1

B.Tech IV Year I Semester (R09) Regular Examinations, November 2012
EMBEDDED REAL TIME OPERATING SYSTEMS
(Common to ECE, E.Con.E, EIE & CSS)

Time: 3 hours   Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) List various major areas of embedded systems and discuss how processor is selected for each group.
   (b) What is a sensor? Explain how these sensors will build gap between eternal world and embedded system.

2 (a) Describe various quality attributes that changes the performance of an embedded system.
   (b) Describe the process of hardware co-design task.

3   How many ways you can make use of analog electronic and digital electronic components are used in designing an embedded system? Explain it with the help of an example.

4   What are the key characteristics of an RTOS? Explain how an RTOS implements multitasking in it. Discuss all issues associated with multi-tasking in RTOS.

5 (a) Explain working principle of parallel communication network using ISA.
   (b) What is neat time lock? How does an RTK provides synchronization for data transmission.

6   What is a DFG models? Explain how a DFG provides conceptual understanding about an embedded system, with the help of a neat diagram.

7   List various RTOS task scheduling models. Give an example for each model.

8   Write short notes on the following:
   (a) Embedded system functionalities in automobile industry.
   (b) Smart card systems.
   (c) PCI.

*****

B.Tech IV Year I Semester (R09) Regular Examinations, November 2012
EMBEDDED REAL TIME OPERATING SYSTEMS
(Common to ECE, E.Con.E, EIE & CSS)

Time: 3 hours   Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   Explain the importance features of any two embedded systems belong to each of the following areas of application.
  (a)   Consumer electronics.
  (b)   Network communication.
  (c)   Bio-medical instrumentation.
  (d)   Home appliances.

2 (a)   List various characteristics of an embedded systems.
  (b)   Designing hard ware and software is equally important. Justify its trade-off.

3   Explain how the VLSI technology is used in IC design. Also explain fabrication of an IC design with an example.

4   How does an RTOS provides inter-task communication among a set of processes? Explain task synchronization using any one mechanism.

5   Describe how timers and counting 'devices are used in embedded' systems. Give working example for each with help of neat diagram.

6   What is a state machine programming model? Explain its functionality with the help of an illustration.

7 (a)   What are events to an RTOS? Explain how many ways an user can control all these events using appropriate functions.
  (b)   List all RTOS security issues.

8   Write short notes on the following:
  (a)   ISA communication standards.
  (b)   Mobile phone keypad S/W.
  (c)   Smart card as case study.

*****

B.Tech IV Year I Semester (R09) Regular Examinations, November 2012
EMBEDDED REAL TIME OPERATING SYSTEMS
(Common to ECE, E.Con.E, EIE & CSS)

Time: 3 hours   Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   List and discuss about all core components of embedded systems. Also justify the requirements for their selection.

2   (a)   Describe all fundamental issues in hardware slow co-design.
     (b)   Write about various characteristics of embedded systems and explain their significance in designing embedded system.

3   Explain all various design approaches for embedded firmware design. Give an example for each approach.

4   (a)   Explain any one scheduling mechanism used by an RTOS for process scheduling.
     (b)   Explain the process of choosing an RTOS for a given embedded system.

5   Draw how does parallel device parts are connected to an embedded system and also explain the functionality of parallel bus device protocols.

6   Explain how a multiprocessor systems work. Discuss its behavior with the help of suitable diagram.

7   What is interrupt latency? Explain all possible mechanism used for reducing interrupt latency in RTOS?

8   Answer the following:
     (a)   Embedded system for AAC in a car.
     (b)   Orchestra robots.
     (c)   PCI - X communication standard.

*****

B.Tech IV Year I Semester (R09) Regular Examinations, November 2012
EMBEDDED REAL TIME OPERATING SYSTEMS
(Common to ECE, E.Con.E, EIE & CSS)

Time: 3 hours   Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   What is an embedded system? How can embedded system can be interfaced with external
         world? Explain with a neat diagram.

2   (a) In embedded systems quality attributes could change performance of the system justify.
     (b) How do you draw a trade-off between so the hardware and software of the system design?

3   Explain all functionalities of electronic design automation tool with the help of suitable
         systems.

4   How does an RTOS creates a thread in it? Explain the process that deals with multi-
         process/multi-threading with the help of an task synchronization mechanism.

