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Code No: RT21042

R13

SET - 1

II B. Tech I Semester Regular Examinations, Dec - 2014

DATA STRUCTURES

(Com. to ECE, CSE, EIE, IT, ECC)

Time: 3 hours

Max. Marks: 70

-
- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) Define Recursion with example
b) Differentiate between linear search and binary search
c) Discuss about the transformation from infix to postfix.
d) Write a short note on circular linked list.
e) Explain about the operations on a singly linked list.
f) Discuss post order traversal in a binary tree.
g) What is Threaded binary tree?
h) Explain about adjacency matrix with example. (3M+2M+3M+3M+3M+3M+2M+3M)

PART-B

2. a) Sort the following numbers using merge sort
45, 34, 12, 46, 27, 56, 11, 87, 6, 33, 28
b) Write an algorithm for Quick sort and also analyze the time complexity. (8M+8M)
3. a) Differentiate between stack and Queues.
b) Write programs for implementing stacks and queues. (8M+8M)
4. a) What are the operations of a singly linked list? Discuss.
b) Write an algorithm to sort the elements in a linked list. (8M+8M)
5. a) Write a non recursive algorithm for preorder traversal in a tree with an example.
b) What is a balanced binary tree? How it is different from the BST? Discuss. (8M+8M)

6. a) What is a Binary Tree? How to represent binary tree? Explain

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SET - 2

II B. Tech I Semester Regular Examinations, Dec - 2014

DATA STRUCTURES

(Com. to ECE, CSE, EIE, IT, ECC)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) Write an algorithm for Fibonacci sequence
b) Explain about bubble sort.
c) What is stack? Discuss.
d) What are the applications of singly linked list?
e) Write a short note on doubly linked list.
f) Explain about the Binary Tree with example.
g) Define binary search tree with example.
h) Write a short note on prim's algorithm. (3M+3M+3M+3M+2M+2M+3M+3M)

PART-A

2. a) Sort the following numbers using Quick sort
45, 34, 12, 46, 27, 56, 11, 87, 6, 33, 28
b) Write an algorithm for merge sort and also analyze the time complexity (8M+8M)
3. a) How to represent Queues? Discuss.
b) Write an algorithm for infix to postfix conversion. (8M+8M)
4. a) Explain about the insert and delete operations in a singly linked list.
b) Write an algorithm to reverse a given linked list. (8M+8M)
5. a) What is balanced binary tree? What are the applications of it?
b) Write a non recursive algorithm for post order traversal with an example. (8M+8M)

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SET - 3

II B. Tech I Semester Regular Examinations, Dec - 2014

DATA STRUCTURES

(Com. to ECE, CSE, EIE, IT, ECC)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) Write an algorithm for the computation of GCD.
b) What are the applications of stack?
c) Define Circular queue with example.
d) What is sparse Matrix? Discuss.
e) What are the properties of Binary trees.
f) What is the need of balanced binary trees?
g) Explain about the warshall's algorithm.
h) What is transitive closure? Explain (3M+2M+3M+3M+3M+2M+3M+3M)

PART-A

2. a) Sort the following numbers using heap sort
45, 34, 12, 46, 27, 56, 11, 87, 6, 33, 28
b) Write an algorithm for bubble sort and also analyze the time complexity (8M+8M)
3. a) How to represent stacks? Discuss.
b) Write a program to evaluate postfix expressions. (8M+8M)
4. a) How to represent single linked list? Discuss.
b) Write an algorithm to delete duplicates in a linked list. (8M+8M)
5. a) Explain about the insert procedure in binary search tree.
b) Write an algorithm for deleting an element from a binary search tree. (8M+8M)
6. a) Discuss about different binary tree traversals with examples.

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SET - 4

II B. Tech I Semester Regular Examinations, Dec - 2014

DATA STRUCTURES

(Com. to ECE, CSE, EIE, IT, ECC)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
-

PART-A

1. a) Which sorting technique is efficient? Discuss.
b) What are the applications of Queues?
c) Define Priority Queue with example.
d) What are the advantages of linked list?
e) Explain about the binary tree traversals using recursion with examples.
f) What are the applications of balanced binary trees? Explain.
g) Explain about the delete procedure for binary search tree.
h) Differentiate between DFS and BFS. (2M+2M+3M+2M+4M+3M+3M+3M)

PART-B

2. a) Sort the following numbers using insertion sort
45, 34, 12, 46, 27, 56, 11, 87, 6, 33, 28
b) Write an algorithm for heap sort and also analyze the time complexity. (8M+8M)
3. a) Discuss about the stack with examples
b) Write an algorithm to implement queue using stack. (8M+8M)
4. a) Differentiate between doubly and circular linked lists.
b) Write an algorithm to insert, delete and display the elements in a given doubly linked list. (6M+10M)
5. a) What is a Binary search tree? Discuss.
b) Write an algorithm for insert an element into a binary search tree. (10M+6M)

II B. Tech I Semester Supplementary Examinations, Dec - 2014
MECHANICS OF MATERIALS
 (Civil Engineering)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
 All Questions carry **Equal** Marks

1. a) Explain the different types of coplanar forces and also write their equations of equilibrium.
 b) A circular cylinder of weight 2.5 kN and diameter 300 mm is supported by a right angled groove as shown in Figure 1. Determine the reactions at the points of contact. Assume all surfaces are to be smooth.

