



**Subject Code: R16CC2101**

**II B.Tech I Semester Supplementary Examinations, May-2018.**

**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.

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**PART-A**

1. (a) Define Elasticity of Demand
- (b) List out the features of Market Structure
- (c) Define Financial Accounting
- (d) What are the activities of Management?
- (e) Define Production Management?
- (f) What is mean by Working Capital?

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

**PART-B**

4 X 12 = 48

2. (a) Define Demand Forecasting.
  - (b) Explain different demand forecasting methods that are used widely.
3. (a) Define Market Structure.
  - (b) Explain the features of Perfect Competition. Discuss, with the help of diagram, how the price is determined in perfect competition in case of firm and industry?
4. (a) What are the differences between double entry and single entry system of book keeping?
  - (b) Briefly explain branches of accounting?
5. (a) What is meant by motivation?
  - (b) Explain Douglas McGregor's Theory X and Theory Y.
6. (a) What is Marketing Management?
  - (b) Describe the Marketing functions of a company.
7. (a) What is PERT?
  - (b) Explain PERT and its importance in network analysis. What are the requirements for applicatios of PERT techniques?

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Subject Code: R16CS2102

II B.Tech I Semester Supplementary Examinations, May-2018.

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) Explain about Duality Law?
- b) What are the quantifiers of the following statements?
  - (i) All babies are illogical.
  - (ii) Everyone in your class is friendly.
- c) Prove that  $A - (B \cap C) = (A-B) \cup (A-C)$ ?
- d) Explain about Chromatic number?
- e) 15 males and 10 females' members are seated in a round table meeting.  
How many ways they can seated if all the females seated together.
- f) Find the generating function of  $(n-1)2^n$ ?

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

PART-B

4 X 12 = 48

2. a) Define Well Formed Formula? Explain about Tautology with example? [6M]
- b) Show that  $(P \rightarrow (Q \rightarrow R)) \leftrightarrow (P \rightarrow Q) \rightarrow (P \rightarrow R)$ . [6M]
3. a) Show that  $(\exists x) P(x) \wedge (\exists x) Q(x)$  and  $(\exists x) (P(x) \wedge Q(x))$  are not logically equivalent. [6M]
- b) Show that the premises  $a \rightarrow (b \rightarrow c)$ ,  $d \rightarrow (b \wedge \neg c)$ ,  $a \wedge b$  are inconsistent. [6M]
4. a) Let A be a given finite set and  $\rho(A)$  its power set. Let  $\subseteq$  be the inclusion relation on the elements of  $\rho(A)$ . Draw Hasse diagram of  $\langle \rho(A), \subseteq \rangle$  for  
(i)  $A=\{a\}$ ; (ii)  $A=\{a, b\}$ ; (iii)  $A=\{a, b, c\}$ ; (iv)  $A=\{a, b, c, d\}$  [6M]
- b) Let  $X = \{1, 2, 3\}$  and f, g, h and s be functions from X to X given by  
 $f = \{ \langle 1,2 \rangle, \langle 2,3 \rangle, \langle 3,1 \rangle \}$ ,  $g = \{ \langle 1,2 \rangle, \langle 2,1 \rangle, \langle 3,3 \rangle \}$ ,  
 $h = \{ \langle 1,1 \rangle, \langle 2,2 \rangle, \langle 3,1 \rangle \}$ ,  $s = \{ \langle 1,1 \rangle, \langle 2,2 \rangle, \langle 3,3 \rangle \}$ .  
Find fog, fohog, gos, fos. [6M]

6. a) For all  $x, y$  in a Boolean algebra  $B$ ,

(i)  $(x \wedge y)' = x' \vee y'$ .

(ii)  $(x \vee y)' = x' \wedge y'$ .

[6M]

(b) What is a Pigeonhole Principle? Explain with an example?

[6M]

7. a) What is solution of the recurrence relation?

$$a_n = a_{n-1} + 2a_{n-2} \quad \text{with } a_0 = 2, a_1 = 7$$

[6M]

b) What is a Generating function and explain the operations on generating functions?

[6M]

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**Subject Code: R16CS2103**

**II B.Tech I Semester Supplementary Examinations, May-2018.**  
**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 are the differences between procedural language and Object Oriented Programming language?
- (b) What is type casting?
- (c) What is the use of super keyword in java?
- (d) What is multithreading? What is the purpose of join() method in java?
- (e) What is the use of Adapter class?
- (f) How to create the text field in java?