5   (a) Explain the functionality of any serial communication device with the help of a neat diagram.
     (b) What is a watch-dog timer? How does it provide reliability to an embedded system?

6   Discuss about various programming models for embedded system construction. Draw an
         event controlled program flow model with an example.

7   Explain the process of introducing multiple interrupts and also explain how does an RTOS
         handles them.

8   Answer the following topics:
     (a) Embedded systems in automobiles.
     (b) Embedded software in mobile phone key input.
     (c) Wireless protocols.

*****

Code: 9A04702

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012
OPTICAL COMMUNICATIONS
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   (a)   Derive an expression for multiple time difference $\left(\Delta t/2\right)$ in the multipath dispersion of the optical fibre.
    (b)   Discuss the merits and drawbacks of cut bouls method of measurement of alternation.

2   (a)   Discuss briefly about the leaky modes and mode coupling losses in the fibre optic communication.
    (b)   Find the radius of curvature R at which the number of modes decreases by 50 percent in a gladded index fiber take $\alpha = 2$, $\eta_2 = 1.5$, $\Delta = 0.01$, a = 25 μm, $\lambda = 1.3$ μm.

3   (a)   Briefly explain about the overall dispersion in single mode fibre.
    (b)   Explain about fiber of connects return losses.

4   An LED has a 500 μf space charge capacitance, 1.0 ρA saturation current and a 5 ns minority carrier lifetime find out the half current and 10 to 90 percent risk time when the drive current is (i) 50 mA and (ii) 100 mA respectively.

5   (a)   List the factors involved in launching optical power from a light source to a fiber.
    (b)   What is a pig-tailed device? List out the advantages and disadvantages of pig tailing either as fibre optic source or as fiber optic detector.

6   (a)   Explain the following terms:
          (i) Quantum efficiency
          (ii) Responsiuity
    (b)   Explain with the neat diagram the digital signal transmission through on optical data line.

7   Discuss the magnitude of different dispersions in various fibre and also explain how does this dispersion vary with a different operating wavelengths for the fiber in detail.

8   (a)   Explain about the cut back technique and why it is called as destructive method.
    (b)   Define line coding and list its merits.

*****

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012
OPTICAL COMMUNICATIONS
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) Explain the function of each block with a help of neat block diagram of a digital optical fibre communication system.
   (b) If a single mode fibre has a step index of 0.03, the core refractive index is 1.45 at the cut off wavelength 1300 nm, then calculate the core radius.

2   Explain the requirements to be satisfied by fiber materials used for fabricating optical fibres.

3 (a) What are the principle requirements of a good conducts design?
   (b) A single mode fibre operating at the wavelength of 1.3 μm is found to have a total material dispersion of 2.81 ns and a total waveguide dispersion of 0.495 ns. Determine the received pulse width and approximate bit rate of the filter if the transmitted pulse has a width of 0.5 ns.

4   What is splicing? Explain about fusion splicing.

5 (a) Derive an expression for power coupling from a large surface emitting LED into smaller step index fiber.
   (b) Distinguish between connection losses (intrinsic losses) and extrinsic losses.

6 (a) Draw the schematic block diagram of optical receiver and explain each block in detail.
   (b) Discuss the difference between a dispersion limited and an attenuation limited fiber optic link.

7   Discuss about the point to point fibre optic link.

8 (a) Explain how intra modal dispersion measurements can be done by using time domain and frequency domain.
   (b) If the output response of an optical fiber is Gaussian in shape, estimate the 3 dB electrical bandwidth of the filter for an RMS output pulse width of 0.5 ns.

*****

Code: 9A04702

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012

OPTICAL COMMUNICATIONS

(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

*****

1 (a) What are the reasons for the signal to get distorted as it travels along a fibre?
   (b) Using ray theory transmission approach, explain the following:
        (i) Total internal reflection ad critical angle.
        (ii) Acceptance angle.
        (iii) Numeral aperture.

2 (a) Explain attenuation caused by absorption, scattering losses and bending losses.
   (b) Find the cutoff wavelength for a step index fiber having core refractive index of 1.48, radius of core is 4.8 μm and relative index difference is 0.25%.

3   Explain material dispersion, waveguide dispersion and find expression for material and waveguide dispersion.

4 (a) What power is radiated by an LED if its quantum efficiency is 3% and the peak wavelength is 670 nm?
   (b) Derive the expression for losing and threshold condition.