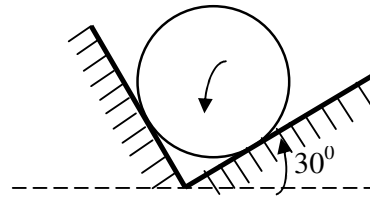
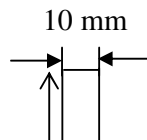


Figure 1

2. a) State and explain the Laws of Friction.
 b) A ladder of length 8 m and weight 200 N is placed against a smooth vertical wall and a rough horizontal floor. The ladder is at an inclination of 60° with respect to horizontal. Determine the coefficient of friction of the floor to keep the ladder in equilibrium configuration.
3. An open-belt drive connects two pulleys 1 m and 0.6 m diameters, on parallel shafts 4.5 m apart. The maximum tension in the belt is 2 kN. The driver pulley of diameter 1 m runs at 225 rpm. The coefficient of friction is 0.32. Find the power transmitted and the torque on each of the two shafts.
4. Determine the directions of principal axes and the principal moments of inertia of the cross-section shown in Figure 2.



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SET - 1

II B. Tech I Semester Regular Examinations, Jan - 2015
DIGITAL LOGIC DESIGN
(Com. to CSE, IT)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) What are the characteristics of 2's complement numbers?
b) State the purpose of reducing the switching functions to minimal form.
c) Define half adder.
d) What are the basic operations in Boolean algebra?
e) How do you convert one type of flip-flop into another?
f) What are shift registers?
g) What is the basic architecture of a PLA?
h) Compare a decoder with a Demultiplexer. (3M+3M+2M+3M+3M+2M+3M+3M)

PART-B

2. a) The solution to the quadratic equation $x^2 - 11x + 22 = 0$ is $x = 3$ and $x = 6$. What is the base of numbers.
b) Using 10's complement, subtract
i) $72532_{10} - 3250_{10}$ ii) $3250_{10} - 72532_{10}$. What do you infer from the results. (8M+8M)
3. Using K-map method determine the prime implicant and obtain the possible minimal expression for the following function
 $F(A,B,C,D) = \Sigma m(8,12,13) + d(1,2,4,6,7,11)$ (16M)
4. a) Implement the following switching function using a Four input multiplexer
 $F(A, B, C, D) = \Sigma m (0, 1, 2, 4, 6, 9, 10, 13, 14)$
b) A Combinational circuit is defined by the following three Boolean functions
 $F_1 = x'y'z' + xz$ $F_2 = xy'z' + x'y$ $F_3 = x'y'z + xy$
Design the circuit with a decoder and external gates. (8M+8M)
5. a) Define the following terms related to flip-flops.
i) set-up time ii) hold time iii) propagation delay iv) preset and v) clear.
b) Discuss D-type edge- triggered flip-flop in detail? (9M+7M)

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R13

SET - 2

II B. Tech I Semester Regular Examinations, Jan - 2015
DIGITAL LOGIC DESIGN
(Com. to CSE, IT)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) How are negative numbers represented?
b) What is a cell of a K-map?
c) Define full Subtractor.
d) Write the Boolean algebraic laws.
e) What is meant by race around condition in flip-flops?
f) What is the basic difference between a shift register and a counter?
g) Give the comparison between PROM, PLA, and PAL.
h) What is a standard SOP form? (2M+3M+2M+3M+3M+2M+3M+3M)

PART-B

2. a) What is the advantage of 1's and 2's complement in computers. Represent +45 and -45 in sign-magnitude, sign-1's complement and sign-2's complement representation.
b) Explain about Weighted and non-weighted codes (8M+8M)
3. a) Prove that AND - OR network is equivalent to NAND-NAND network
b) Define the following terms with respect to K-Map with an example.
i) Prime implicant ii) Redundant terms
iii) Essential Prime implicant iv) Octet (8M+8M)
4. a) Implement a full adder with two 4×1 multiplexers.
b) Implement Half adder using 5 NAND gates (8M+8M)
5. a) Convert a T flip flop to D type flip flop.
b) Explain the working of a master-slave JK flip flop. State its advantages. (8M+8M)

6. a) Draw and explain 4 bit universal shift register

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SET - 3

II B. Tech I Semester Regular Examinations, Jan - 2015
DIGITAL LOGIC DESIGN
(Com. to CSE, IT)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) What do you mean by end around carry? When does it come into picture?
- b) What is the importance of Universal Gates?
- c) Define Encoder.
- d) What is a prime implicant in K-map?
- e) Distinguish between synchronous and asynchronous latches?
- f) What are the applications of shift registers?
- g) Is it possible to share the product terms between different outputs in a PLA? If yes, how?
- h) What is the advantage of SOP and POS forms of realization?

