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Seat No.	

B.E. (Electronics) (Part - II) (Semester - VII) (Revised) Examination, April - 2018

EMBEDDED SYSTEM DESIGN

Sub. Code : 67527

Day and Date : Wednesday, 25- 4 - 2018 **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 - A

Q1) Solve any three

a) Classify following three cases in to three types of embedded systems and discuss method to design those system 1. Blood pressure monitoring system 2. Adaptive cruise control 3, ATM machine. **[6]**

b) Discuss ARM 7 register set and usage of each. **[6]**

c) Discuss method of switching from USER mode to SYSTEM mode. **[6]**

d) Discuss important features of RS 485 protocol and compare it with RS422. **[6]**

Q2) Solve any two

a) What will be outcome of execution of following instruction **[8]**

i) SUB R4,R5,R7,LSR R2

ii) STR R1,[R2],R4

iii) LDREQB R1,[R6,#5]

iv) LDMFD SP,!{R15}

v) MLAEQS R1,R2,R3,R4

vi) MSR CPSR_FLG,#0×F0000000

vii) BLCC sub

viii) ADD R1, R2, #0×70, LSR#3

b) Explain nested call operation in ARM with suitable example. **[8]**

c) Demonstrate use of SWI instruction with suitable example. **[8]**

P.T.O.

Q3) Solve any two:

a) Draw frame format of standard CAN bus protocol and discuss each field. **[8]**

b) With suitable timing diagram discuss 12C bus arbitration process. **[8]**

c) With suitable example explain use of PUSH and POP instruction usingLR and PC in respective instructions when ARM is in thumb state. **[8]**

SECTION - B

Q4) Answer any three of the following: **[18]**

a) Explain the role of AHB-APB Bridge and APB divider in LPC 2148.

b) Explain various functional blocks used by Memory Acceleration Module on LPC 2148.

c) Explain, the operation of Brown Out Detect facility provided on LPC 2148

d) Explain various types of resets used on LPC 2148.

Q5) Answer any two of the following: **[16]**

a) Explain how the power control is implemented on LPC 2148 with related registers.

b) Explain the capture operation of timer, also explain role of capture registers and capture control register for timer in LPC 2148.

c) Write a short note on A to D converters available on LPC 2148. Explain Burst mode operation.

d) Explain the operation of Boot loader on LPC 2148.

Q6) Answer any two of the following: **[16]**

a) Explain different task scheduling algorithms.

b) Explain working mechanism followed by Mutex.

c) Explain role of mailboxes and message queues in inter task synchronization and communication.

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Total No. of Pages : 2

Seat No.	

B.E. (Electronics) (Part - IV) (Semester - VIII) Examination, May - 2018

POWER ELECTRONICS & DRIVES

Sub. Code: 67779

Day and Date : Friday, 11 - 05 - 2018 **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 & state it clearly.**
4) **Use of non-programmable calculator is allowed.**

SECTION - I

Q1) Solve any two of the following: **[18]**

a) Explain the working of three phase semiconvertor with neat diagram and wave form for $\alpha \leq \pi/3$. Derive the equation for vdc and vrms for $\alpha \leq \pi/3$.

b) A three-phase fully-controlled bridge converter is connected to 415V. Supply, having a reactance of 0.3Ω phase and resistance of 0.05Ω/ phase. The converter is working in the inversion-mode at a firing advance angle of 35°. Compute the average generator voltage. Assume Id = 60A and thyristor drop = 1.5V.

c) With neat circuit diagram & waveforms explain the effect of source Inductance on the performance of 3 phase full converter.

Q2) Solve any two of the following: **[16]**

a) Explain in detail 120° mode of conduction of three phase IGBT based inverter.

b) Explain the different harmonic reduction, reduction techniques in three phase inverter.

c) List out the voltage control methods for three phase inverters and explain any one in detail.

P.T.O.

Q3) Solve any two of the following: **[16]**

a) Draw and explain single phase to single phase cyclo converter for non circulating mode operation.

b) Draw and explain three phase to single phase cyclo converter for circulating current mode operation. Also draw wave forms.

c) Discuss in details the harmonic reduction techniques for cyclo converter along with waveforms.

SECTION - II

Q4) Solve any two: **[16]**

a) Compare A.C. & D.C. drives.

b) Explain speed control of separately excited DC motor using chopper controlled D.C. drive with appropriate waveform.

c) Explain speed control of induction motor by static rotor resistance control.