5 (a) Write expression for power coupled into a step index fiber from on LED source.
   (b) A gaAs optical source with a refractive index of 3.6 is coupled to a silica fiber that has a refractive index is 1.48. If the fiber and the source are in close physical contact then find the fresnel reflection at the interface and power loss in dB.

6 (a) Explain the principle behind the operation of an avalanche photo diode.
   (b) Give the comparison of PIN and ADP photo detector.

7   Explain the procedure to determine the maximum allowable R_2 and NR_2 data rates from rise time budget analysis.

8 (a) What are the underlying principles of the WDM techniques?
   (b) List the advantages and disadvantages of using WDM in optical fiber communication system.

*****

Code: 9A04702

OPTICAL COMMUNICATIONS
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   (a)   Explain in detail about the mode theory for circular waveguide.
     (b)   Compare step index and gradded index fibres in all aspects.

2   (a)   Discuss briefly about radiation losses in the optical fiber.
     (b)   (i) Convert the optical signal powers of 5 mw and 20 μw to dBm.
           (ii) Convert optical signal power of 0.3 mw and 80 nw to dBμ.

3   A multimode gradded index fiber exhibits the pulk broadening of 0.2 μs over a
           distance of 15 km estimate:
           (i) Optimum bandwidth of fiber.
           (ii) Dispersion per unit length.
           (iii) Bandwidth length product.

4   (a)   Explain in detail about the external coupling losses.
     (b)   A 10 μm core diameter single mode fiber has a normalised frequency number of 1.7.
           A fusion splice at a point along its length inhibits an inserted loss of 0.15 dB.
           Assuming only lateral misalignment contributes to the splice insertion loss; estimate
           the magnitude of the lateral misalignment.

5   (a)   What is LASER diode? Compare its performance with that of LED.
     (b)   A practical surface LED has 50 μm diameter emitting area and operates at peak
           modulation current of 100 mA. What is BW of GaAL AS LED having a 2.0 μm active
           area thickness assume $B_r/10^{-10}$ cm^3/s, $\delta = 10^4$ cm/sec.

6   Describe about the RAPD structure.

7   (a)   Write modified expression for SNR at the output of on ADP based analog receiver.
     (b)   Calculate the maximum bit rate that may be achieved on the fiber link length of 50 km
           without repeaters and using NR2 format. Transmitter rise time is 4 ns. Intermodal rise
           time is 5 ns. Intramodal rise time 1 ns. Receiver rise time is 2 ns.

8   Discuss measurement of fiber scattering loss by describing the use of the common
           scattering cells.

*****

Code: 9A04703

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012

RADAR SYSTEMS

(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

*****

1   (a)   Draw the block diagram of radar and explain its operation.
     (b)   Explain the detection of radar signal in noise.

2   (a)   What are multiple-time around echoes? How can we distinguish them from un
           ambiguous echoes?
     (b)   Differentiate limiting loss and operator loss.
     (c)   What are the factors which contribute to field degradation & how field degradation
           can be minimized?

3   (a)   Explain the IF doppler filter bank with the help of a block diagram and plot its
           frequency-response characteristics.
     (b)   What is the principle advantage of CW doppler radar over other methods of
           measuring speed?
     (c)   What is the major limitation of a CW radar & how it can be overcomed?

4   (a)   Explain the principle of operation of FM-CW radar using sideband super heterodyne,
           receiver.
     (b)   Explain how the measurement of the beat frequency determines the range R.

5   (a)   With the aid of a block diagram, explain fully the operation of an MTI system using a
           power amplifier in the transmitter.
     (b)   What is the difference between MTI radar using range gates and MTI with single
           delay line canceller?
     (c)   Differentiate between MTI and MTD.

6   (a)   Explain in detail the operation of a phase comparison tracking radar.
     (b)   Compare amplitude and phase comparison monopulse tracking radar.

7   (a)   Explain about matched filter receiver.
     (b)   Efficiency comparison of matched filter with that of non matched filters. Explain.

8   (a)   Explain beam steering and change of beam width with steering angle.
     (b)   Write notes on circulators.

*****

Code: 9A04703

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012
RADAR SYSTEMS
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   (a)   Obtain the radar equation in terms of minimum detectable power and gains of transmitting and receiving antenna.
    (b)   What is radar range resolution? State the range resolution dependence parameters.
    (c)   What is meant by pulse compression?

