R09

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013
EMBEDDED REALTIME 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

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1.   Discuss briefly the core of the embedded systems and supporting types.

2.   List out the characteristics of an embedded system. Explain supporting quality attributes.

3.   Discuss briefly embedded firmware design and supporting approaches.

4.   Sketch and explain the functions of a real time kernel. What is task scheduling?

5.   Give a complete overview on parallel bus device protocols.

6.   Discuss the importance of DFG in program modeling concepts. List out and explain supporting types.

7.   Explain the role of interrupt routines in RTOs with example.

8.   Discuss briefly an embedded system for an adaptive cruise control system in a car.

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R09

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013

OPTICAL COMMUNICATIONS

(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

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1. (a) Discuss the advantages of optical fibers over conventional coaxial cables.
   (b) Discuss the mode theory of circular waveguide.

2.   List out the requirements for selecting materials in optical fibers and also explain about the following :
   (a) Halid glass fibers.
   (b) Active glass fibers.
   (c) Plastic glass fibers.

3. (a) Explain about intrinsic and extrinsic absorption exists in optical fibers.
   (b) Explain about the following:
      (i) Material dispersion. (ii) Wave guide dispersion.

4. (a) Explain clearly about the mechanical misalignments.
   (b) Explain about fiber splicing.

5. (a) Explain different structure of lasers with neat sketches.
   (b) Explain the surface emitters and edge emitter LEDS.

6. (a) Explain about avalanche photo diode.
   (b) A photo diode has quantum efficiency of 65 %. When photons of energy 1.5×10^{-19} J are incident on it? (i) What is the wave length of the photo diode? (ii) Calculate the incident optical power required to obtain a photo current of 2.5 μA, when the photo diode is operating as described above.

7. (a) Derive an expression for carrier to noise ratio of analog link.
   (b) Explain about multi channel transmission techniques.

8. (a) Explain about broad cast and select WDM networks in detail.
   (b) Explain about the following:
      (i) Passive optical couplers. (ii) Active optical components.

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B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013
RADAR SYSTEMS
(Electronics and Communication Engineering)

Time: 3 hours
Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

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1 (a) Derive the simple form of radar equation.
   (b) Describe the applications of radar.

2 (a) Explain the radar cross section of the sphere.
   (b) Discuss in brief about pulse repetition frequency and range ambiguities.

3 (a) Draw and explain the block diagram of a simple CW radar.
   (b) Explain how to determine whether the target is approaching or receding in CW radar.

4 (a) Discuss in brief about multiple - frequency CW radar.
   (b) Explain the measurement of range in FM – CW radar.

5 (a) Briefly explain about range – gated Doppler filters.
   (b) Describe the importance of double cancellation.

6 (a) Draw and explain the wave front phase relationships in phase comparison monopulse radar.
   (b) Write a brief note on acquisition and scanning patterns.

7 (a) Derive the frequency response function of the matched filter.
   (b) Explain the efficiency of nonmatched filters.

8 (a) Explain the principle of balanced duplexer.
   (b) Discuss in brief about series verses parallel feeds.

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R09

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013
DIGITAL DESIGN THROUGH VERILOG HDL
(Electronics and Communication Engineering)

Time: 3 hours   Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

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1. (a) Write short note on the following:
         (i) Concurrency
         (ii) Simulation and synthesis
         (iii) Test benches.
    (b) Explain about the different data types in verilog HDL.

2. (a) Realize the edge triggered D flip-flop using NOR gate primitives.
    (b) Identify the ALU functions in the 8085 processors. Design an ALU module to carry out
         these.

3. (a) Design a 8-bit shift register module along with a test bench.
    (b) Explain about for loop in verilog with an example.

4. (a) Explain the operators used in dataflow level.
    (b) Design and simulate the ring counter in data flow level.

5. (a) Explain about system tasks and functions with one example.
    (b) Explain about the hierarchical access and also explain user defined primitives (UDP).

6. (a) Explain how you would realize SM charts using micro programming.
    (b) Explain clearly about linked state machine.

7. (a) Explain clearly about FLEX I0K series CPLDS.
    (b) Explaining about on hot state assignment.

8. (a) Write a note on design of micro controller CPU.
    (b) How would you interface a memory to a microprocessors bus?

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B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013
COMPUTER NETWORKS
(Common to ECE and EIE)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1   (a)   Explain briefly about the network layer design issues.
    (b)   Compare distance vector routing and link state routing algorithms.

2   (a)   Briefly explain how the data link layer switching is done.
    (b)   With a neat sketch explain the operation of simple two port bridge.

3   (a)   Explain the terms "sender window" and "receiver window" in sliding window protocol.
    (b)   Explain error detection and correction at data link layer.

4   (a)   Discuss in detail about network topologies.
    (b)   What are the advantages of using optical fiber as a transmission media?

5   (a)   Explain the principles of RFC 1958 in detail.
    (b)   Discuss in detail about the sequencing of the fragments.

6   (a)   Draw and explain the position of RTP in the protocol stack.
    (b)   Give brief description about the UDP protocol.

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

8   (a)   Write short notes on symmetric key signatures.
    (b)   What is message digest? Explain it in detail with a suitable example.

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Code: 9AHS701

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013
MANAGEMENT SCIENCE
(Common to ECE, E.Con.E and EIE)

Time: 3 hours   Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1   Bring out the contrast between Theory-X and Theory-Y. Do you find people of these traits around you? Illustrate.

2   Explain the "line and staff organization" and give a broad structure of such an organization in a large scale modern industry.

3   Distinguish between plant layout and process layout.

4   What is meant by product life cycle? What are the markets strategies to be followed in each of those stages?

5   Define job evaluation. Discuss the reasons for growing interest in job evaluation in recent times. Also state the limitations of job evaluation.

6 (a) What do you understand by the term project planning?
   (b) Describe in detail the procedure of computing optimal project duration in CPM.

7   What is "SWOT" analysis? How do you carry it for a technical educational institute?

8   What is supply chain management? What are the objectives and strategies of SCM?

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