Q5) Solve any two: **[16]**

a) What are different types of D.C. motors depending on field connections. Explain the performances.

b) A 200V motor (separately excited) runs at 1500rpm at no load. When armature draws full load current of 20 Amp. Assume that at no load armature current is zero & armature resistance Ra = 1Ω. Then find the duty cycle (ratio) for N = 1000rpm, I/P voltage of D.C. chopper is 200V.

c) Name different braking methods used in induction motor? Explain dynamic braking system in detail with circuit diagram.

Q6) Solve any three: **[18]**

a) Explain rotor resistance starter.

b) Draw & explain static scherbius drive along with speed torque curves.

c) Types of 3 phase induction motors.

d) Explain the operation of a four quadrant chopper DC drive.

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Seat No.	

B.E. (Electronics) (Part - IV) (Semester - VII) (Revised) (New) Examination, April - 2018

COMPUTER NETWORK

Sub. Code : 67528

Day and Date : Thursday, 26 - 04 - 2018 **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 necessary data wherever required.**

SECTION - I

Q1) Solve **any two**: **[16]**

a) Draw OSI model & explain in brief the functions at each layer.

b) With a neat schematic explain GO-Back-N ARQ technique for the lost frame operation.

c) With a suitable schematic explain Link State Routing protocol.

Q2) Solve **any two**: **[16]**

a) What is traffic shaping? Explain Leaky bucket algorithm.

b) Draw a frame format of IEEE 802.3 & explain each field.

c) Compare TCP/IP reference model with OSI model.

Q3) Write short notes on (any three) **[18]**

a) CSMA/CA technique

b) i) Hub ii) Router

c) IPV-6 header format

d) Dijkstra's algorithm

P.T.O.

SECTION - II

Q4) Attempt **any two**: **[16]**

a) Explain UDP datagram format.

b) Explain the various TCP services.

c) Explain the principle of congestion control in TCP.

Q5. Attempt **any two**: **[18]**

a) Discuss how SMTP works? Can multimedia message be transmitted using SMTP?

b) Note on 'Header format of HTTP'.

c) Explain the different control connection and data connection in FTP.

Q6. Attempt **any two**: **[16]**

a) Explain the message integrity using MAC.

b) Explain the substitution cipher with an example.

c) Write short note on symmetric key cryptography.

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Total No. of Pages : 2

Seat No.	

B.E. (Electronics Engineering) (Semester - VIII)
(Pre-revised Syllabus) Examination, May - 2018
WIRELESS COMMUNICATION NETWORK
Sub. Code: 67778

Day and Date : Monday, 07 - 05 - 2018 **Total Marks : 100**
Time :2.30 p.m. to 5.30 p.m.

Instructions : **1)** **All questions are compulsory.**
2) **Use suitable assumptions if required.**
3) **Draw necessary figures on right side of answer sheet.**

Q1) Solve any three: **[18]**

a) What is handoff? Explain the various types of Handoff processes available.

b) Assume that 50 MHz is available for forward channels, and you will deploy GSM. Each channel is 200 kHz, but using TDMA, 8 simultaneous calls can be made on each channel. How large is k? How many forward calls can be made simultaneously for the cellular system with N=4.

c) Explain the Signal processing in GSM.

d) Explain the Challenges in wireless networking.

Q2) Solve any two: **[16]**

a) Draw and Explain the Frame structure for GSM.

b) Compare between FDMA, TDMA, and CDMA.

c) Compare 2G and 3G wireless Networks.

P.T.O.

Q3) Solve any two: **[16]**

a) Explain the GSM system architecture with neat sketch.

b) Differentiate Fixed and Dynamic channel assignment strategies.

c) Explain in detail cell splitting and Sectoring. Define co-channel reuse ration in detail.

Q4) Attempt any two: **[16]**

a) Compare single cell WLAN configuration with multiple cell WLAN configuration.

b) Explain functions and components of the WAP architecture.

c) What is MESs, MDBS, MDIS & CDPD handover in concern with CDPD architecture?

Q5) Attempt any two: **[16]**

a) What are different frames used in IEEE 802.11. Explain its use with formats.

b) What is WML? Explain its features in detail.

c) Draw neat diagram of GPRS system architecture and explain it in detail.