2   (a)   Define radar cross section of the target.
    (b)   Explain plumbing loss, collapsing loss and beam-shape loss.
    (c)   What are called blind speeds?

3   (a)   Explain the CW radar with the help of a block diagram and plot the response characteristic of beat-frequency amplifier.
    (b)   Explain how the isolation between transmitter and receiver can be obtained.

4   (a)   Explain the operation of a frequency-modulated CW radar with the help of a block diagram.
    (b)   What are the applications of CW radar?

5   (a)   What is MTI? How does it operate?
    (b)   How moving targets can be distinguished from stationary targets?
    (c)   Differentiate single-delay-line canceller and double-delay-line canceller.

6   (a)   Explain the amplitude comparison monopulse radar for extracting error signals in elevation and azimuths with neat block diagram.
    (b)   Explain sequential lobing.

7   (a)   Derive the matched-filter, frequency response function using the Schwartz inequality.
    (b)   Briefly explain about NWN matched filter.

8   (a)   What are the different types of radar antennas used? Explain the operation of casegrain antenna.
    (b)   Distinguish series feeds and parallel feeds.

*****

Code: 9A04703

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012
RADAR SYSTEMS
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   (a)   Derive radar range equation in terms of average power, number of pulses integrated, noise figure and losses.
    (b)   State the radar frequency bands.

2   (a)   What is meant by integration of radar pulses? Compare various methods.
    (b)   What are the losses in radar system and how do you compensate them?

3   (a)   Explain the principle of doppler effect and its application in finding the velocity of target in CW radar.
    (b)   Explain the CW doppler radar with non zero IF receiver with the help of a block diagram.

4   (a)   Show that the wavelength of operation has an effect on the radar range.
    (b)   Explain the principle of operation of multiple, frequency CW radar.

5   (a)   Explain the operation of MTI radar.
    (b)   Explain the significance of delay line canceller in MTI radar.

6   (a)   Draw the block diagram of conical scan radar and explain its operation.
    (b)   Compare various tracking techniques.

7   (a)   With the aid of a block diagram, explain the operation of a cross-correlation receiver.
    (b)   Show that the matched filter forms the cross correlation between the received signal corrupted by noise and a replica of the transmitted signal.

8   (a)   Explain various types of radar displays.
    (b)   Differentiate branch-type duplexers and balanced duplexers.

*****

Code: 9A04703

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012

RADAR SYSTEMS

(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

*****

1 (a) Explain how a primary radar can be used to measure range and azimuth.
   (b) What are the applications of radar?
   (c) Obtain the simple form of the radar equation.

2 (a) Explain about radar cross section of complex targets.
   (b) What is meant by false-alarm time and false-alarm probability?

3 (a) Obtain the expression for doppler frequency shift.
   (b) Write notes on receiver bandwidth requirements.
   (c) Explain about measurement of doppler direction using synchronous, two-phase motor.

4 (a) Explain the operation of sinusoidally modulated FM-CW radar with the help of a block diagram.
   (b) Write notes on transmitter leakage.

5 (a) Write notes on staggered PRF in MTI radar.
   (b) Mention the limitations of MTI radar performance.
   (c) An MTI radar operater at 5 GHz with PRF of l000 pps. Find the 3 lowest blind speeds of this radar.

6 (a) Explain about split-range-gate-tracking.
   (b) Explain about acquisition and scanning patterns.
   (c) Distinguish continuous tracking radar and a TWS radar.

7 (a) Obtain the response characteristics and correlation function of a matched filter.
   (b) What is meant by a whitening filter?

8 (a) Explain about the applications of the array in radars.
   (b) List the advantages and limitations of array antennas.
   (c) Distinguish linear array & planar array.

*****

Code: 9A04706

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012
DIGITAL DESIGN THROUGH VERILOG HDL
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   Write a verilog code & its test bench for a 4-bit comparator with all expected
        input/output wave forms.

2   (a) Explain with the help of example, differences between fork-join, begin-end.
    (b) Write a verilog program for 4-bit parllel adder using tasks and functions.

3   Using a synchronous FSM approach, design a circuit that takes a single bit stream as
        input at the pin 'in'. In output pin 'match' is asserted high each time pattern 10101 is
        detected. A 'reset' pin initializes the circuit synchronously. Input pin 'c/k' is used to
        clock the circuit.

