

Code No: K0223

R07

Set No. 1

IV B. Tech II Semester Supplementary Examination, July - 2013
DIGITAL CONTROL SYSTEMS
(Electrical and Electronics Engineering)

Time: 3 Hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. a) Explain the operation of a sample-and-hold Circuit.
b) Explain clearly the configuration of basic digital control scheme with the help of neat block diagram.

2. a) State all the theorems of Z transform.
b) Find the inverse z-transform of the following:
(i) $\frac{z}{z-a}$ and (ii) $\frac{z-0.4}{(z-1)(z-2)^2}$

3. a) Obtain the pulse transfer function of the following transfer function
$$X(s) = \frac{s+3}{(s+1)(s+2)}$$

b) The input output of a sampled data system is described by the difference equation
 $y(k+2) + 3y(k+1) + 2y(k) = r(k)$.
Determine the pulse transfer function, the initial conditions are $y(0) = 0$, $y(1) = 1$.

4. a) Explain the computation of state transition matrix of discrete-time systems.
b) For a homogenous system given by
$$X(k+1) = \begin{bmatrix} 0 & 1 \\ -2 & -3 \end{bmatrix} X(k)$$

Obtain state transition matrix $\phi(k)$.



5. a) Explain the concept of controllability and observability.
 b) Consider the system defined by

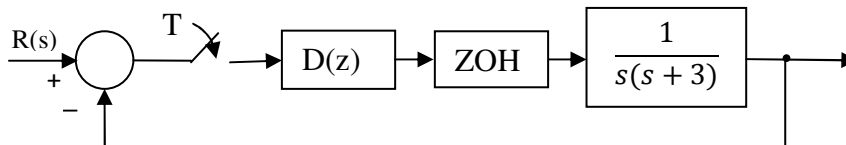
$$x(k+1) = \begin{bmatrix} -1 & 1 \\ 1 & -1 \end{bmatrix} x(k) + \begin{bmatrix} 0 \\ 1 \end{bmatrix} u(k)$$

$$y(k) = [1 \quad 1]x(k)$$

Investigate the controllability and observability of the system.

6. a) Discuss the stability analysis of a closed loop system?
 b) Consider the system described by
 $y(k+2) = 2y(k+1) - 5y(k) + 10r(k+2) - 3r(k+1) + 4r(k)$
 Determine the stability of the system.

7. Design a lag-lead compensator $D(z)$ for the digital control system shown in figure such that the compensated system satisfies the following specifications:
 $k_v = 10 \text{sec}^{-1}$, $PM = 55^\circ$, $GM \geq 10\text{dB}$. Assume that the sampling period $T = 0.1 \text{ sec}$.



8. a) Use Ackermann's formula for determination of the state feedback gain matrix.
 b) A discrete-time system is described by

$$x(k+1) = Ax(k) + Bu(k)$$

$$y(k) = Cx(k) + Du(k)$$

$$\text{Where } A = \begin{bmatrix} 2 & -1 \\ -1 & 1 \end{bmatrix}, B = \begin{bmatrix} 4 \\ 3 \end{bmatrix}, C = [1 \quad 1] \text{ and } D = [7].$$

Design a state feedback control system with $u(k) = -Kx(k)$ to place the closed loop poles at $\pm j0.5$.

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1. a) Explain the following:
 - i) Continuous time analog signal, ii) Continuous time quantized signal, iii) Sampled data signal, iv) Digital signal.
 b) Draw the block diagram of a digital control system and explain its various components.

2. a) Define Z transform and inverse Z transform
 - b) Calculate the Z-transform of the system having transfer function $T(s) = \frac{1}{1+2s}$ subject to a step input sampled at 3 Hz.

3. a) Explain the procedure to obtain the pulse transfer function of a closed loop system.
 - b) Solve the following differential equation using Z transform method
 $y(k+2) + 5y(k+1) + 6y(k) = 0$; Given that $y(0) = 0, y(1) = 1$.

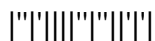
4. a) Explain about the state space representation of transfer function into controllable canonical form.
 - b) For a homogenous system given by

$$X(k+1) = \begin{bmatrix} 0 & 1 \\ -3 & 4 \end{bmatrix} X(k)$$
 Obtain the state transition matrix $\phi(k)$.

