



**Subject Code: R16CC2101**

**II B.Tech I Semester Regular Examinations, Nov-2017.**

**BUSINESS MANAGEMENT CONCEPTS FOR ENGINEERS**

**(Common to ECE & CSE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

1. (a) Principle of Demand
- (b) Definition of Market
- (c) Define Ledger
- (d) List out the functions of Management
- (e) Define Marketing
- (f) What is a project?

**[2+2+2+2+2+2]**

**PART-B**

**4 X 12 = 48**

2. (a) Explain in detail the nature of Managerial Economics
- (b) Explain in detail the scope of Managerial Economics
3. (a) Define Production Function
- (b) What are different types of Internal and External economies of large scale production?
4. (a) What are the types of account & rules governing each account?
- (b) Who are the users of accounting information?
5. (a) Explain the Henry Fayol's 14 principles of Management?
- (b) Explain Levels of Management?
6. (a) Define Human Resource Management?
- (b) Explain the various functions of HRM?
7. (a) What is Network Analysis?
- (b) Explain the objectives and applications of network analysis?

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Subject Code: R16CS2102

**II B.Tech I Semester Regular Examinations, November-2017.**  
**MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE**  
**(CSE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B  
All questions carry equal marks of 12.

**PART-A**

1. a) Construct the Truth table for  $\sim(\sim P \wedge \sim Q)$  ?  
b) Verify the validity of following arguments

Lions are dangerous animals.

There are lions.

There are dangerous animals.

- c) Show that  $A \cup (B - C) = (A \cup B) - (A \cap C)$   
d) Define a Complete Graph and draw a Complete Graph with 5 vertices.  
e) Find the number of permutations of the word "NARENDRA MODI"?  
f) Find the generating function for a sequence 2,2,2,2,2,2

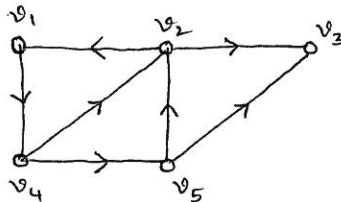
[2+2+2+2+2+2]

**PART-B**

4X 12 = 48

- 2) a) Obtain the principal disjunctive and conjunctive normal forms of the formula  
 $(\sim P \vee \sim Q) \rightarrow (P \leftrightarrow \sim Q)$  [6M]  
b) Show that the following statements is a tautology.  
 $(\sim P \wedge (P \rightarrow Q)) \rightarrow \sim Q$  [6M]
- 3) a) Prove by mathematical induction that  $6^{n+2} + 7^{2n+1}$  is divisible by 43 for each positive integer? [6M]  
b) If n is a positive integer, using mathematical induction prove that  
 $1.2 + 2.3 + 3.4 + \dots + n(n+1) = \frac{n(n+1)(n+2)}{3}$  [6M]
- 4) a) Draw the Hasse diagram for the poset  $(P(S), \subseteq)$ , where  $S = \{1,2,3,4\}$  [8M]  
b) If A, B, C are any three sets, then prove that  
 $A - (B \cup C) = (A - B) \cap (A - C)$  [4M]

- 5) a) Let  $G$  be a graph with 12 edges. Suppose  $G$  has 6 vertices of degree 3 and rest have degree less than 3. Determine the minimum number of vertices. [6M]  
 b) Find all indegree and outdegree of the following graph. Also write reachability sets of the all vertices. [6M]



- 6) a) Find C.N.F for  $P = x_1^1 x_2 + x_1 x_2^1$ . [6M]  
 b) In how many ways can the letters of the word CORRESPONDENTS can be arranged so that  
 i) There are exactly two pairs of consecutive identical letters?  
 ii) There are at least three pairs of consecutive identical letters? [6M]
- 7) By using an iterative approach, find the solution to each of the recurrence relation with the given critical condition.  
 i)  $a_n = 3a_{n-1}$ ,  $a_0 = 2$  ii)  $a_n = 2a_{n-1}$ ,  $a_0 = 1$  iii)  $a_n = na_{n-1}$ ,  $a_0 = 5$  iv)  $a_n = 2na_{n-1}$ ,  $a_0 = 1$  [12M]

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**Subject Code: R16CS2103**

**II B.Tech I Semester Regular Examinations, Nov-2017.**

**JAVA PROGRAMMING**

**(CSE)**

**Time: 3 hours**

**Max Marks: 60**

**Question Paper Consists of Part-A and Part-B.**

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B  
All questions carry equal marks of 12.

**PART-A**

1. (a) What is the role JVM in Java?
- (b) What is Constructor? How to create parameterised constructors?
- (c) What is the use of 'final' keyword in Java?
- (d) Write down the thread life cycle methods.
- (e) How to pass parameters to the Applet?
- (f) What is AWT? Write down the components of AWT.