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

**PART-B**

**4 X 12 = 48**

2. a) Explain the following object oriented concepts
  - i) Polymorphism
  - ii) Encapsulation
- (b) Explain the java features.
3. (a) What is Constructor? Explain Constructor Overloading with an example program. [6M]
- (b) What is an Array? How to create multidimensional arrays in java with an example program. [6M]
4. (a) What is interface? How to extend the interfaces in java with an example program? [6M]
- (b) Explain Exception handling techniques with examples. [6M]
5. (a) What is Synchronization? Explain thread synchronization methods. [6M]
- (b) What is thread? Explain thread life cycle methods. [6M]
6. (a) What is Applet? How to pass parameters to the applet with an example program? [7M]
- (b) How to create the inner classes in java with an example program? [5M]
7. (a) Write short notes on java.awt package. [5M]
- (b) Explain the following with an examples. [7M]
  - i) List boxes
  - ii) Border Layout

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**Subject Code: R16CS2104**

**II B.Tech I Semester Supplementary Examinations, May-2018.**

**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) What are different types of data structures
- (b) What are the time complexity of merge sort and quick sort?
- (c) Explain about collision in hash table.
- (d) Define queue. List different types of queues.
- (e) Define binary search tree.
- (f) What is Adjacency Matrix Representation?

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

**PART-B**

**4 X 12 = 48**

2. (a) Define ADT. Explain with the help of example program.
- (b) Write a program for GCD implementation.
3. (a) Write a short note on linear search.
- (b) Explain insertion and deletion in binary heap.
4. (a) Write algorithm for linked list implementation of queue.
- (b) Define stack. List out some applications of stack.
5. Draw and explain the following with the help of example
- (a) Deletion in single linked list.
- (b) Insertion in circular linked list.
6. What is AVL tree? Explain its operations in detail.
7. (a) Explain directed graph with the help of example.
- (b) What are representations of Graphs?

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**Subject Code: R16CS2105**

**II B.Tech I Semester Supplementary Examinations, May-2018.**

**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) Describe about the bus structure?
- b) What is Indirect Address?
- c) Write the advantage of RISC over CISC?
- d) Draw the circuit diagram and Truth table for Full adder?
- e) Find (1001101 - 10101001) using 1's complement?
- f) Differentiate between RAM and ROM

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

**PART-B**

- 2.a) List and explain the shift micro operations? [6M]
- b) Represent  $375.25_{(10)}$  in binary, octal, hexa-decimal and BCD forms. [6M]
- 3.a) Briefly explain about Control Flow Chart? [4M]
- b) What is RTL? Explain with suitable examples? What is its significance Instructions? [8M]
- 4.a) Define Effective Address (EA)? Discuss any four addressing modes with numerical example? [6M]
- b) Explain the basic organization of micro programmed control unit? [6M]
5. Explain booths multiplication algorithm for  $(-9)*(-13)$ ? [12M]
- 6.a) Write short note on i) Magnetic Disks ii) Magnetic tapes [6M]
- b) Discuss about the virtual memory? Discuss about the mapping of Virtual address to memory table. [6M]
7. a) Draw the block diagram of a DMA controller and explain its functioning? [8M]
- b) Write the characteristics of multi-processors? [4M]

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Subject Code: R16CS2106

II B.Tech I Semester Supplementary Examinations, May-2018.

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 mathematical representation of finite state machine?
- (b) Write the Operations on Languages?
- (c) Define NFA?
- (d) What is ambiguity in grammar?
- (e) Write the statement of Arden's Theorem?
- (f) Define instantaneous description of a Turing Machine?

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

**PART-B**

4 X 12 = 48

2. (a) Construct a "divisible-by-3" FSM that accepts a binary number entered one bit at a time, most significant bit first, and indicates with a remainder if the number entered so far is divisible by 3. [12M]
3. (a) describe the Relationship between Grammars and Languages. [6M]  
(b) Find the language generated by the grammar  $G = \{V, T, P, S\}$  where the productions are given by  
 $P = \{S \rightarrow AB, A \rightarrow aA|a, B \rightarrow bB|b\}$  [6M]
4. (a) Construct a N DFA accepting all strings in  $\{a, b\}$  with either two consecutive a"s or two Consecutive b"s. [6M]  
(b) Write the differences between moore machine and mealy machine? [6M]
5. (a) Discuss the closure properties of regular languages [4M]  
(b) Convert the following RE into its equivalent DFA [4M]  
 $1(0+1)^*0$   
(c) Discuss the relation between DFA and minimal DFA. [4M]
6. (a) Check whether the grammar G with the following production rules is ambiguous or not. [6M]  
 $X \rightarrow X+X \mid X*X \mid X|a$   
(b) Define GNF and construct a grammar in GNF which is equivalent to the following grammar [6M]  
 $S \rightarrow AA \mid a$   
 $A \rightarrow SS \mid b$
7. Define Turing Machine and design it to recognize the language  $L = \{a^n b^n c^n \mid n \geq 1\}$ . [12M]

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