4   (a) Describe procedural continuous assignment statements assign, de assign, force and
        release.
    (b) Explain the compiles directives in detail.

5   Explain the simplified 486 bus model structure with neat sketch in detail.

6   (a) Write about linked state machines.
    (b) Write a verilog code for 2 input nand gate, and its test bench code.

7   Write about complex programmable logic devices (CPLDS) in detail with neat sketch.

8   Write short notes on:
        (i) Parallel blocks.
        (ii) Memory operators.
        (iii) Bi-directional gates.

*****

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012
DIGITAL DESIGN THROUGH VERILOG HDL
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   Write a verilog code & its test bench for a 4-bit shift register with a load provision; draw the sample input/output wave forms.

2   (a)   Explain gate delays with example.
    (b)   Write a verilog program for 16:1 multiplexer using 4:1 multiplexer in dataflow model with test bench.

3   (a)   Explain most common timing check tasks in verilog.
    (b)   A 4-bit parllel shift register has I/0 pins as shown in the figure below. Write the module definition for this module shift-reg. Include the list of parts and port declaration.
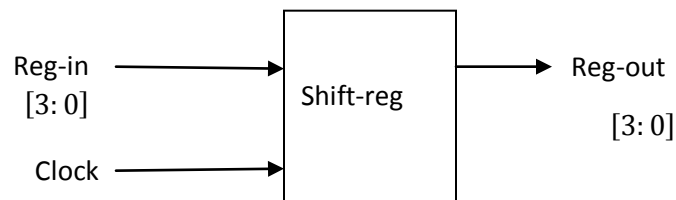
4   (a)   Write a varilog code for a sequence detector using Moore machine which detects the sequence "1011".
    (b)   Explain PLI routines are used in varilog simulation.

5   (a)   What are different data types in verilog, explain them?
    (b)   Explain the differences between assignments with delays, and wait construct.

6   Define SM chart & derive the SM charts.

7   (a)   Give a verilog model of DFF.
    (b)   Explain various delay models with examples.

8   Write short notes on:
        (i) System tasks.
        (ii) Tristate gates.
        (iii) UDP.

*****

Code: 9A04706

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012
DIGITAL DESIGN THROUGH VERILOG HDL
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   Differentiate:
        (i) Blocking and non blocking assignments with suitable examples.
        (ii) Task and functions.

2   Develop a verilog model for a 4-bit full adder with carry look ahead adder.

3   (a) Explain complex programmable logic devices (CPLDS) structure with a neat sketch.
    (b) Write any two advantages & disadvantages of CPLD.

4   (a) Explain Melay state model with neat sketch.
    (b) Write the specifications of Moore FSM.

5   (a) Write about continuous assigment structures in detail.
    (b) Explain working principal CMOS as switch.

6   (a) Write a verilog program to design AOI (And or Inverter) using gate level modeling.
    (b) What are the different identifiers, gate primitives, tristate names, gate delays used in
        gate level modeling, explain them?

7   Explain about alternate realization of SM charts using microprogramming in detail.

8   Write a short notes on:
        (i) PLI.
        (ii) Synthesis design flow diagram.

*****

Code: 9A04706

B.TECH IV Year I Semester (R09) Regular Examinations, November 2012
DIGITAL DESIGN THROUGH VERILOG HDL
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   (a)   Explain importance of logic synthesis.
    (b)   What are the differences between mealy and Moore machine?

2   (a)   Explain initial and always statements in verilog HDL with examples.
    (b)   Write a verilog code for 8x1 line multiplexer using behavioral modeling. Define stimulus module fore above program-show sample outputs.

3   (a)   What are guide lines for UDP design?
    (b)   Write a verilog code for 2-i/p nor gate, using switch level modeling. Write test bench for the above program and sketch i/p and o/p wave forms.

4   (a)   Explain the digital system design process block diagram.
    (b)   Write a verilog code & its test bench for a 4-bit comparator with all expected input and output wave forms.

5   (a)   Write a verilog code for the following expressions.
$$f = \bar{d} + \bar{a}\,\bar{b}\,\bar{c}$$
    (b)   Explain path delay modeling in verilog HDL.

6   Explain Moore FSM design with neat sketch, timing diagram in detail.

7   (a)   Write about instantiations with strengths and delays.
    (b)   Explain interfacing memory to a microprocessor bus.

