

**Code: 5G142**

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

**Design and Analysis of Algorithms**  
( Common to CSE & IT )

Max. Marks: 70

Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

- 1. a) Explain in brief about Asymptotic notations with examples. 7M
- b) Define Time and Space Complexity, and calculate the time space complexity for addition of two matrices. 7M

**OR**

- 2. a) Develop algorithms for UNION and FIND using weighting rule and collapsing rule respectively. 7M
- b) Derive the time complexity of Binary search. 7M

**UNIT-II**

- 3. a) Use Strassen's algorithm to compute the matrix product  $\begin{bmatrix} 1 & 7 \\ 5 & 7 \end{bmatrix} \begin{bmatrix} 3 & 4 \\ 6 & 2 \end{bmatrix}$ . 7M
- b) Write greedy algorithm to the job sequencing with deadlines. 7M

**OR**

- 4. a) Write an algorithm for single source shortest path problem. Explain with example. 7M
- b) Explain 0/1 Knapsack greedy algorithm with an example. 7M

**UNIT-III**

- 5. a) Explain how to solve Travelling Salesman problem by the method of dynamic programming and analyze the complexity of algorithm. 7M
- b) Construct an OBST for identifiers(a1,a2, a3,a4)=(do, if, int , while) with P(1:4)=(3,3,1,1) and Q(0:4)=(2,3,1,1,1). 7M

**OR**

- 6. a) Explain the general method of Dynamic Programming. 7M
- b) Find the optimal solution for the Knapsack instance n=7,M=15(p1,p2,p3,p4,p5,p6,p7)=(10,5,15,7,6,18,3) and (w1,w2,w3,w4,w5,w6,w7)=(2,3,5,7,1,4,1) by using dynamic programming. 7M

**UNIT-IV**

- 7. a) Explain the principle of FIFO branch and bound. 7M
- b) Solve the following instance of 0/1 knapsack problem using FIFO branch and bound and LC branch and bound.  
N=4, (p1,p2,p3,p4)=(10,10,12,18), (w1,w2,w3,w4)=(2,4,6,9); M=15. 7M

**OR**

- 8. a) Define n-queens problem. Draw the tree organization of the 4-queens problem. 7M
- b) Explain the Travelling sales person problem LCBB procedure with the following instance and draw the portion of the state space tree and find an optimal tour. 7M

	20	30	10	11
15		16	4	2
3	5		2	4
19	6	18		3
16	4	7	16	

**UNIT-V**

- 9. a) Define P, NP, and NP-Complete problem? Explain. 7M
- b) Discuss about non-deterministic algorithms. 7M

**OR**

- 10. a) Explain the classes of NP-Hard and NP-Complete. 7M
- b) State and prove Cook's theorem. 7M

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**R-15**

**Code: 5G441**

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

**Database Management Systems**

( Common to CSE & IT )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

1. a) Explain the advantages of using a query language instead of custom programs to process data.
- b) What is data independence and how does a DBMS support it?

**OR**

2. a) What are the different types of user interface designed for database users? Discuss the main activities of each.
- b) Briefly discuss about architecture of database system with diagram.

**UNIT-II**

3. a) Explain the distinctions among the terms primary key, candidate key, and superkey
- b) Name the main steps in database design. What is the goal of each step? In which step is the E-R model mainly used?

**OR**

4. a) Explain the following terms: i) Relationship set ii) Composite attribute iii) Multivalued attribute iv) Derived attribute
- b) Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted.

**UNIT-III**

5. a) What are views? Discuss the problems encountered in modifying database through views.
- b) Explain the differences between Triggers and constraints

**OR**

6. Consider the following schema:

Suppliers (sid: integer, sname: string, address: string)

Parts(pid: integer, pname: string, color: string)

Catalog(sid: integer, pid: integer, cost: real) The Catalog relation lists the prices charged for parts by Suppliers.

Write the following queries in SQL:

- i. For each part, find the sname of the supplier who charges the most for that part.
- ii. Find the sids of suppliers who supply only red parts.
- iii. Find the sids of suppliers who supply a red part and a green part.

**UNIT-IV**

7. a) Compare 3NF and BCNF with a suitable example
- b) What is dependency preserving for decomposition? Explain why it is important

**OR**

8. a) Explain why 4NF is more desirable than BCNF
- b) What is Normalization? Explain briefly 1NF, 2NF & 3NF with suitable examples.

**UNIT-V**

9. a) How is data organized in a tree-based index? When would you use a tree?
- b) Why are tree-structured indexes good for searches?