Q6) Write notes on (Any Three): **[18]**

a) Wireless Datagram Protocol.

b) EDGE.

c) Bluetooth device addresses.

d) Infrastructure based and ad hoc networks.

EEE

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Total No. of Pages : 2

B.E. (E&TE) (Semester - VII) Examination, April - 2018

EMBEDDED SYSTEMS (Revised)

Sub. Code : 67629

Day and Date : Wednesday, 25 - 04 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 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 of the following : **[2×8=16]**

a) Explain memory organization of PIC microcontroller. Also explain pipelining concept.

b) Draw and explain various CPU Register of PIC microcontroller.

c) Explain TRISE register in PIC and Write an assembly language program to complement PORT D continuously.

Q2) Attempt any two of the following : **[2×9=18]**

a) Draw and Explain Block diagram of Timer 2 of PIC16F877.

b) Draw and Explain Compare Mode of PIC 16F877 also explain CCPxCON register.

c) Draw and explain different Oscillator configuration of PIC16F877.

Q3) Attempt any two of the following : **[2×8=16]**

a) Draw and Explain Embedded System Design flow.

b) Explain characteristics of Embedded system.

c) Explain software development process and tools in Embedded System.

Q4) Attempt any two of the following : **[2×8=16]**

a) Draw and explain the format of CPSR in ARM7?

b) Draw and explain ARM core data flow model.

c) Explain exceptions and interrupts in ARM7 with vector table.

P.T.O.

Q5) Attempt any two of the following: **[2×9=18]**

a) Write an embedded C program for LPC2148 to display **'EMBEDDED SYSTEMS'** on LCD.

b) Write an embedded C program for LPC2148 to toggle the LED's connected to pins P0.0 to P0.7 for 100 times.

c) List the features of I/O ports in LPC2148. Also give the names and use of all SFR's associated with I/O ports in LPC2148.

Q6) Attempt any two of the following : **[2×8=16]**

a) What is shared data explain with example? Explain the problems due to shared data.

b) Explain with pseudo code explain Function Queue Scheduling software architecture.

c) Write the pseudo code and explain the concept of RTOS.

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Total No. of Pages : 2

B.E. (E&TE) (Semester - VII) Examination, April - 2018

EMBEDDED SYSTEMS (Revised)

Sub. Code : 67629

Day and Date : Wednesday, 25 - 04 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 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 of the following : **[2×8=16]**

a) Explain memory organization of PIC microcontroller. Also explain pipelining concept.

b) Draw and explain various CPU Register of PIC microcontroller.

c) Explain TRISE register in PIC and Write an assembly language program to complement PORT D continuously.

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b) Explain characteristics of Embedded system.

c) Explain software development process and tools in Embedded System.

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a) Draw and explain the format of CPSR in ARM7?

b) Draw and explain ARM core data flow model.

c) Explain exceptions and interrupts in ARM7 with vector table.

P.T.O.

Q5) Attempt any two of the following: **[2×9=18]**

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b) Write an embedded C program for LPC2148 to toggle the LED's connected to pins P0.0 to P0.7 for 100 times.

c) List the features of I/O ports in LPC2148. Also give the names and use of all SFR's associated with I/O ports in LPC2148.

Q6) Attempt any two of the following : **[2×8=16]**

a) What is shared data explain with example? Explain the problems due to shared data.

b) Explain with pseudo code explain Function Queue Scheduling software architecture.

c) Write the pseudo code and explain the concept of RTOS.

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Total No. of Pages : 2

B.E. (Electronics & Telecom. Engg.) (Semester - VII)
Examination, April - 2018
RF & MICROWAVE ENGINEERING
Sub. Code : 67631

Day and Date : Friday, 27 - 04 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 p.m.