(2M+3M+2M+3M+3M+2M+3M+3M)

PART-B

2. a) The binary numbers listed have a sign bit in the left most position and, if negative numbers are in 2's complement form. Perform the arithmetic operations indicated and verify the answers.
i) $101011 + 111000$ ii) $001110 + 110010$ iii) $111001 - 001010$ iv) $101011 - 100110$
- b) Explain about Weighted and non-weighted codes (8M+8M)

3. List out the Basic Theorems and Properties of Boolean Algebra. Justify with Proof. (16M)

5. a) Determine how the circuit shown in Fig. 1 functions as a T-type flip-flop. What problem would there be when $T=1$ and how could it be resolved.

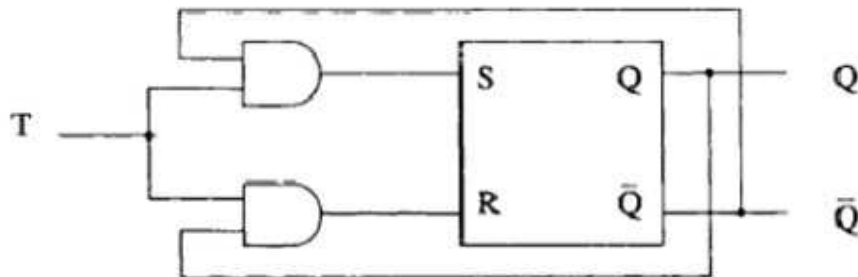


Figure 1

- b) Convert a SR flip-flop to D type flip flop? (8M+8M)
6. a) Draw the logic diagram for a 4-bit binary ripple down counter using positive edge triggered flip-flops.
- b) Explain different types of shift registers. (8M+8M)
7. a) Draw and explain the block diagram of PLA.
- b) Tabulate the PLA programmable table for the four Boolean functions given below:
- $$F_1(x,y,z) = \sum m(1,2,4,6)$$
- $$F_2(x,y,z) = \sum m(0,1,6,7)$$
- $$F_3(x,y,z) = \sum m(2,6)$$
- $$F_4(x,y,z) = \sum m(1,2,3,5,7).$$
- (8M+8M)

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SET - 4

II B. Tech I Semester Regular Examinations, Jan - 2015
DIGITAL LOGIC DESIGN
(Com. to CSE, IT)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) Why is the binary number system used in digital systems?
b) State the Duality principle with example.
c) Define Demultiplexer.
d) What are the limitations of K-maps?
e) What are the various methods used for triggering flip-flops?
f) What are the advantages and disadvantages of ripple counters?
g) How is the capacity of a PLA specified?
h) How do you convert a decimal number into a number in any other system with base b?
(2M+3M+3M+3M+3M+2M+3M+3M)

PART-B

2. a) Explain how 1's complement and 2's complement of a binary number is obtained? Illustrate by an example.
b) What is gray code? What are the rules to construct gray code? Develop the 4 bit gray code for the decimal 0 to 15. (8M+8M)
3. a) List the universal gates? Implement XOR & XNOR gates using universal gates?
b) Implement the following functions in canonical Sop and Pos forms
i) $f(A, B, C, D) = A'B + BC + CD' + ACD$
ii) $f(A, B, C, D) = (A + B' + C)(A + D)(B' + C')(A + B + C)$ (8M+8M)
4. a) Design an octal to binary encoder.
b) Design a full subtractor and implement it using NAND gates. Explain its operation with the help of truth table? (8M+8M)
5. a) Distinguish between combinational logic and sequential logic.
b) How could:
i) a JK flip-flop be used as a D-type? ii) a JK flip-flop be used as a T-type?