5. a) State and explain about the complete observability of discrete time systems.
 - b) Consider the system defined by

$$x(k+1) = \begin{bmatrix} 1 & -2 \\ 1 & -1 \end{bmatrix} x(k) + \begin{bmatrix} 1 & -1 \\ 0 & 0 \end{bmatrix} u(k)$$

$$y(k) = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} x(k)$$
 Investigate the controllability and observability of the system.

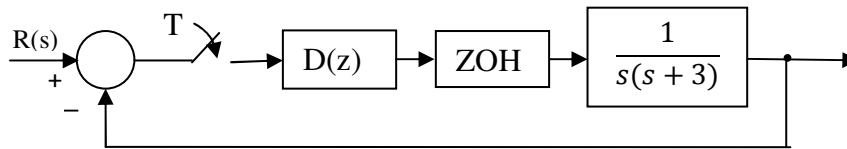


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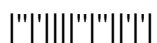
R07

Set No. 2

6. a) Explain about bounded - input, bounded - output stability.
b) Consider the following characteristic equation
$$P(z) = z^4 - 1.2z^3 + 0.22z^2 + 0.066z - 0.008 = 0.$$
Determine how many roots of the characteristic equation lie inside, on, or outside the unit circle in the z - plane.
7. Design a lead compensator $D(z)$ for the digital control system shown in figure such that the compensated system satisfies the following specifications:
 $k_v = 10 \text{sec}^{-1}$, $\text{PM} = 48^\circ$, $\text{GM} \geq 10\text{dB}$. Assume that the sampling period $T = 0.1$ sec.



8. a) Enumerate the procedure to determine the reduced order observer.
b) Prove Ackermann's formula for the determination of the state feedback gain matrix K .



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IV B. Tech II Semester Supplementary Examination, July - 2013
DIGITAL CONTROL SYSTEMS
(Electrical and Electronics Engineering)

Time: 3 Hours

Max Marks: 80

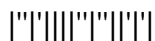
Answer any FIVE Questions
All Questions carry equal marks

1. a) What are the various type of analog to digital conversions? Discuss any one method with suitable diagram.
b) With suitable block diagram explain the general sampled data control system.
2. a) Find the z-transform of the following
(i) $x(k) = k^2 a^{k-1}; k \geq 0$ and (ii) $x(t) = e^{-at} \cos \omega t$
b) Explain the limitations of Z-transforms.
3. a) Obtain the pulse transfer function of the following transfer function
$$X(s) = \frac{s + 3}{(s + 1)(s + 2)}$$

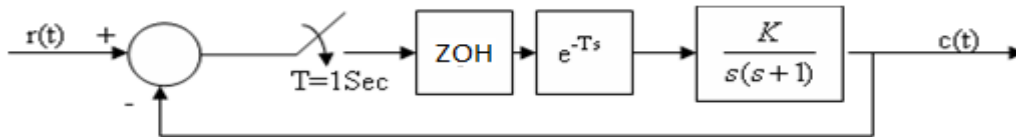
b) Solve the following differential equation using z transform method
 $y(k + 2) + 3y(k + 1) + 5y(k) = r(k + 1) - r(k).$
4. a) Explain about the discretisation of continuous-time systems.
b) A discrete-time system has the transfer function
$$G(z) = \frac{10}{z(z + 2)^2(z + 4)}$$

Determine the state model of the system.
5. a) State and explain the principle of duality.
b) Investigate the controllability and observability of the following discrete-time system
$$x(k + 1) = \begin{bmatrix} -1 & 0 \\ 0 & -2 \end{bmatrix} x(k) + \begin{bmatrix} 2 \\ 3 \end{bmatrix} u(k)$$

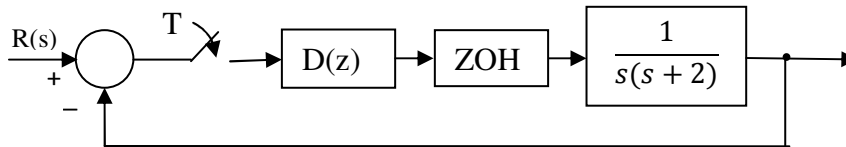
$$y(k) = [1 \quad 5]x(k)$$



6. a) Write the procedure for Jury's stability test.
 b) Find the range of K for the system shown in figure to be stable using Jury's test.