**[2+2+2+2+2+2]**

**PART-B**

**4 X 12 = 48**

2. (a) What is Object Oriented Programming? Explain the need of Object Oriented Programming. [6M]  
(b) Write short notes on Java Features. [6M]
3. (a) What is method overloading? Explain with an example program. [6M]  
(b) What is string? Explain any 5 string handling functions with examples. [6M]
4. (a) What are the differences between interfaces and abstract classes ? Explain with an example program. [6M]  
(b) What is package? How to access the packages with an example program. [6M]
5. (a) What is thread? How many ways we can create a thread explain with example programs? [7M]  
(b) Write short notes on java.io package. [5M]
6. (a) What is Applet? Explain Applet life cycle methods with an example program. [8M]  
(b) Explain Event Delegation Model. [4M]
7. Explain the following with an example programs.
  - (a) Buttons [6M]
  - (b) Grid Layout [6M]

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**Subject Code: R16CS2104**

**II B.Tech I Semester Regular Examinations, Nov-2017.**

**DATA STRUCTURES**

**(CSE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B  
All questions carry equal marks of 12.

**PART-A**

1. (a) Define data structure.
- (b) What is meant by time complexity and space complexity?
- (c) List out some different hash functions.
- (d) What are the applications of priority queue?
- (e) What are binary tree traversals?
- (f) What are the differences between tree and graph?

**[2+2+2+2+2+2]**

**PART-B**

**4 X 12 = 48**

2. (a) What is elementary Data Structure Organization?
  - (b) How to Implement Towers of Hanoi?
3. Explain the following
    - (a) Bubble sort.
    - (b) Heap sort.
4. Write the program for circular queue implementation with the help of array.
5. Draw and explain the following with the help of example
    - (a) Insertion in single linked list.
    - (b) Deletion in double linked list.
6. (a) Define binary search tree. Construct binary search tree for the elements 22, 33, 15, 14, 40, 25, 50, 43, 1, 8, 36.
  - (b) Write the algorithm for deletion an element from binary search tree.
7. Explain in detail about any graph traversal algorithm with the help of example.

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Subject Code: R16CS2105

**II B.Tech I Semester Regular Examinations, Nov-2017.**

**COMPUTER ORGANIZATION**

**(CSE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

**PART-A**

- 1) a) Convert  $(101.11011)_2$  into Decimal?
- b) Explain the principle of virtual memory?
- c) What is the need of I/O interface module?
- d) Explain about Binary adder-subtrator?
- e) Explain the stack organization?
- f) What is instruction cycle?

[2+2+2+2+2+2]

**PART-B**

4 X 12 = 48

2. a) List and explain the shift micro operations? [8M]  
b) List and Explain the logical micro operations? [6M]
3. a) What is Interrupt? Explain Input output interrupts? [4M]  
b) Write the RTL for Fetch and decode cycles? [8M]
4. a) Evaluate the arithmetic statement  $X = (A+B) * (C+D)$  using a general register computer with three address, and two address instruction format? [6M]  
b) Explain micro-programmed control unit with neat diagram? [6M]
5. Draw the hardware required to perform addition and subtraction? Explain implementation of addition and subtraction with Signed-Magnitude Data? [12M]
6. What is the need of memory mapping? Explain different types of cache memory mapping methods? [12M]
7. a) Explain the method of DMA transfer. How does a DMA controller improve the performance of a computer? [8M]  
b) Write short notes on handshaking signals? [4M]

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**Subject Code: R16CS2106**

**II B.Tech I Semester Regular Examinations, Nov-2017.**

**FORMAL LANGUAGES AND AUTOMATA THEORY**

**(CSE)**

**Time: 3 hours**

**Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in **Part-A** is Compulsory & Four Questions should be answered from **Part-B**

All questions carry equal marks of 12.

**PART-A**

1. (a) Write the advantages of FSM?  
(b) Write different Types of Generative Grammars?  
(c) Design Automaton that accepts all strings of 0s and 1s?  
(d) What is unambiguous grammar, give an example?  
(e) Write the statement of Arden's Theorem?  
(f) Describe the Class of Languages of type NP?

**[2+2+2+2+2+2]**

**PART-B**

**4 X 12 = 48**

2. (a) what is Finite State Machine explain with one example? [4M]  
(b) Write the Advantages, Disadvantages and Applications of Finite State Machine? [8M]
3. (a) Explain regular language, context-free language and context-sensitive language with examples [6M]  
(b) Consider a language  $L^*$  where  $L = \{ab, cd\}$  with  $\Sigma = \{a, b, c, d\}$  then answer the following [6M]  
i) Write all the words in  $L^*$  that have seven or less letters/symbols.  
ii) What is the shortest string in  $\Sigma^*$  that is not in the language  $L^*$
4. (a) Construct a DFA accepting the set of all strings with 4-consecutive 0's over an alphabet  $\{0, 1\}$ ? [6M]  
(b) Discuss how a Mealy Machine is converted into Moore machine with an example? [6M]
5. (a) Discuss on the relation between DFA and minimal DFA with an example. [6M]  
(b) Construct a Finite Automata equivalence to the regular expression  $(0+1)^*(00+11)(0+1)^*$ ? [6M]
6. (a) What is grammar, if  $G$  is the grammar represented by the following productions?  
 $S \rightarrow SbS \mid a$  check whether  $G$  is ambiguous. [5M]  
(b) Explain different types of acceptance of a PDA. Design a PDA that accepts the language  
 $L = \{wcw^R \mid w \in \{a, b\}^*\}$  where  $\Sigma = \{a, b\}$  [7M]
7. Explain in detail Turing Machine with example. [12M]

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