Code No: R21026

R10

SET - 1

II B. Tech I Semester Supplementary Examinations, Jan - 2015

ELECTRONIC DEVICES AND CIRCUITS

(Com. to EEE, ECE, EIE, ECC, CSE, IT, BME)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) Differentiate Electrostatic Deflection and magneto static Deflection systems.  
b) Derive the expression for force on charged particles in electric field.
2. a) What is meant by Hall Effect and derive the expression for Hall coefficient.  
b) A bar of intrinsic Ge 6cm long is subjected to a potential difference of 12 V. If the velocity of electrons in the bar is 73 m/s, determine the mobility of electrons.
3. a) Explain the operation of open circuited PN junction with charged density and electric field distributions.  
b) Explain in brief about the current components in PN Diode.
4. a) Explain the working of half wave rectifier with a neat circuit diagram.  
b) Derive the expression for efficiency, ripple factor of full wave rectifier and calculate the same for half wave rectifier.
5. a) Explain the operation of PNP and NPN transistors.  
b) Obtain the expression for collector current of a transistor in CE configuration.
6. a) Explain the working principle of enhancement mode MOSFET with a neat diagram.  
b) Describe the differences and applications of BJT and JFET.
7. a) What is meant by Biasing? Explain different biasing methods of transistors.  
b) Calculate the stability factor for a self bias circuit with the given data.  
 $R_C = 1K$ ,  $R_E = 100 \text{ Ohms}$ ,  $\beta = 99$ ,  $V_{CE} = 6V$ , and  $V_{CC} = 10V$ . (Assume data if necessary)
8. Analyze the transistor CB amplifier circuit using h-parameters, and derive the expressions for voltage gain, current gain, input and output impedances.

Code No: R21026

**R10**

**SET - 2**

**II B. Tech I Semester Supplementary Examinations, Jan - 2015**

**ELECTRONIC DEVICES AND CIRCUITS**

(Com. to EEE, ECE, EIE, ECC, CSE, IT, BME)

Time: 3 hours

Max. Marks: 75

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Answer any **FIVE** Questions  
All Questions carry **Equal** Marks

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1. a) Explain the working of CRO with the help of neat block diagram.
b) List advantages and disadvantages of electrostatic and magneto static deflection systems.
2. a) What is Fermi Level? Prove that the Fermi Level in P-type material is much closer to valence band.
b) Find the concentration of holes and electrons in a p- type semiconductor at 300^0 K assuming resistivity as 0.02 ohm-cm. Assume $\mu_p=475\text{m}^2/\text{v}\cdot\text{sec}$, $n_i=1.45\times 10^{10}$ per cm^3
3. Define diffusion capacitance and diode resistance with respect to a PN diode and derive the expressions for it.
4. a) Define ripple factor and derive the expression for a full wave rectifier.
b) Compare half wave and full wave rectifiers.
5. a) Explain the operation of transistor as an amplifier.
b) Explain the different regions of operation of transistor in CB configuration.
6. a) Explain MOSFET V-I characteristics in enhancement and depletion modes.
b) What are the advantages of JFET over BJT?
7. a) Explain the concept of AC load line and DC load line with necessary characteristics.
b) Write short notes on:
i) Thermal runaway ii) Thermal stability
8. Draw the h-parameters model of a transistor CE configuration and derive the expressions for voltage gain, current gain, input impedance and output impedance.

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R10

SET - 3

II B. Tech I Semester Supplementary Examinations, Jan - 2015

ELECTRONIC DEVICES AND CIRCUITS

(Com. to EEE, ECE, EIE, ECC, CSE, IT, BME)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) Explain electrostatic deflection in Cathode Ray Tube and derive the expression for deflection sensitivity.  
b) List and explain the applications of CRO.
2. a) Explain about Extrinsic Semiconductors.  
b) Derive the expression for conductivity for both N-type and P-type material.  
c) Describe about the Fermi level in extrinsic semiconductors.
3. a) Differentiate Avalanche and Zener breakdown mechanisms.  
b) Explain the characteristics of Tunnel diode with the help of energy band diagram.
4. a) Explain the operation of Zener diode as Voltage Regulator.  
b) A half wave rectifier uses a capacitor input filter with 500 $\mu$ F capacitor and provides a load current of 200mA at 0.08 ripple calculate: i) DC voltage across the filter capacitor ii) Peak rectified voltage obtained from the 60 Hz.
5. a) Explain the concept of punch through or reach through, in a transistor.  
b) What is the best transistor configuration? Justify.
6. a) Explain the operation of SCR with its V-I characteristics.  
b) Define Holding current and Latching current of SCR.
7. a) Explain about thermal stabilization of a transistor.  
b) For a self bias amplifier circuit with  $V_{CC} = 15V$ ,  $R_1 = 103k$ ,  $R_2 = 121k$ ,  $R_C = 2k$  and  $R_E = 1k$ .  
Determine: i)  $I_B$  ii)  $I_C$  iii) Stability factor S for  $\beta = 120$  (Assume  $V_{BE} = 0.7V$ )

8. a) Compare different amplifier configurations

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**R10**

**SET - 4**

**II B. Tech I Semester Supplementary Examinations, Jan - 2015**

**ELECTRONIC DEVICES AND CIRCUITS**

(Com. to EEE, ECE, EIE, ECC, CSE, IT, BME)