7. Design a lag compensator $D(z)$ for the digital control system shown in figure such that the compensated system satisfies the following specifications:
 $k_v = 2 \text{ sec}^{-1}$, $PM = 55^\circ$, $GM \geq 10 \text{ dB}$. Assume that the sampling period $T = 0.4 \text{ sec}$.



8. a) Explain the procedure for determination of state feedback gain matrix
 b) Consider a plant defined by
 $x(k+1) = Ax(k) + Bu(k)$
 $y(k) = Cx(k)$

$$\text{with } A = \begin{bmatrix} 0.5 & 1 & 0 \\ -1 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}, B = \begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix} \text{ and } C = [1 \ 0 \ 0]$$

Design an observer which places poles at $-0.2 \pm j0.3$ and -1 .



IV B. Tech II Semester Supplementary Examination, July - 2013
DIGITAL CONTROL SYSTEMS
(Electrical and Electronics Engineering)

Time: 3 Hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. a) With help of schematic diagram explain the principal operation of digital to analog conversion
 b) With suitable diagram explain any two methods of digital to analog conversion.

2. a) Find the z-transform of the following
 (i) $x(t) = t^2 e^{-at}$ and (ii) $x(t) = e^{-at} \sin \omega t$
 b) Find the inverse z-transform of the following:
 (i) $\frac{2z}{(2z-1)^2}$ and (ii) $\frac{z-0.4}{(z^2+z+2)}$

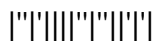
3. a) Explain about Mapping between s-plane and z-plane.
 b) Solve the following differential equation using Z transform method
 $2y(k-2) - 3y(k-1) + y(k) = r(k)$
 Where $r(k) = \begin{cases} 1 & \text{for } k = 0, 1 \\ 0 & \text{for } k \geq 2 \end{cases}$; $y(-2) = y(-1) = 0$

4. a) Explain about the state space representation of transfer function into observable canonical form.
 b) A discrete-time system is described by the state equation
 $y(k+2) + 5y(k+1) + 6y(k) = r(k)$; $y(0) = y(1) = 0$; $T = 1$ sec.
 Determine the state model in canonical form and also the state transition matrix.

5. a) Explain about the condition for complete state controllability
 b) Check for the controllability and observability of the following discrete time systems:

$$x(k+1) = \begin{bmatrix} 0 & 1 \\ -2 & -2 \end{bmatrix} x(k) + \begin{bmatrix} 1 \\ -10 \end{bmatrix} u(k)$$

$$y(k) = [1 \quad 0] x(k)$$



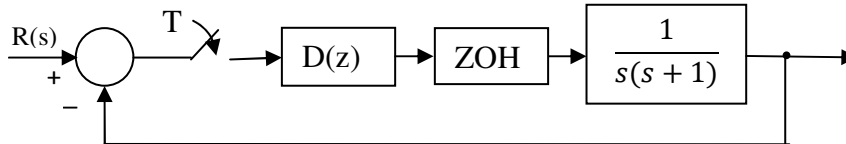
6. a) What is bilinear transformation? Explain briefly the stability analysis using bilinear transformation and Routh stability?
 b) Consider the discrete - time unity feedback control system (with sampling period $T = 1$ sec) whose open loop pulse transfer function is given by

$$G(z) = \frac{K(z+0.7181)}{(z-0.3679)(z-1)}$$

Determine the range of gain K for stability by using Jury stability test.

7. Design a lead compensator $D(z)$ for the digital control system shown in figure such that the compensated system satisfies the following specifications:

$k_v = 40 \text{sec}^{-1}$, $PM = 45^\circ$, $GM \geq 10 \text{dB}$. Assume that the sampling period $T = 0.1$ sec.



8. a) Give the procedure to determine state observer matrix.
 b) Consider system described by

$$x(k+1) = Ax(k) + Bu(k)$$

$$y(k) = Cx(k)$$

$$\text{with } A = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ -1 & -5 & -6 \end{bmatrix}, B = \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} \text{ and } C = [0 \ 0 \ 1]$$

Compute K so that the control law $u(k) = -Kx(k)$ places the closed loop poles at $-0.2 \pm j0.5$ and -0.8 .