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

SECTION - I

Q1) Attempt any two of the following :

a) Derive the wave equation for a TM wave and obtain all the field components in a rectangular waveguide. **[8]**

b) Determine the cutoff wavelength for the dominent mode in a rectangular waveguide of breadth 10 cms. For a 2.5 GHz signal propagated in this waveguide in the dominent mode; calculate the guide wavelength, the group & the phase velocity. **[8]**

c) Explain power losses in waveguide. **[8]**

Q2) Attempt any two of the following :

a) Explain construction and working of isolator. Explain any two applications of circulator. **[8]**

b) Explain magic tee with its s paramets and explain any two applications of it. **[8]**

c) Explain microstrip lines with its types & losses. **[8]**

Q3) Attempt any two of the following :

a) Explain construction, working, formation of applegate diagram with reference to reflex Hystron. **[9]**

P.T.O.

b) What are types of microwave tubes? Explain TWT as a backward wave oscillator. [9]

c) What are types of cross field tubes? Explain M-carcinotron tube in detail. [9]

SECTION - II

Q4) Attempt any two of the following : **[8 each]**

a) What is Gunn effect? Explain Gunndiode working with two valley theory.

b) Explain working of JMATT diode with its advantages and disadvantages.

c) With structure of MESFET explain its working characteristics in the microwave range.

Q5) Attempt any two of the following: **[8 each]**

a) Explain how bolometer can be used in microwave power measurement. Explain how use of thermister & barreter can be extended for higher power measurements using directional coupler.

b) Explain with experimental setup how impedance measurement can be done in microwave range.

c) How antenna gain measurement can be done in microwave range.

Q6) Attempt any two of the following : **[9 each]**

a) Explain in detail modes of operation of GUNN diode.

b) Explain microwave hazards in detail.

c) Explain different MMIC fabrication techniques. Also explain thin film formation in monolithic microwave integrated circuit.

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Total No. of Pages : 2

Seat No.	

B.E. (E&TC Engg) (Part - IV) (Semester - VIII) Examination, May - 2018

WIRELESS MOBILE COMMUNICATION (Revised)

Sub. Code : 67817

Day and Date : Monday, 07 - 05 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 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 1km 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 ht = 50 m & hr = 1.5 m above ground.

b) Explain following terms with respect to mobile multipath channels

i) Coherence Bandwith ii) Doppler Spread

c) Draw and explain Protocol Architecture of SS7.

Q3) Write notes on any three **[18]**

a) Signal Penetration into buildings

b) Rayleigh's fading Distribution

c) Common Channel Signaling

d) ISDN

P.T.O.

Q4) Attempt any two. **[16]**

a) Explain personal & terminal mobility also the service portability.

b) Give the details of direct sequence spread spectrum technique.

c) What are the advantages & disadvantages of WLAN?

Q5) Attempt any two. **[16]**

a) Draw & explain architecture of infrastructure & Adhoc IEEE8O2.11 (mobile network).

b) Explain QoS supported by WATM network.

c) Discus about the IP packet delivery & registration.

Q6) Write notes on any three. **[18]**

a) Snooping TCP.

b) Dynamic host configuration protocol (DHCP).

c) Dynamic routing in mobile adhoc network

d) IEEE 802.11 MAC frame structure.

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Total No. of Pages : 2

Seat No.	

B.E. (Electronics) (Part-IV) (Semester-VIII) Examination, May - 2018

MICROWAVE ENGINEERING

Sub. Code: 67777

Day and Date : Friday, 04 - 05 - 2018 **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 indicates marks.**

SECTION-I

Q1) Attempt any two questions : **[16]**

a) Explain with suitable equations TM mode equations for a rectangular waveguide.

b) What is TWT? Explain in detail operation of TWT.

c) When the dominant mode is propagated in an air filled rectangular waveguide, the guide wavelength for a frequency of 9000 Mhz is 4 cm. Calculate breadth of the guide?

Q2) Attempt any two questions : **[16]**

a) With suitable example explain MMIC fabrication process.

b) Explain in detail operation of circulator with suitable diagram.

c) Determine the cut-off wavelength for the dominant mode in a rectangular waveguide of breadth 10cms. For a 2.5 Ghz signal propagated in this waveguide in the dominant mode; calculate the guide wavelength, the group and phase velocities?

Q3) Write short notes on any three questions : **[18]**

a) Velocity modulation Process

b) BWCFA

c) Power losses waveguides

d) Anechoic chambers

P.T.O.

SECTION-II

Q4) Attempt any two of the following : **[16]**

a) Explain how tunneling action takes place in tunnel diode. What are its applications?

b) Explain CdTe diodes

c) Explain construction detail, operating principle and energy band diagram of HEMT.

Q5) Attempt any two of the following : **[16]**

a) Explain power ratio method and substitution method for attenuation measurement.

b) Explain in detail high power measurement calorimeter method.

c) Explain reflectometer method for impedance measurement.

