
 - 2) Figure to right indicate full marks.
 - 3) Assume suitable data if necessary.

Q1) Attempt any two of the following:

[2×8=16]

- a) Explain memory organization of PIC microcontroller.
- b) Explain status and option registers of PIC microcontroller.
- c) Write a program to generate a square wave at RB0 pin with 50% duty cycle.

Q2) Attempt any two of the following:

[2×8=16]

- a) Draw and explain timer 2 module of PIC 16F877 with control words.
- b) Explain reset circuit of 16F877.
- c) Explain SPI mode of serial communication in 16F877.

Q3) Attempt any two of the following:

[2×9=18]

- a) Explain Embedded System Design flow.
- b) Explain issues during software development process of the embedded system.
- c) Explain components of Embedded System.



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Q4) Attempt any two of the following:

[2×8=16]

- a) Draw the Explain arm core data flow model.
- b) Explain Barrel shifter and ALU block in ARM with different barrel shifter Instructions.
- c) Explain Pipeline structure in ARM7.

Q5) Attempt any two of the following:

[2×8=16]

- a) Draw and Explain Architecture Block diagram of ARM7TDMI.
- b) Write the features of timer and explain wake up timer of ARM7.
- c) Interface 16*2 LCD to ARM and write Embedded c Program to display. "SHIVAJI UNIVERSITY" on it.

Q6) Attempt any two of the following:

[2×9=18]

- a) Draw and Explain Task state Diagram also explain Task scheduling.
- b) What is scheduler explain with pseudo code function queue scheduling in detail.
- c) What are semaphores? Explain the role of semaphores in shared data.



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B.E (Electronics and Telecommunication) (Semester-VIII)**Examination, November- 2019****OPERATING SYSTEM****Sub. Code :67822****Day and Date : Tuesday, 19- 11 - 2019****Total Marks : 100****Time : 2.30 p.m. to 5.30 p.m.**

- Instructions :
- 1) All questions are compulsory.
 - 2) Figure to the right indicates full marks.
 - 3) Use suitable data if necessary.

SECTION -I**Q1) Answer any two. [16]**

- a) List the services provided by an Operating system?
- b) Compare preemptive and non-preemptive algorithm
- c) What are the four conditions for deadlock? What if one of them is removed?

Q2) Attempt any two: [16]

- a) What are the benefits of multithreaded programming?
- b) What is the need of process synchronization ? Explain the race condition.
- c) What is a safe state and what is its use in deadlock avoidance?

Q3) Attempt any two: [18]

- a) What are different techniques to resolve mutual exclusion? Explain briefly?
- b) List out the various process states and briefly explain with a state diagram.
- c) Explain mechanism of message-passing for inter process communication?

P.T.O.

SECTION - II

Q4) Answer any two: [16]

- a) In fixed partitioning scheme, what are advantages of unequal size partitions?
- b) What are the methods for free space management?
- c) Explain basic method for implementing paging in memory management.

Q5) Attempt any two: [16]

- a) Explain file system? What are components of file system?
- b) Explain in detail the allocation and freeing the file storage space.
- c) Explain in detail internal and external fragmentation.

Q6) Attempt any three: [18]

- a) Write short note on disk caching.
- b) What is disc scheduling? List various disc scheduling algorithms.
- c) Explain the requirements of RTOS and Multimedia OS.
- d) Explain various Cache replacement policies.