Time: 3 hours

Max. Marks: 75

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Answer any **FIVE** Questions  
All Questions carry **Equal** Marks  
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1. a) Explain the principle of magnetic focusing.
b) Derive the expression for force on charged particle in magnetic field.
2. a) Explain the process of Diffusion in Semiconductors and derive the Continuity Equation
b) Describe the Fermi level in intrinsic and extrinsic semi conductor.
3. a) Explain the working of Tunnel Diode with V-I characteristics.
b) Give the applications of following diodes
 - i) Tunnel Diode
 - ii) Varactor Diode
 - iii) LED
 - iv) PIN Diode
4. a) Compare a half wave rectifier with various filters in terms of peak factors, efficiency, and ripple factors.
b) Explain the operation of L-section filter and π -section filters with the help of neat waveforms.
5. a) Distinguish between various transistor configurations.
b) Explain the input and output characteristics of transistor in CC configurations.
6. a) Explain the operation of UJT with its V-I characteristics.
b) Define Peak voltage and Intrinsic Ratio of UJT.
7. Explain different Bias Compensation techniques and explain the compensation against the variation in V_{BE} , and I_{CO} .
8. Consider a single stage CE amplifier with $R_s=1k\Omega$, $R_1=50k\Omega$, $R_2=2k\Omega$, $R_c=1k\Omega$, $R_L=1.2k\Omega$, $\beta=50$, $h_{ie}=1.1k\Omega$, $h_{fe}=25$ and $h_{re}=2.5 \times 10^{-4}$. Find A_v , P_{in} , $A_{v_{mid}}$ and P_{out} .

Code No: RT21034

R13

SET - 1

II B. Tech I Semester Supplementary Examinations, Jan - 2015
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS
(Com. to ME, ECE, CSE, IT, ECC, MTE)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART - A

1. a) Write a brief note about Macro Economics
b) What is Isoquants
c) What is an Optimum costs
d) Explain the Margin of safety
e) Distinguish between Public Company Vs Private Company
f) Explain the Phases of trade cycle
g) What is Accounting Cycle?
h) Write about accounting rate of return (3M+2M+3M+3M+3M+3M+3M+2M)

PART - B

2. a) Define Managerial economics and explain its nature and scope.
b) Define the law of demand. What are its exceptions? Explain (8M+8M)
3. a) Discuss the economies of scale that accrue to a firm.
b) How do you determine BEP. Show graphical presentation of BEA. (8M+8M)
4. a) Differentiate between Perfect and Imperfect markets.
b) Explain Price-Output determination in Monopolistic competition. (7M+9M)
5. a) Evaluate Sole trader form of organisation.
b) Explain the Innovations theory of business cycles. (7M+9M)
6. a) Journalise the following transactions.
2003 Jan.1 ABC firm commenced business with Rs.40,000
Jan.2 Deposited into bank Rs.30,000

Code No: RT21034

R13

SET - 2

II B. Tech I Semester Supplementary Examinations, Jan - 2015
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS
(Com. to ME, ECE, CSE, IT, ECC, MTE)

Time: 3 hours

Max. Marks: 70

-
- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART - A

1. a) Economics as a science of wealth: Discuss
b) How to calculate Demand forecasting in case of new products
c) Explain the Cobb-Douglas production function
d) Define the Long-run average cost curve
e) What are the objectives of pricing?
f) Write about Partnership deed
g) What is Current Ratio?
h) Explain the Internal rate of return (3M+3M+3M+2M+3M+2M+3M+3M)

PART - B

2. a) What is Demand function? How do you determine it?
b) What do you understand by elasticity of Demand? Explain the factors governing it. (8M+8M)
3. a) Explain the laws of returns with appropriate examples.
b) Explain how Cost-Output relationship helps the entrepreneurs in expansion decisions. (8M+8M)
4. a) Differentiate between Perfect competition and Monopoly.
b) Explain any four methods of Pricing based on Strategy. (7M+9M)
5. a) What do you understand by Joint Stock Company? Explain its features.
b) Discuss the measures to control business cycles. (9M+7M)
6. a) A firm sold goods worth Rs.5,00,000 and its gross profit is 20 percent of sales value. The inventory at the beginning of the year was Rs.16,000 and at end of the year was Rs.14,000.

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SET - 3

II B. Tech I Semester Supplementary Examinations, Jan - 2015
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS
(Com. to ME, ECE, CSE, IT, ECC, MTE)

Time: 3 hours

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2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART - A

1. a) Define the Law of equi-marginal utility
b) Explain Significance of advertising elasticity of demand
c) What is Diseconomies of scale?
d) Write about Angle of Incidence
e) What is Penetration Pricing?
f) Explain the Prosperity or Full employment
g) What is Trial Balance?
h) Describe the Profitability Index (3M+3M+3M+2M+2M+3M+3M+3M)

PART - B

2. a) Explain how do you measure elasticity of demand.
b) Explain different methods of demand forecasting. (7M+9M)
3. a) Define Production function? How can a producer find it useful?
b) Explain the features of short-run average cost curve and long-run average cost curve. (8M+8M)
4. a) Discuss the factors those influence price decisions.
b) Explain Williamson's Managerial Discretionary theory. (8M+8M)
5. a) Discuss the problems faced by the Public enterprises in India.
b) Explain the Modern theory of Trade cycles. (8M+8M)
6. a) Prepare ledger posting for the following transactions.
2003 Jan.5 Paid rent Rs.4,000
Jan.6 Sold goods worth Rs.50,000 to Suresh
Jan.7 Bought goods from Devi Rs.14,000
Jan.8 Paid salaries Rs.1,000
b) Differentiate between cash flow and funds flow statements (8M+8M)