**OR**

10. a) How does a B+ tree index handle search, insert and delete?
- b) With diagram, explain tree structure index

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Code: 5GA41

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

**Managerial Economics and Financial Analysis**

( Information Technology )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

1. Define Managerial Economics. Also explain the nature and scope of Managerial Economics. 14M

**OR**

2. What do you mean by Elasticity of Demand? What is its importance? Explain. 14M

**UNIT-II**

3. Write a short note on  
a) Isoquant 7M  
b) Isocost 7M

**OR**

4. What is Break Even Point? What are its assumptions? Discuss. 14M

**UNIT-III**

5. What do you mean by perfect competition? What are its features? Explain. 14M

**OR**

6. What is meant by a partnership firm? What are its advantages and disadvantages? 14M

**UNIT-IV**

7. What are the different sources of raising capital? Explain each of them in detail. 14M

**OR**

8. A firm is considering the following project

Cash flows in Rupees					
C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>
-50,000	+11,300	+12,769	+14,429	+16,305	+18,421

- Calculate the NPV of the project, if the cost of capital is 10 percent. 14M

**UNIT-V**

9. What is meant by trial balance? What are its features? Explain. 14M

**OR**

10. You are given the trading and profit & loss account of ABC company limited for the year ended 31<sup>st</sup> March 2015.

## Trading and Profit &amp; Loss Account.

Dr		Cr	
Particulars	Rs.	Particulars	Rs.
To Opening Stock	30,000	By Net Sales	1,10,000
To Purchases	60,000	By Closing Stock	20,000
To Wages	10,000		
To Gross Profit(c/d)	30,000		
	1,30,000		1,30,000
To Administrative Expenses	10,000	By Gross Profit(b/d)	30,000
To Selling & Distribution Expenses	5,000	By Sundry Receipt	5,000
To Net Profit	20,000		
	35,000		35,000

Calculate

- a) Gross profit ratio  
b) Net Profit ratio  
c) Operating ratio  
d) Operating profit ratio

14M

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<b>R-15</b>
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**Code: 5G144**

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

**Object Oriented Programming**

( Common to CSE & IT )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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<b>UNIT-I</b>
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- 1. a) List and describe Java Buzzwords.
- b) What is an array? Write a Java program to print upper triangle values of a given two dimensional array.

**OR**

- 2. a) Define a class? What is the general form of a class? How objects are declared explain with an example?
- b) Define Constructor. With suitable example explain constructor over loading.

<b>UNIT-II</b>
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- 3. a) Define Inheritance. Explain how one class inherit another class with an example.
- b) Define package. Write a simple java program to implement package.

**OR**

- 4. a) When a class called as abstract classes? Explain,
- b) Is interfaces can be extended? Explain with an example.

<b>UNIT-III</b>
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- 5. a) List and explain the exception handling keywords.
- b) Describe the main thread in java.

**OR**

- 6. a) Describe the nested try statements.
- b) Differences between Multithreading and Multitasking.

<b>UNIT-IV</b>
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- 7. a) List AWT controls. Explain Label control.
- b) How applets are differed with applications.

**OR**

- 8. a) Briefly explain ArrayList Class.
- b) Write a simple program to illustrate GridLayout.

<b>UNIT-V</b>
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- 9. a) Define an Event. List and briefly describe the event listener interfaces.
- b) What are the limitations of AWT?

**OR**

- 10. a) Implement simple client server using TCP/IP Sockets.
- b) What is the need of Adapter class?

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**R-15**

**Code: 5G442**

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

**Software Engineering**  
( Information Technology )

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 14 = 70 Marks )

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**UNIT-I**

1. Describe "Software myth"? Discuss on various types of software myths and the true aspects of these myths? 14M

**OR**

2. Explain in detail the capability Maturity Model Integration (CMMI)? 14M

**UNIT-II**

3. Discuss how feasibility studies are important in requirement engineering process? 14M

**OR**

4. Write short notes on 7M  
a) Behavioral model and 7M  
b) Object model

**UNIT-III**

5. Describe the way of conducting a component level design? 14M

**OR**

6. Elaborate about Architectural styles and patterns? 14M

**UNIT-IV**

7. a) Discuss briefly the importance of golden rules. 7M  
b) Explain the user interface design process. 7M

**OR**

8. Compare in detail on Validation Testing and System Testing? 14M

**UNIT-V**

9. a) Elaborate on Software Configuration Management. 7M  
b) Write short notes on COCOMO estimation criteria. 7M

**OR**

10. Classify in detail about ISO9000 quality standards? 14M

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