Code No: K0324

R07

Set No. 1

IV B.Tech. II Semester Supplementary Examinations, July 2013

NANOTECHNOLOGY

(Mechanical Engineering)

Time: 3 Hours

Max Marks: 80

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

1. Explain the quantum theory of Paramagnetism & Diamagnetism.
2. a) Briefly narrate the wear properties of nano materials.
b) Explain cluster microscopy sintering of nano particles.
3. What are the unique properties of nano particles? Explain how would study those.
4. a) Explain Tunneling Conduction phenomena in nano particles.
b) Discuss in detail about Elasto – Optical effect with a neat sketch.
5. a) Explain gas condensation process for synthesis of nanopowders with a neat sketch?
b) Explain in detail Electro Deposition Technique.
6. a) Explain the working of scanning probe microscopy with schematic diagram.
b) How are optical microscopes used in nano science and technology.
7. What are the future perspectives in nano sensors? Explain
8. a) How nanotechnology is useful in diagnostic applications?
b) Why should nano materials be used in medicines?
c) Where is nano tribology important?



Code No: K0324

R07

Set No. 2

IV B.Tech. II Semester Supplementary Examinations, July 2013

NANOTECHNOLOGY

(Mechanical Engineering)

Time: 3 Hours

Max Marks: 80

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

1. Give an account of band theory of solids based on the Kronig-Penney model.
2. With a neat sketch, explain mechanical milling process for synthesis of nano particles. List out advantages and disadvantages.
3. Explain in detail magnetic characteristics of blank glass.
4. Write short notes on
 - a) Gold – Ruby Glass
 - b) Silver and copper rubies
 - c) Luminescent Glasses
 - d) Laser Glasses
5.
 - a) Explain laser ablation process for synthesis of nanopowders with a neat sketch.
 - b) What are the differences between gas condensation process and vapor condensation process employed for synthesis of nanopowders?
6.
 - a) Explain how AFM can be used in biological applications.
 - b) What are the main differences between electron and scanning probe microscopes?
7.
 - a) What are the applications of nanoprobes in biology?
 - b) How can biomolecules be used for nano material assembly?
8.
 - a) What are the typical applications of nano tribology. Explain briefly.
 - b) What are the materials used in Therapeutic applications?



Code No: K0324

R07

Set No. 3

IV B.Tech. II Semester Supplementary Examinations, July 2013

NANOTECHNOLOGY

(Mechanical Engineering)

Time: 3 Hours

Max Marks: 80

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

1. a) Write about energy bands in solids.
b) Explain principle of optical image formation.
2. a) What are the fundamental and future issues to be considered for the development of nano materials?
b) Define nano composites and classify them. Explain any one method to produce nano composites.
3. How can Mossbauer technique can be useful in nano particles of magnetite.
4. Discuss Electronic Conduction phenomena in nano particles.
5. a) What are the advantages and disadvantages in mechanical synthesis of nano powders?
b) List any four bottom up approaches for synthesis of nano powders and explain any one of them in detail.
6. a) Explain XRD technique for material characterization.
b) What do you mean by characterization related with materials. Give any four tools for characterization of materials.
7. Write short notes on
 - a) Nano sensors
 - b) Applications of nano probes.
 - c) Types of inorganic materials.
 - d) Quantum dot.
8. a) What is molecular device? Explain them briefly (any two).
b) What are the techniques available to study interfacial properties at nano scale.



Code No: K0324

R07

Set No. 4

IV B.Tech. II Semester Supplementary Examinations, July 2013

NANOTECHNOLOGY

(Mechanical Engineering)

Time: 3 Hours

Max Marks: 80

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

1. Write short notes on
 - a) Harmonic oscillator
 - b) Principle of spectroscopy
 - c) Anisotropy in crystal
2. Explain in detail Quantum dot and Quantum well. Describe the applications of quantum dot in various fields.
3. Explain Redissolution process for nano particles and draw a plot against time of growth.
4. a) Explain the correlation between electronic conduction and magnetic data in nano particles.
b) Describe in detail electrical conduction phenomena in selenium glasses.
5. a) Explain vapor condensation process for synthesis of nanopowders with a neat sketch.
b) What are the differences between top down approach and bottom up approach in synthesis of nanopowders?
6. a) What are the principle differences between SEM & TEM?
b) How do you characterize a material with transmission electron microscope with a neat sketch?
7. Explain the major aspects of nano technology involves in biology.
8. Write short notes on
 - a) Limitations of molecular devices.
 - b) Importance of protocols of nano drug.
 - c) Molecular logic gates
 - d) Various nano materials used in diagnostics.