Code No: RT21034

R13

SET - 4

II B. Tech I Semester Supplementary Examinations, Jan - 2015
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS
(Com. to ME, ECE, CSE, IT, ECC, MTE)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART - A

1. a) Explain the Features of Robbins definition of economics
b) What is Income Elasticity?
c) Explain the Law of increasing returns
d) What is Contribution?
e) Write about Oligopoly
f) Define the Articles of Association
g) Explain the Debt-equity ratio
h) Describe the Capital rationing (3M+3M+3M+2M+2M+3M+3M+3M)

PART - B

2. a) Explain how managerial economics is linked with other academic disciplines.
b) Describe how point elasticity is more focussed than arc elasticity. (8M+8M)
3. a) Explain how short-run and long-run influence the costs.
b) A company makes a single product with a sales price of Rs.10 and a variable cost of Rs.6 per unit, fixed costs are Rs.60,000. Calculate i) Number of units to break even ii) Sales at break even. (7M+9M)

Code No: RT21034

R13

SET - 4

6. a) Calculate Net profit ratio from the following data.

Sales returns Rs.1,00,000 Administration expenses Rs.10,000

Gross profit Rs.40,000 Selling expenses Rs.10,000

Income from Investment Rs.5,000 Loss on account of fire Rs.3,000

b) Explain different accounting concepts and accounting conventions. (9M+7M)

7. a) Explain the nature of capital budgeting.

b) Radhika enterprises ltd is contemplating the purchase of a machine. Two machines A and B are available each at Rs.2,50,000.

Net Cash Inflows (Amt. in Rs.)

Year	Machine A	Machine B
1	75,000	25,000
2	1,00,000	50,000
3	1,25,000	1,00,000
4	75,000	1,50,000
5	50,000	1,00,000

Calculate Net Present Value Method @10%. (7M+9M)

Code No: RT21052

R13

SET - 1

II B. Tech I Semester Regular Examinations, Jan - 2015
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE AND ENGINEERING
(Com. to CSE, IT, ECC)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) Find the PDNF of $(\sim p \leftrightarrow r) \wedge (q \leftrightarrow p)$?
b) Explain in brief about fermats theorem?
c) Let R be the Relation $R = \{(x,y) / x \text{ divides } y\}$. Draw the Hasse diagram?
d) Explain about BFS and DFS?
e) Find the number of Permutations the JNTUCEK word?
f) Solve the Recurrence Relation $u_n + 5u_{n-1} + 6u_{n-2} = 3n^2 - 2n + 1$? (3M+3M+5M+3M+3M+5M)

PART-B

2. a) Define Well Formed Formula? Explain about Tautology with example?
b) Explain in detail about the Logical Connectives with Examples? (8M+8M)
3. Explain in brief about Euler's theorem with examples? (16M)
4. a) Define Relation? List out the Properties of Binary operations?
b) Let the Relation R be $R = \{(1,2), (2,3), (3,3)\}$ on the set $A = \{1,2,3\}$. What is the Transitive Closure of R? (8M+8M)
5. a) Explain in brief about Prim's algorithm?
b) Explain in brief about Kruskal's algorithm? (8M+8M)
6. a) Prove that a group consisting of three elements is an abelian group?
b) Prove that $G = \{-1, 1, i, -i\}$ is an abelian group under multiplication? (6M+10M)

Code No: RT21052

R13

SET - 2

II B. Tech I Semester Regular Examinations, Jan - 2015
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE AND ENGINEERING
(Com. to CSE, IT, ECC)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

1. a) Explain in brief about duality Law?
b) Explain in brief about Division theorem?
c) Let R be the Relation $R = \{(x,y) / x \text{ is a factor of } y\}$. Draw the Hasse diagram?
d) Explain about Chromatic number?
e) Find the number of Permutations the MISSISIPI word?
d) Explain in brief about partial fractions? (3M+3M+5M+3M+5M+3M)

PART-B

2. a) Define Well Formed Formula? Explain about Tautology with example?
b) Explain in detail about the Logical Connectives with Examples? (8M+8M)
3. Explain in brief about Euclidean theorem with examples? (16M)
4. a) Let the Relation R be $R = \{(2,1), (3,2), (3,3)\}$ on the set $A = \{1,2,3\}$. What is the Transitive Closure of R?
b) Explain in brief about Inversive and Recursive functions with examples? (8M+8M)
5. a) A complete binary tree has 25 leaves. How many vertices does it have?
b) Explain about the following
i) Eulerian Graph ii) Chromatic number (8M+8M)
6. a) Let $G = \{-1,0,1\}$. Verify that G forms an abelian group under addition?
b) Prove that the Cancellation laws hold good in a group G.? (8M+8M)