Q6) Attempt any three of the following : **[18]**

a) Explain horn antenna with all type of feeding methods.

b) Define and explain the terms :

i) SWR

ii) Antenna gain

iii) Band width

iv) Directivity

c) Explain various feed technique for parabolic reflector

d) Explain LENS antenna and list the advantages and disadvantages of dielectric lens.

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Total No. of Pages : 2

Seat No.	

B.E. (E&TC) Part - II (Semester - VIII) Examination, May - 2018

MOBILE COMMUNICATION (Prerevised)

Sub. Code : 49521

Day and Date : Monday, 14 - 05 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 p.m.

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

SECTION - I

Q1) Solve any two : **[16]**

a) Draw and explain CDPD-network architecture.

b) What are design goals for wireless LANs? Compare infrared Vs radio transmission.

c) Draw and explain dial-up data connections in an analog cellular network.

Q2) Solve any two : **[16]**

a) Explain different bluetooth security components and protocols.

b) Draw and explain architecture of an infrastructure and Adhoc-based IEEE 802.11.

c) Explain quality of service support and other specilities of HIPERLAN 1.

Q3) Write notes on (any three) : **[18]**

a) IEE 802.11 MAC parket structure.

b) Channel assignment and hooping in CDPD.

c) DHCP

d) Services on cellular networks.

P.T.O.

SECTION - II

Q4) Solve any two : **[16]**

a) Explain with neat diagram WTLS secure session establishment and datagram transfer.

b) How and why does indirect-TCP isolate problem on the wireless link? What are the main drawbacks of this solution?

c) Explain security services in wireless systems.

Q5) Solve any two : [16]

a) What is WAP 2.0? Draw and explain WAP 2.0 Architecture.

b) What is WDP? Explain WDP services primitives.

c) Why quality of services is important in WATM? Explain different quality of services supported by WATM network.

Q6) Write note on any three : **[18]**

a) File systems.

b) WWW

c) Attacks on wireless networks.

d) i-mode protocol stack using internet/WAP 2.0 protocol.

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Total No. of Pages : 2

B.E. (Electronics & Telecommunication) (Semester - VIII) Examination, May - 2018

VIDEO ENGINEERING (Revised)

Sub. Code : 67816

Day and Date : Friday, 04 - 05 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 p.m.

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

SECTION - I

Q1) Attempt any Two. **[16]**

a) State CCIR-B standards for B/W picture transmission.

b) What is vertical and horizontal resolution? Derive expression for maximum video bandwidth.

c) Explain H-sync and V-sync details.

Q2) Attempt any Two. **[16]**

a) Explain PAL-D coder and decoder.

b) Explain frequency interleaving process with suitable sketches.

c) Explain Chromaticity diagram.

Q3) Attempt any Two. **[18]**

a) Write a note on colour picture tube.

b) Explain Digital Satellite Television in detail.

c) Explain signal quantization and encoding in DTV system.

P.T.O.

SECTION - II

Q4) Attempt any two of the following. **[16]**

a) Explain in detail MAC encoding format.

b) Define MAC signals. Explain in detail D2MAC packet signal.

c) Explain in detail HDTV Systems.

Q5) Attempt any two of the following. **[16]**

a) Express the LCD matrix types and their operation.

b) Compare LCD Performance with Plasma.

c) Explain DTH Receiver.

Q6) Attempt any three of the following. **[18]**

a) LED TV

b) Working of Block Converter

c) Videophone

d) CCTV.

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Total No. of Pages : 2

Seat No.	

B.E. (E & TC) (Part - IV) (Semester - VII) (New) Examination, April - 2018

SATELLITE COMMUNICATION

Sub. Code : 67628

Day and Date : Tuesday, 24 - 04 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary and high light it.**
4) **Use of non programmable calculator is allowed.**

SECTION - I

Q1) Solve any two of the following: **[16]**

a) Derive expression for the period T of the satellite's orbit.

b) With block schematic explain single conversion(bent pipe) and double conversion transponder.

c) Explain with typical diagram tracking,telemetry ,command and monitoring system.