Code No: K0522

R07

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July - 2013

E-COMMERCE

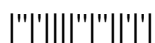
(Computer Science and Engineering)

Time : 3 hours

Max. Marks : 80

Answer any Five Questions
All Questions carry equal marks

1. a) Discuss in detail about the elements of e-commerce applications.
b) Discuss about consumer applications and social interaction. What do customers really want? What are customers willing to spend? [8+8]
2. a) Give the principle reasons for why consumer oriented e-commerce's time has come?
b) What are steps taken by customers in product/service purchasing? [8+8]
3. a) What are several factors that must be addressed before any new payment method can be successful?
b) Describe about processing payments using encrypted credit cards. [8+8]
4. a) Describe different scenarios that use EDI extensively in industries. How EDI can change the life of common man?
b) Describe information flow when paper documents are shuffled between organizations via the mail room. [8+8]
5. a) What are internal information systems in internal commerce? How do they help in improving internal organizational commerce?
b) What is customization? Explain in detail about implementation and types of mass customization. [8+8]
6. a) Share some issues in digital document management and explain different types of digital documents.
b) Explain in detail about on-line advertising paradigms that are emerging in the on-line world. [8+8]
7. a) Explain the utility of business information. Describe about Wide Area Information service engine (WAIS) and its elements in detail.
b) What is consumer search? Explain the process of consumer search in online marketing. [8+8]
8. a) Explain about the characteristics of digital video in detail.
b) Explain about using ISDN for Desktop video conferencing. [8+8]



Code No: K0522

R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July - 2013

E-COMMERCE

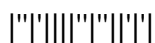
(Computer Science and Engineering)

Time : 3 hours

Max. Marks : 80

Answer any Five Questions
All Questions carry equal marks

1. a) Give the advantages of e-commerce over physical commerce.
b) Explain about e-commerce industry framework in detail. [8+8]
2. a) What is a mercantile transaction. Discuss about the major components of credit card transaction in the mercantile process?
b) Explain in detail about the order management cycle in e-commerce. [8+8]
3. a) Discuss different types of electronic payment system and what are the risks in electronic payment system.
b) Describe about online payment process using a third party processor. [8+8]
4. a) Give the Structure of EDI transactions and discuss about comparison of EDIFACT & X.12 Standards.
b) Discuss in detail about legal, security and privacy issues in EDI. [8+8]
5. a) What is intra organizational commerce? Delineate the procedure to construct an effective intra organizational commerce.
b) What are vertical and horizontal markets? Compare Vertical organization with horizontal organization. [8+8]
6. a) Define document library. Explain in detail about business that can be promoted to meet customers need by improving document management support with an example.
b) Explain in detail about on-line marketing process. [8+8]
7. a) What is electronic commerce catalogue? Explain the various types of catalogues.
b) Briefly describe about information filtering. [8+8]
8. a) What is multimedia data compression? Discuss different compression methods.
b) Describe different video conferencing programs are available on the internet. [8+8]



Code No: K0522

R07

Set No. 3

IV B.Tech II Semester Supplementary Examinations, July - 2013

E-COMMERCE

(Computer Science and Engineering)

Time : 3 hours

Max. Marks : 80

Answer any Five Questions

All Questions carry equal marks

1. a) Give the block diagram of a generic video-on-demand system.
b) Discuss about e-commerce applications on information transport providers. [8+8]
2. a) Identify some of the desirable features which essential for consumer oriented e-commerce.
b) Discuss about different phases of business process model from consumer's perspective. [8+8]
3. a) What are the properties of the electronic cash and how to purchase e-cash from an online currency server?
b) Tabulate some of the companies/consortiums that are attempting to provide infrastructure for online credit card processing. [8+8]
4. a) What is EDI? Describe about EDI envelop for message transport.
b) Explain about information flow with EDI and discuss about benefits of EDI. [8+8]
5. a) Discuss the impact of B2B commerce on supply chain management practices in retail sector.
b) What is workflow management? How product or service customization is adopted in intra organizational commerce? [8+8]
6. a) Describe about the procedure for making a business case for a document library.
b) What is the significance of online marketing? State the limitations of on-line marketing. [8+8]
7. a) Discuss different search and resource discovery paradigms in detail.
b) Explain in detail about electronic white pages? What does white pages schema data model specify? Explain. [8+8]
8. a) What is multimedia server and discuss how to manage multimedia information in detail?
b) Describe about desktop video processing and video conferencing in detail. [8+8]