Code No: RT21052

R13

SET - 3

II B. Tech I Semester Regular Examinations, Jan - 2015
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE AND ENGINEERING
(Com. to CSE, IT, ECC)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) Find the disjunctive Normal form of $\sim(p \rightarrow (q \wedge r))$?
b) Define Fermats Theorem?
c) Explain in brief about lattice?
d) Explain in brief about Hamiltonian graph with example?
e) Find the number of Permutations the word NARENDRA MODI?
f) Explain in brief about the Method of Characteristic Roots? (5M+3M+3M+3M+5M+3M)

PART-B

2. Prove that the following argument is valid:
No Mathematicians are fools. No one who is not a fool is an administrator.
Sitha is a mathematician. Therefore Sitha is not an administrator. (16M)
3. Explain in brief about Principle of Mathematical Induction with examples? (16M)
4. Prove that (S, \leq) is a Lattice, where $S = \{1, 2, 5, 10\}$ and \leq is for divisibility. Prove that it is also a Distributive Lattice? (16M)
5. a) Show that if the number of vertices of a connected graph is n and the number of edges m and the region r , then $r+n-m=2$?
b) Show that the number of odd degree Vertices in a graph is always even? (8M+8M)
6. a) Prove that the order of a^{-1} is same as the order of a .?
b) In how many ways can you select at least one king, if you choose five cards from a Deck of 52 cards? (8M+8M)

II B. Tech I Semester Regular Examinations, Jan - 2015
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE AND ENGINEERING
(Com. to CSE, IT, ECC)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

PART-A

1. a) Construct the Truth table for $\sim(\sim p \wedge \sim q)$?
 b) Define Relation? List out the Operations on Relations
 c) Explain in brief about GCD with example?
 d) Explain in brief about Eulerian Graph with example?
 e) Find the number of Permutations the word SRIKAKULAM?
 f) Explain in brief about the Recurrence relations? (5M+3M+3M+3M+5M+3M)

Part-B

2. a) Test the Validity of the Following argument.
 If you work hard, you will pass the exam .You did not pass. Therefore you did not work hard.
 b) Without constructing the Truth Table prove that $(p \rightarrow q) \rightarrow q = p \vee q$? (8M+8M)
3. a) Define Prime number? Explain in brief about the procedure for testing of prime numbers?
 b) Prove that the sum of two odd integers is an even integer? (8M+8M)
4. Prove that (S, \leq) is a Lattice, where $S = \{1,2,3,6\}$ and \leq is for divisibility. Prove that it is also a Distributive Lattice? (16M)
5. a) A complete binary tree has 125 leaves. How many vertices does it have?
 b) Show that the maximum number of edges in a complete bipartite graphs with n vertices is $n^2/4$? (8M+8M)

Code No: R21012

R10

SET - 1

II B. Tech I Semester Supplementary Examinations, Jan - 2015
CONSTRUCTION MATERIALS AND MANAGEMENT
(Civil Engineering)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks

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1. What do you understand about the Blasting and write the procedure of blasting and also mention the precautions in blasting. (15M)
2. Draw the different types of English bonds and explain clearly in connection with the construction techniques? (15M)
3. Write the Various methods Manufacturing of lime with the help of neat sketches? (15M)
4. What do you understand about the Lintels and Arches and explain them clearly with the help of neat sketches? (15M)
5. Write the classification of aggregates and also explain the coarse and fine aggregates in connection with the building construction? (15M)
6. Write the applications and test on Geo- textiles? (15M)
7. a) Explain the controlling and scheduling of construction project?  
b) What is meant by net work planning and Explain? (7M+8M)
8. a) Explain the PERT networks and also present about the event slack?  
b) What factors are to be considered for achieving project targets? (7M+8M)

Code No: RT21051

**R13**

**SET - 1**

**II B. Tech I Semester Regular Examinations, Jan - 2015**  
**OBJECT ORIENTED PROGRAMMING THROUGH C ++**  
(Com. to CSE, IT)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answer **ALL** the question in **Part-A**  
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

**PART-A**

1. a) What is a pointer? Write its syntax.
- b) What are input and output streams.
- c) What is type conversion?
- d) What are objects? How are they created?
- e) What is reference variable? What is its major use?
- f) What are the steps involved in using a file in C++ program.