8   Write short notes on:
          (i) System tasks and compiler directives.
          (ii) Gate delays in gate level modeling.
          (iii) PLI.

*****

IV B. Tech I Semester (R09) Regular Examinations, November 2012
COMPUTER NETWORKS
(Common to Electronics & Communication Engineering & Electronics & Instrumentation Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) With a neat diagram, explain the functionality of layers, protocols and interfaces.
   (b) What is the difference between connection-oriented and connection-less switching?

2   What is sliding window protocol? What assumptions are made in the sliding window protocol? Give the algorithm for 1-bit sliding window protocol.

3 (a) Discuss about MAC addresses.
   (b) Explain about a bit-map collision free protocol.

4   What is count-to-infinity problem? Discuss how it can be overcome.

5   What is internetworking? What are the different devices used to interconnect dissimilar networks at different layers? Explain them in detail.

6 (a) Draw the state diagram for a simple connection management scheme. Explain it.
   (b) What is forbidden region? Explain it in detail.

7 (a) Discuss in detail about the DNS name space.
   (b) Write a short note on resource records.

8 (a) What are drawbacks of the DES algorithm?
   (b) Explain the triple DES with an example

*****

IV B. Tech I Semester (R09) Regular Examinations, November 2012
COMPUTER NETWORKS
(Common to Electronics & Communication Engineering & Electronics & Instrumentation Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   (a)   Write short notes on interface, service and protocol.
     (b)   What are the advantages and disadvantages of optical fiber as a transmission medium?

2   Explain PPP with frame format. Explain how it provides the facility through link control protocol and network protocol.

3   What is a token? Discuss the protocol of token ring in general. Discuss with example how priority is implemented in a token ring LAN.

4   What are the problems which caused demerits of distance vector routing? Explain the algorithm that replaced it.

5   (a)   Give brief description about the different types of networks.
     (b)   Write short notes on internetworking devices.

6   (a)   What is the role of transport address in establishing the connection to a remote application?
     (b)   What are the different primitives used for transport service? Explain them in detail.

7   (a)   Explain the name servers with a neat sketch.
     (b)   Give brief description about the architecture and services of an e – mail.

8   (a)   Explain how the plain text is converted into cipher text by using the DES algorithm with an example.
     (b)   Discuss the technique used to convert the plain text to cipher text by using the transposition cipher.

*****

IV B. Tech I Semester (R09) Regular Examinations, November 2012
COMPUTER NETWORKS
(Common to Electronics & Communication Engineering & Electronics & Instrumentation Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   (a)   Name the five basic network topologies and explain each one.
     (b)   Briefly explain how data transmission is done by using coaxial cable.

2   Imagine that you are writing the data link layer software for a line used to send data to you, but not from you. The other end uses HDLC with a 3-bit sequence number and a window size of seven frames. You would like to buffers as many out of sequence frames as possible to enhance efficiency, but you are not allowed to modify software on the sending side. Is it possible to have a receiver window greater than one, and still guarantee that the protocol will never fail. If so, what is the largest window that can safely used.

3   (a)   Briefly explain the IEEE 802.2: Logic link control.
     (b)   Describe IEEE 802.3 CSMA/CD standard and IEEE 802.5 token ring standard.

4   Briefly explain about routing algorithms in network layer.

5   Explain with a neat sketch the techniques of internetworking the devices.

6   (a)   Give brief description about the Berkeley sockets.
     (b)   With the help of a neat sketch, explain the relationship between NSAP, TSAP and transport connection.

7   (a)   Explain the role of user agent of an e – mail system.
     (b)   Write short notes on MIME

8   (a)   Discuss the substitution cipher mechanism with a suitable example.
     (b)   Explain the transposition ciphers with an example.

*****

IV B. Tech I Semester (R09) Regular Examinations, November 2012
COMPUTER NETWORKS
(Common to Electronics & Communication Engineering & Electronics & Instrumentation
Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   (a)   Discuss ISO/OSI reference model in detail.
    (b)   Briefly explain the components of a fiber optic cable with a neat sketch.

2   A 16-bit message is transmitted using a hamming code. How many check bits are
          needed to ensure that receiver can detect and correct single bit errors? Show the bit
          pattern transmitted for the message 1101001100110101. Assume that even parity is
          used in the hamming code.