Code No: K0522

R07

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July - 2013

E-COMMERCE

(Computer Science and Engineering)

Time : 3 hours

Max. Marks : 80

Answer any Five Questions

All Questions carry equal marks

1. a) How should the product is priced so that firms are competitive as well as profitable?
b) Discuss in detail about the reactions on business due to business pressures. [8+8]
2. a) What are the fundamental business issues to be addressed for wide spread of consumer oriented e-commerce?
b) Discuss in detail about home entertainment of e-commerce and also explain about the size of entertainment market. [8+8]
3. a) Explain about the payment transaction sequence in an electronic check system.
b) Discuss about the basic categories of credit card based electronic payment system. [8+8]
4. a) Discuss in detail about EDI semantic layer and EDI standard layer .
b) Describe in detail about value added networks. Elucidate about functions of a third-party VAN. [8+8]
5. a) Define global marketing? Give and explain about the characteristics of global marketing.
b) What are the macro forces influence internal commerce? Discuss remedial measures to overcome the barriers. [8+8]
6. a) Discuss different issues behind document infrastructure in detail.
b) Describe in detail about architecture of corporate data warehouse. Explain about characteristics and functions performed by data warehouse. [8+8]
7. a) Explain in detail about interactive product catalogs in electronic commerce.
b) Discuss different types of indexing methods are used by search engines in information filtering. [8+8]
8. a) What are the benefits associated with desktop video conferencing? State how to overcome the limitations of it.
b) What is meant by media convergence? Discuss the impact of media convergence on the society in general. [8+8]



Code No: K1222

R07

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July - 2013

NETWORK MANAGEMENT SYSTEMS

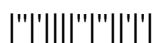
(Information Technology)

Time : 3 hours

Max. Marks : 80

**Answer any Five Questions
All Questions carry equal marks**

1. a) What is the need for network management. Who are the people involved in network management.
b) What are the future trends for network management. [10+6]
2. a) What is the purpose of object group, interfaces group and system group.
b) What is the power of network management. Give some examples.
c) How SNMP has evolved over the years? [5+5+6]
3. a) What is the access policy of SNMP.
b) How the SNMP message is encapsulated.?
c) Explain how SNMP and non-SNMP communities are managed by SNMP manager. [6+5+5]
4. a) What is SNMP proxy server? Give its configuration.
b) Discuss the compatibility of SNMPv1 and SNMPv2. [8+8]
5. a) What are the groups and functions of RMON1?
b) What is the relation between control and data tables in RMON? [8+8]
6. a) How the Telecommunications management network is different from Data network management?
b) What is the need for Telecommunications management network?
c) What is the need for operations support system for TMN. [6+4+6]
7. a) What are the tools available for network status monitoring?
b) What are the tools available for Network-traffic monitoring? [8+8]
8. Explain how Web based management works. [16]



Code No: K1222

R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July - 2013

NETWORK MANAGEMENT SYSTEMS

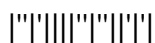
(Information Technology)