(3M+4M+4M+4M+4M+3M)

**PART-B**

2. a) Discuss the important features of OOPS. Explain the organization of data and Functions in OOP.
- b) List a few domain application of OOP technology. (8M+8M)
3. a) Explain the four different types of storage classes.
- b) Differentiate between user defined data types and derived data types. (8M+8M)
4. a) What is a class? How does it accomplish data binding?
- b) What is a friend function? What are the merits and demerits of using a friend function? (7M+9M)
5. a) What is a constructor? Write the syntax of declaring the constructor?
- b) What are the special characteristics of constructor function? (9M+7M)
6. Explain different forms of inheritance. Illustrate with an example each type with an example. (16M)
7. a) Write a program to create files using constructor function.
- b) What is a file mode? Describe the various file mode options available. (8M+8M)

Code No: RT21051

**R13**

**SET - 2**

**II B. Tech I Semester Regular Examinations, Jan - 2015**  
**OBJECT ORIENTED PROGRAMMING THROUGH C ++**  
(Com. to CSE, IT)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answer **ALL** the question in **Part-A**  
3. Answer any **THREE** Questions from **Part-B**
- ~~~~~

**PART-A**

1. a) Why do we need the preprocessor directive #include <iostream>  
b) What is a stream? Discuss  
c) Why does C++ have type modifiers?  
d) What are the advantages of using new operator as compared to the function alloc().  
e) How do we invoke a constructor function?  
f) What does polymorphism mean in C++ language? (3M+4M+4M+3M+4M+4M)

**PART-B**

2. a) What are the major advantages of object oriented programming paradigm?  
b) Describe briefly the features of I/O system supported by C++. (7M+9M)
3. a) List at least four new operators added by C++ which aid OOP and explain the application of the scope resolution operator:: in C++.  
b) What is reference variable? What is its major use? Explain with a example. (8M+8M)
4. a) Explain the data hiding in classes.  
b) Differentiate between a member function and a normal function. (8M+8M)
5. a) Differentiate between the parameterized constructor and constructor function.  
b) Illustrate the dynamic initialization of objects for long term fixed deposit system program. (6M+10M)
6. a) Differentiate between multilevel inheritance and multiple inheritance with an example.  
b) Differentiate between hierarchical inheritance and hybrid inheritance with an example

Code No: RT21051

**R13**

**SET - 3**

**II B. Tech I Semester Regular Examinations, Jan - 2015**  
**OBJECT ORIENTED PROGRAMMING THROUGH C ++**  
(Com. to CSE, IT)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answer **ALL** the question in **Part-A**  
3. Answer any **THREE** Questions from **Part-B**

**PART-A**

1. a) Why it is necessary to include the file I/O stream in all our programs.  
b) Why is an array called a derived data type.  
c) How to achieve function overloading.  
d) What are the merits and demerits of using friend function?  
e) How is polymorphism achieved at runtime?  
f) Compare early binding and late binding. (3M+4M+4M+3M+4M+4M)

**PART-B**

2. a) Discuss about formatted console I/O and unformatted console I/O.  
b) Discuss the advantages and functions of OOPS. (8M+8M)
3. a) Explain how a inline function differ from a preprocessor macro? Explain significant advantage of inline function.  
b) When do we need to use default arguments in a function. What is the main advantage of passing arguments by reference? (8M+8M)
4. a) Write a program to illustrate the nesting of a number function.  
b) What is a operator member function. Write the syntax of private member function.(8M+8M)
5. a) What is a destructor? Illustrate memory allocation to an object using destructor?  
b) How to overload the binary operators. Explain. (8M+8M)
6. a) Write the syntax for defining a derived constructor.  
b) Differentiate between derived constructor and base constructor. (8M+8M)
7. a) Explain the components of Standard Template Library(STL).  
b) Write a function template for finding the minimum value contained in an array. (10M+6M)

Code No: RT21051

**R13**

**SET - 4**

**II B. Tech I Semester Regular Examinations, Jan - 2015**  
**OBJECT ORIENTED PROGRAMMING THROUGH C ++**  
(Com. to CSE, IT)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answer **ALL** the question in **Part-A**  
3. Answer any **THREE** Questions from **Part-B**
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**PART-A**

1. a) Compare class template and template class.  
b) How is exception handled in C++.  
c) What are the advantages of using exception handling mechanism in a program?  
d) When do we use multiple catch handlers?  
e) What should be placed inside a catch block?  
f) What should be placed inside a try block? Give the syntax. (4M+3M+4M+4M+3M+4M)

**PART-B**

2. a) What are the different unformatted I/O operations? Explain.  
b) Differentiate between dynamic binding and message passing. (8M+8M)
3. a) What is meant by function overloading? Why it is known as function polymorphism in OOP.  
b) What is meant by function prototyping? Explain the importance of call by value. (8M+8M)
4. a) What is static data member? What are the important characteristics of the static member variable?  
b) Differentiate between static data member and static member functions. (8M+8M)
5. a) List of the rules for overloading operators.  
b) Write a program for data conversion using C++. (6M+10M)
6. a) What is a virtual base class? Why it is important to make a class virtual.  
b) What is abstract class? When do we use the protected visibility specifiers to a class member? (8M+8M)
7. Write a main program that calls a deeply nested function containing an exception handling.