Q2) Solve any Two of the following. **[16]**

a) Derive expression for power received(P_R) by earth station from satellite.

b) An earth station antenna has a diameter of 30m with an overall efficiency of 68% and is used to receive a signal at 4150 MHz.At this frequency the system noise temperature is 79K when the antenna points at the satellite at an elevation angle of 28 . What is the earth station G/T ratio under these condition?If heavy rain causes the sky temperature to increase so that the system noise temperature rises to 88K,what is the new G/T value.

c) Explain the need for space qualification and reliability in detail.

P.T.O.

Q3) Write short notes on any three of the following [18]

a) Sun transit outage and solar eclipse.

b) Three axis stabilized satellite.

c) System noise temperature.

d) Keplers planetary law of motion.

SECTION - II

Q4) Solve any two of the following: [16]

a) Explain on board connectivity with transponder hopping.

b) Write a note on interlink between geostationary satellites.

c) Explain window organization & frame synchronization.

Q5) Solve any Two of the following: [16]

a) Explain general aspect regarding coverage & frequency consideration.

b) Give the details of operational NGSO constellation design

c) Write a note on

i) Inclined orbit

ii) Elliptical orbit

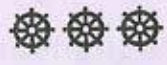
Q6) Solve any three of the following [18]

a) Draw & explain block diagram of DBS TV receiver

b) Write in detail about C-band & Ku-band home satellite TV.

c) Write a note on error control in DBS TV.

d) Explain satellite radio broadcasting.



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Total No. of Pages : 2

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B.E. (Electronics and Telecommunication) (Semester - VII) Examination, April - 2018

COMPUTER COMMUNICATION NETWORK (New)

Sub. Code : 67630

Day and Date : Thursday, 26 - 04 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 p.m.

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

SECTION - I

Q1) Attempt any TWO from THREE **[16]**

a) Sketch OSI layered model. Explain working of each layer.

b) With neat diagram Explain what are the types of guided media.

c) Explain design issues of layers in layered reference model.

Q2) Attempt any TWO from THREE **[16]**

a) Explain in detail HDLC frame formats

b) What is Modem? Explain it's working with neat diagram.

c) With neat diagram explain Simplex stop-and-wait protocol.

Q3) Write note on any THREE **[18]**

a) Types of propagation in fiber optics.

b) IEEE802 standard for LANs & WANS

c) Unguided Media

d) CSMA protocols

e) Networking Devices

P.T.O.

SECTION - II

Q4) Attempt any TWO **[16]**

a) Explain the internal organization of Network layer.

b) What are the advantages of IPv6? Also explain base header format for IPv6.

c) Explain RSA algorithm.

Q5) Attempt any TWO **[16]**

a) Compare Virtual Circuit and Datagram.

b) Explain symmetric key cryptography.

c) What is traffic shaping? What are the drawbacks of Leaky Bucket Algorithm? How Token bucket algorithm overcomes this drawback.

Q6) Write note on any THREE **[18]**

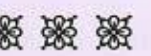
a) Choke packets

b) TCP header format

c) ARP

d) Digital Signature

e) Open loop Congestion control



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B.E.(E.T.C.) (Semester - VIII) Examination, May - 2018
BROAD BAND COMMUNICATION (Old)
Sub. Code : 49517

Day and Date : Monday, 07 - 05 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 p.m.

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

SECTION - I

Q1) a) Draw and explain B-ISDN Protocol reference model. [9]

b) Draw and explain user network interface for ISDN. [9]

Q2) Solve any two of the following

a) Explain PRI and BRI Intertuce for ISDN. **[8]**

b) Discuss in detail ISDN Interworking. **[8]**

c) Explain conversational service and retrival service. **[8]**

Q3) Solve any two of the following

a) Draw and explain sonet. [8]

b) Draw and explain ISDN Addressing [8]

c) State various principles of ISDN [8]

SECTION - II

Q4) a) With help of diagram explain functions of all layers. [9]

b) Draw and compare ATM Cell header format for UNI and NNI [9]

Q5) Answer the following.

a) Explain in detail how ATM cell is processed in a switch. **[8]**

b) State requirements of ATM traffic congestion and congeshon control. **[8]**

OR

b) Draw and explain VP and VC Switching technique. **[8]**

Q6) Answer the following.

a) Draw and explain ATM Suitching building blocks. [8]

b) Explain how congestions contval is implemented in ATM Networks. [8]

OR

b) Explain how traffic contral is implemented in ATM Networks. **[8]**

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Seat No.	