Time : 3 hours

Max. Marks : 80

**Answer any Five Questions
All Questions carry equal marks**

1. a) What are the challenges faced by information technology managers in the context of the network management.
b) What are the devices which can be used for network management. What are the software tools which can be used for network management. [8+8]
2. a) What is the purpose of Address Translation group, IP group.
b) What is the use of RFC and Internet drafts. What are the RFCs related to SNMP. [10+6]
3. a) Write the macro definition of SNMP as per RFC-1157.
b) What is the use of Trap PDU. Give its format. Explain it. [5+11]
4. a) Write about the GetBulkRequest PDU operation and InformRequest PDU operations of SNMPv2. Give an example for GetBulkRequest operation for MIB.
b) What is the format of Data Structure of SNMPv2 PDUs. [10+6]
5. a) Describe in detail about ATM remote monitoring.
b) How Remote network monitoring is done in Ethernet? [8+8]
6. a) What are the study groups responsible for TMN activities?
b) Explain the Functional architecture of TMN.
c) Explain the information architecture of TMN. [5+6+5]
7. a) What are the tools available for network routing?
b) What is the use of protocol analyzer?
c) How traffic load monitoring is done. [5+5+6]
8. a) What is an interface? How the web interface is provided for SNMP.
b) How Java helps in network management? [8+8]



Code No: K1222

R07

Set No. 3

IV B.Tech II Semester Supplementary Examinations, July - 2013

NETWORK MANAGEMENT SYSTEMS

(Information Technology)

Time : 3 hours

Max. Marks : 80

Answer any Five Questions
All Questions carry equal marks

1. a) What are the goals of network management?
b) What are the challenges of information technology managers?
c) How the users of network can contribute to network management. [6+6+4]
2. a) What is the structure of managed objects.
b) Explain the two-tier organizational model of SNMP. [6+10]
3. Explain about SNMP operations in network management. [16]
4. a) Explain SNMPv2 Management information base.
b) What are the Conformance statements for the implementation of network management standards. [8+8]
5. a) How Remote network monitoring is done in Token ring.
b) What are the groups of RMON2 MIB. [8+8]
6. a) Explain the integrated view of TMN.
b) What are the problems with TMN implementation.
c) With example, explain the realization of TMN architecture. [6+6+4]
7. a) How counters and rates are related in network management.
b) Explain the object oriented approach to MIB engineering.
c) What are the functional requirements of NMS server. [4+6+6]
8. a) What is storage area network? Describe about management of a SAN.
b) What are the current trends and future directions for web based network management. [8+8]



Code No: K1222

R07

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July - 2013

NETWORK MANAGEMENT SYSTEMS

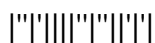
(Information Technology)

Time : 3 hours

Max. Marks : 80

**Answer any Five Questions
All Questions carry equal marks**

1. a) What are the protocols and standards related to network management.
b) What are functions performed by network managers? [8+8]
2. a) What is an aggregate object?
b) With the help of a diagram, explain the SNMP network management architecture. [6+10]
3. a) Explain the functional model of SNMP.
b) Give examples of SNMP PDU. [10+6]
4. a) With the help of a diagram explain the SNMPv2 network management architecture on multiple transport domains.
b) What are the changes in SNMPv2 when compared to SNMPv1. [10+6]
5. a) What are the commonalities and differences between RMON and ATM.
b) Explain a case study on Internet traffic using RMON. [8+8]
6. a) What are the types of Telecommunication resources?
b) What are the different TMN recommendations.
c) What are the reasons for delay in the acceptance of TMN concept. [6+6+4]
7. a) Describe about architecture of NMS server?
b) What are the functions of performance manager?
c) How fault management is done in network management. [6+5+5]
8. a) Describe in details about web interface to SNMP management.
b) Explain the desktop management interface. [8+8]



Code No: L0421

R07

Set No. 1

**IV B.Tech II Semester Supplementary Examinations, July - 2013
EMBEDDED AND REAL TIME OPERATING SYSTEMS**

**(Common to Electronics & Communication Engineering and Electronics and
Instrumentation Engineering)**

Time : 3 hours

Max. Marks : 80

**Answer any Five Questions
All Questions carry equal marks**

1. a) Distinguish between the main characteristics of embedded systems with other computing systems.
b) Explain the difference between synchronous and asynchronous circuits with relevant example.
2. Illustrate how program and data memory fetches can be overlapped in a Harvard Architecture with suitable example.
3. What are the requirements of real time systems? Explain them in brief. Give the suitable examples of actual real time systems.
4. a) Explain the need of UART in the RS232 communication.
b) What is the need of communication in an embedded system? Explain with an example.
5. a) What are the objects of an operating system kernel? Discuss about them in brief.
b) What is task scheduling? Explain the various scheduling algorithms, in brief.
6. Explain the role of event register in an embedded RTOS with an example.
7. a) Present the uses of operating systems interoperability and portability.
b) List the advantages and disadvantages of fixed and dynamic block allocations by the operating systems
8. Write short notes on Automation and Synthesis.