3   (a)   What are the schemes used for channel allocation problem, explain?
    (b)   Briefly explain carrier sense multiple access with collision detection.

4   (a)   What is shortest path routing? Explain Dijkstra's algorithm for shortest path with
          example.
    (b)   Compare virtual circuit and datagram.

5   (a)   Discuss some of the ways in which the networks differ.
    (b)   How is internetworking can be done? Explain in detail

6   (a)   Discuss in brief about the services provided by the transport layer.
    (b)   What is addressing? Explain it in detail.

7   (a)   List and explain the components present in the user agent.
    (b)   Explain the RFC 822 formats with suitable example.

8   (a)   With the help of a neat sketch explain the encryption model.
    (b)   Give brief description about the substitution ciphers

*****

IV B. Tech I Semester (R09) Regular Examinations, November 2012
MANAGEMENT SCIENCE
(Common to ECE, E.Con.E & EIE)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   Define management. Explain the nature & scope of management.

2   Discuss the features of line and staff organization with a chart.

3   Explain the following:
      (a) Statistical quality control
      (b) R chart, C chart, P chart.

4   (a) Explain the features of good stores layout.
   (b) Explain the formats of different documents used in a store.

5   Explain the different methods of training.

6   (a) Distinguish between PERT and CPM
   (b) What do you mean by project crashing? State the procedure involved in crashing.

7   Discuss the stages in the strategy formulation and implementation. Explain.

8   Explain the process of Bench marking. Is it effective in bringing organizational changes?

*****

Code: 9AHS701

IV B. Tech I Semester (R09) Regular Examinations, November 2012
MANAGEMENT SCIENCE
(Common to ECE, E.Con.E & EIE)

Time: 3 hours
Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   What are the social responsibilities of a manager in twenty first century?

2   What is committee organisation? Explain the basic principles of committee organisation.

3   Distinguish between plant layout and process layout.

4   Define consumer behaviour. What is its importance in marketing?

5   Discuss the merits and demerits of payment by time and payment by results.

6   (a) Explain the areas of application of network techniques.
     (b) Mention the objectives of network scheduling.

7   What are the factors of external and internal environment to be considered while formulating the strategy?

8   Critically evaluate the ERP market in India

*****

Code: 9AHS701

IV B. Tech I Semester (R09) Regular Examinations, November 2012
MANAGEMENT SCIENCE
(Common to ECE, E.Con.E & EIE)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   Define management. State the important characteristics of management

2   Explain the significance and advantages of committee organization

3   What factors do you keep in mind while developing a suitable plant layout?

4   What are the duties, functions and responsibilities of a purchasing manger?

5   What is merit rating? What are its benefits and limitations? Explain any three methods
          of merit rating.

6   The job of a project with respective time estimates are given in table:

Jobs	Optimistic time	Most likely time	Pessimistic time
1-2	3	6	15
1-6	2	5	14
2-3	6	12	30
2-4	2	5	8
3-5	5	1	17
4-5	3	6	15
6-7	3	9	27
5-8	1	4	7
7-8	4	19	28

(a)Draw the network and calculate the following:
     (i) Variance of each job.
     (ii) Length of the project.
     (iii)Variance of project.
(b)What is the probability that the jobs on the critical path will be completed by the due
date 42 days?

7   Explain the external and internal factors that affect business organization.

8   (a) Distinguish between planned receipt and scheduled receipt.
          (b) What are the benefits of MRP?

*****

IV B. Tech I Semester (R09) Regular Examinations, November 2012
MANAGEMENT SCIENCE
(Common to ECE, E.Con.E & EIE)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1   If you are appointed as a manager in a medium sized manufacturing company, what activities do you have to perform? Explain

2   What is the need of decentralization? Explain factors determining degree of decentralization.

3   What are the principles you follow while conducting method steady and work measurement? What is its importance?

4   (a) What are the factors that determine the choice of channels of distribution?
     (b) Why do manufacturers favour intermediaries?

5   Differentiate between recruitment and selection. Describe the advantages and disadvantages of internal and external sources of recruitment.

6   Explain any two methods to evaluate the progress of a project. What are the critical parameters that are used for evaluation? Give example.

7   Explain the strategies to improve sales performance of a strategic business unit.

8   (a) Explain the various terms associated with MRP.
     (b) What are the inputs of MRP?

*****