Total No. of Pages : 2

B.E. (Electronics & Telecommunication Engineering)

(Semester - VII) Examination, April - 2018

ROBOTICS (Elective - I)

Sub. Code : 67632

Day and Date : Saturday, 28 - 04 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 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 Robot Drive System in Detail.

b) Explain basic control system model with Transfer function and Block Diagram.

c) Explain Optical Position sensor in detail.

Q2) **Attempt Any TWO of the following** **[2×8=16]**

a) Explain in detail classification of robot by co-ordinate system.

b) Explain Robot Joint Control Design with neat diagram.

c) Explain Proximity Sensor in detail.

Q3) **Write a note on Any THREE of the following** **[3×6=18]**

a) Automation and Robotics.

b) Pneumatic and Hydraulic Actuators

c) Accelerometer.

d) Response of System using Characteristic equation.

P.T.O.

Q4) **Attempt Any TWO of the following** **[2×8=16]**

a) Explain Vacuum, Magnetic and Adhesive Gripper in detail

b) Explain concept of Relocatable Branching with suitable example

c) Explain application of robot in material Transfer.

Q5) **Attempt Any TWO of the following** **[2×8=16]**

a) Explain Application of robot in Machine Loading and Unloading.

b) Explain Mechanical gripper in detail.

c) Explain significance of WAIT, SIGNAL and DELAY commands using suitable example.

Q6) **Write a note on Any THREE** **[3×6=18]**

a) Robot End Effecter Interface.

b) Lead Through Programming Method.

c) Spot Welding.

d) Consideration in Gripper Selection & design.

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Seat No.

Total No. of Pages : 2

B.E. E & Tc (Part - IV) (Semester - VIII) Examination, May - 2018

DIGITAL IMAGE PROCESSING (Revised)

Sub. Code : 67818

Day and Date : Friday, 11 - 05 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 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 of the following : **[2 × 8 = 16]**

a) Explain with neat block schematic fundamental steps in Digital Image Processing.

b) Discuss the basic concept of sampling and quantization of image to convert in digital form.

c) Draw the structure of human eye and explain the elements of visual perception.

Q2) Attempt any two of the following: **[2 × 8= 16]**

a) What is meant by histogram of an Image? Explain the significance of histogram equalization

b) Explain arithmetic and logic operations for image enhancement.

c) Explain power law transformation and log transformation with their characteristic curves.

Q3) Attempt any two of the following: [2 × 9 =18]

a) Explain linear and non-linear smoothing filters in spatial domain for digital images.

b) Explain low pass filters in frequency domain.

c) Explain unsharp masking and high boost filtering in spatial as well as frequency domain.

Q4) Attempt any two of the following: [2 × 8= 16]

a) Explain Opening operation along with example. Also state the use of opening operation in morphological image processing.

P.T.O.

Seat No.

Total No. of Pages : 4

B.E. (Electronics Engg.) (Semester - VII)

Examination, April - 2018

INFORMATION THEORY AND CODING TECHNIQUES (Revised)

Sub. Code : 67526

Day and Date : Tuesday, 24 - 04 - 2018 **Total Marks : 100**

Time : 02.30 p.m. to 05.30 p.m.

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

SECTION - I

Q1) Attempt any Three of the following **[18]**

a) Determine the parity check matrix H for the (5, 3) code. Show that $GH^T=0$ and $C.H^T=0$ for C= (1 10 10) and Generator matrix is given as,

$$G=\begin{bmatrix}1&0&1&0&0\\1&1&0&1&0\\0&1&0&0&1\end{bmatrix}$$

b) What do you mean by joint & Conditional entropy? Derive relation between joint and conditional entropies.

c) State the Shannon channel capacity theorem. Show that the maximum channel capacity is given by,

$$C_\infty = \lim_{B\to\infty} C = 1.44\,[S/N_0]$$

P.T.O

d) A Channel has the following channel matrix,

$$\begin{pmatrix}1-P & P & 0\\ 0 & P & 1-P\end{pmatrix}$$

i) Draw the channel diagram

ii) If the source has equally likely output, compute the probabilities associated with channel output for p = 0.2

Q2) Attempt any Two of the following **[16]**

a) i) What is entropy coding? Explain procedure for Shannon Fano Coding algorithm.