Code No: L0421

R07

Set No. 2

IV B.Tech II Semester Supplementary Examinations, July - 2013
EMBEDDED AND REAL TIME OPERATING SYSTEMS
(Common to Electronics & Communication Engineering and Electronics and
Instrumentation Engineering)

Time : 3 hours

Max. Marks : 80

Answer any Five Questions
All Questions carry equal marks

1. a) What are the three main processor technologies available for an embedded systems design? Present the benefits of using each.
b) What is meant by single purpose processor? Explain the benefits of choosing the same over a general purpose processor.
2. Write short notes on application specific instruction set processors (ASIPs).
3. Describe the computational models commonly used in embedded systems and their peripherals. For each model, list two languages that can be used to capture it.
4. a) Describe how the RS422 is different from the RS232. Tabulate the same.
b) Describe the CSMA/CA functionality with an example.
5. a) What is interrupt latency? Illustrate with an example.
b) Explain how a semaphore can be used for inter-task synchronization.
6. a) Describe the Rate Monotonic Analysis for priority assignment for a task.
b) Differentiate mail boxes and message queues used in RTOS.
7. a) What are the operating system functions at an RTOS kernel? Explain them, in brief.
b) Explain the importance of device management in an operating system for an embedded system.
8. a) Give the stages in the parallel evolution of compilation and synthesis and explain each stage.
b) What is meant by Logic Synthesis? Discuss about it.



Code No: L0421

R07

Set No. 3

**IV B.Tech II Semester Supplementary Examinations, July - 2013
EMBEDDED AND REAL TIME OPERATING SYSTEMS**

**(Common to Electronics & Communication Engineering and Electronics and
Instrumentation Engineering)**

Time : 3 hours

Max. Marks : 80

**Answer any Five Questions
All Questions carry equal marks**

1. a) What are the main design technologies used in embedded systems? How these technologies are helpful to designers?
b) What is meant by 'edge triggered'? Explain its significance.
2. Compare and realize the normal condition pipeline with the jump condition based pipeline. Discuss how the pipelining is effected by the intervention of jump instructions in sequential program.
3. Differentiate between communication among processor and synchronization among processors.
4. a) Differentiate Ethernet with the IEEE 802.11 standard.
b) Explain the concept of PAN with state transition diagram.
5. a) Explain the difference between semaphore and mutex.
b) Describe the Interrupt Service Routine work in normal task running condition.
6. Explain the use of message queues, mailboxes and pipes in an embedded RTOS.
7. a) What is Dynamic program scheduling? Explain.
b) Explain about timers and memory management.
8. a) Differentiate RT synthesis and Behavioral Synthesis.
b) Write short notes on hardware/software co-design.



Code No: L0421

R07

Set No. 4

IV B.Tech II Semester Supplementary Examinations, July - 2013
EMBEDDED AND REAL TIME OPERATING SYSTEMS
(Common to Electronics & Communication Engineering and Electronics and
Instrumentation Engineering)

Time : 3 hours

Max. Marks : 80

Answer any Five Questions
All Questions carry equal marks

1. a) What are the main IC technologies? Explain the benefits of using each of the three different IC Technologies?
b) Describe whether the following are synchronous or asynchronous circuits?
a) Multiplexer b) Register c) Decoder.
2. Draw and explain the architecture of a simple 8086 microprocessor.
3. Show that the buffer size in the consumer-producer problem will never exceed one. Re-implement this problem using monitors, to allow the size of the buffer to reach its maximum. Write the necessary source code and explain.
4. a) Explain where IEEE 1394 standard is applicable and present its protocol architecture.
b) Does 802.11b stands for Bluetooth technology. Explain how it is differ from other wireless communication technologies.
5. a) Differentiate between preemptive and non-preemptive operating systems.
b) Discuss priority inheritance is an important feature.
6. a) How the mail boxes differ from event registers.
b) Describe in detail about the pipe functions.
7. a) Write short notes on watchdog timers.
b) State and explain the priority inversion problem.
8. a) What do you mean by hardware/software co-simulation?
b) Write notes on reuse of intellectual property codes.