ii) An AWGN Channel has bandwidth of 4 KHz and noise power spectral density ($N_0/2$) is 10^{-12} W/Hz, the signal power required at the receiver is 0.1 mW. Calculate the capacity of the channel.

b) A discrete source transmits message X_1, X_2 and X_3 with probabilities $P(X_1) = 0.3$, $P(X_2) = 0.25$, $P(X_3) = 0.45$ respectively. The Source is connected to the channel whose conditional probability matrix is,

$$P[Y/X] = \begin{array}{c} \\ X_1 \\ X_2 \\ X_3 \end{array}\begin{array}{c} \begin{array}{ccc} Y_1 & Y_2 & Y_3 \end{array} \\ \begin{pmatrix} 0.8 & 0.2 & 0 \\ 0 & 0.6 & 0.4 \\ 0 & 0.2 & 0.8 \end{pmatrix} \end{array}$$

Calculate all the entropies and mutual information of this channel.

c) In an Linear Block Code, the Syndrome is given by,

$S_1 = r_1 + r_2 + r_3 + r_5$

$S_2 = r_1 + r_2 + r_4 + r_6$

$S_3 = r_1 + r_3 + r_4 + r_7$

i) Determine Parity Check Matrix (H) and Generator Matrix (G

ii) Draw the encoder circuit.

iii) Determine the code ward for all message sequences.

iv) How many errors it can detect & correct?

v) Determine the syndrome vector for the received code ward (1 0 1 10 1 1)

Q3) Attempt any Two of the following **[16]**

a) Determine the average length of coded message and coding efficiency using Shannon Fano Coding & Huffman's Coding for the following message ensemble:

$[X] = [X_1 \quad X_2 \quad X_3 \quad X_4 \quad X_5]$

$P[X] = [0.4 \quad 0.19 \quad 0.16 \quad 0.15 \quad 0.10]$

Compare and Comment on the result.

b) i) What is mutual information? State the properties of mutual information.

ii) Explain encoding & decoding procedure for linear block code in detail.

c) i) Show that in Binary Symmetric Channel, the channel capacity is given by, $C = 1 + P \log P + (1-P) \log (1-P)$

ii) Design a single error correcting Hamming code for a message length of 4.

SECTION -II

Q4) Attempt any Three of the following **[18]**

a) The generator polynomial for a (7,4) cyclic code is given by $g(x) = 1+X^2+X^3$. Determine the code vectors for the message vectors (0111), (1110) and (1110) using Nonsystematic and Systematic form method.

b) Determine minimal polynomial of GF (8) whose trans field is GF(2) with Primitive Polynomial $X^3+ X^2 + 1$. Also determine generator polynomial for tc=1, 2.

c) State the feature of RS code. Explain the decoding for RS Code.

d) Explain the Structural & distance properties of Convolutional code.

Q5) Attempt any Two of the following **[16]**

a) A (15,5) BCH double error correcting code has the generator polynomial, $g(x) = x^{10}+ x^8+ x^5+ x^4+ X^2 + X +1$. Find the transmitted code ward if the received code ward is $X^2 + X^4$. Consider Primitive Polynomial is $X^4 + X + 1$.

b) A Convolutional encoder using three shift registers with the code rate, r = 1/2 has two generating Vectors as: $g_1 = [1\ 1\ 1]$ and $g_2 = [10\ 1]$

i) Sketch the encoder configuration

ii) Determine generator matrix for convolutional code

iii) If the message sequence is (1 1 1 1), determine the output sequence of the encoder using transform domain approach.

iv) Draw Code tree and State diagram.

c) i) Explain the procedure for constructing extension field GF (2^4) using suitable Primitive polynomial.

ii) What is cyclic redundancy Check Codes? Explain the procedure to obtain CRC.

Q6) Attempt any Two of the following **[16]**

a) Construct encoder and Syndrome calculator for the systematic (7,4) Cyclic code generated by, $g(X) = X^3+ X^2 +1$ and verify its operation using the message vector (0101). Also determine syndrome Vector for error pattern (0100000).

b) Determine the generator polynomial for (7,5) RS code over GF(8). If the message vector is {111, 101, 010, 110} & error vector polynomial $e(x) = \alpha^2X^3$. Also find code vector, Code polynomial C(x) & received Polynomial r(x). Also verify whether decoding of received polynomial results into transmitted code polynomial C(x).

c) Write a note on

i) Primitive element

ii) Code trellis