Hall Ticket Number :										

R-11/R-13

Code : 1G141

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2016

Computer Organization

(Computer Science & Engineering)

Max. Marks: 70 **Time: 03 Hours**

Answer *any* ***five*** questions

All Questions carry equal marks (14 Marks each)

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1.	a)	Explain basic operational concepts of a computer with neat sketch.	8M
	b)	Briefly explain different types of data representation.	6M
2.	a)	Draw and explain the flow chart for Instruction Cycle.	8M
	b)	What is an Interrupt? Explain about Interrupt Cycle in detail?	6M
3.	a)	Discuss in details the Binary micro Program.	7M
	b)	Explain briefly about Memory Hierarchy?	7M
4.	a)	Draw a Flow chart which explain multiplication of TWO signed magnitude fixed point numbers.	7M
	b)	Multiply 10111 with 10011 using Booth's algorithm.	7M
5.	a)	Explain briefly memory hierarchy?	6M
	b)	Discuss the elements of Cache Design? Define Virtual Memory?	8M
6.	a)	What are the different types of I/O Communication Techniques? Give brief note.	7M
	b)	Explain bit oriented and character oriented protocols in serial communication.	7M
7.	a)	What is meant by Instruction Pipeline? Explain foue segment Instruction Pipeline.	7M
	b)	What are the different issues behind serial Communication? Explain.	7M
8.	a)	Discuss the advantages of loosely coupled systems.	7M
	b)	What is the need of Inter processor Synchronization? Explain.	7M

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R-11/R-13

Code : 1G143

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2016

Design and Analysis of Algorithms

(Common to CSE & IT)

Max. Marks: 70 **Time: 03 Hours**

Answer *any* ***five*** questions

All Questions carry equal marks (14 Marks each)

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1. a) Explain performance analysis of an algorithm. 7M
   b) Explain with an example how the performance of Collapsing Find is better than Simple Find. 7M

2. a) Compute average time complexity of Quick Sort on a data set of size n. 8M
   b) Explain Strassen's matrix multiplication. 6M

3. a) Write an algorithm for Single Source Shortest Path problem. 8M
   b) Solve the following instance using Knapsack Problem
   m=12, n=5, P=(10,15,6,8,4), W=(4,6,3,4,2). 6M

4. a) Determine OBST for the following instance (a1,a2,a3,a4)=(cout, float, if, while)
   p(i)= (1/20, 1/5, 1/10, 1/20) q(i)=(1/5, 1/10, 1/5, 1/20, 1/20) 10M
   b) State the differences between Greedy Method and Dynamic Programming. 4M

5. a) Draw the state space tree for m-coloring when n=3 and m=3. 5M
   b) Let W={5,7,10,12,15,18,20} and m=35. Find all possible subsets of W that sum to m. Draw the portion of the state space tree that is generated. 9M

6. a) Write an algorithm to find Bi-Connected components and also analyze its time complexity. 8M
   b) Explain Depth First Search technique with an example. 6M

7. a) Draw the portion of state space tree using LCBB for the following TSP.

$$\begin{bmatrix} \infty & 5 & 2 & 3 \\ 4 & \infty & 1 & 5 \\ 4 & 2 & \infty & 3 \\ 7 & 6 & 8 & \infty \end{bmatrix}$$

   10M
   b) Explain the general method of Branch and Bound. 4M

8. a) State and Explain Cook's Theorem. 7M
   b) Write a non-deterministic algorithm for Knapsack problem. 7M

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Hall Ticket Number :										

R-11/R-13

Code : 1G142

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2016

Database Management Systems

(Common to CSE & IT)

Max. Marks: 70 **Time: 03 Hours**

Answer *any* **five** questions
All Questions carry equal marks (14 Marks each)

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1. a) Explain DBMS Structure. Discuss about Transaction Management in Database 7M
   b) Write in brief the various data models. 7M

2. What is an ER diagram and discuss several choices to be made when generating an ER diagram 14M

3. a) Explain in detail Querying Relational Data 7M
   b) Explain about Transactions and Constraints 7M

4. Give one example of SQL Query for the following keywords
   a) ROLLBACK b) CONTINUE c) EXISTS d) ANY
   e) GROUP BY … HAVING f) LIKE 14M

5. a) Discuss about Functional Dependencies 7M
   b) Explain Decomposition into 3NF 7M

6. a) Explain serializability with example 7M
   b) Explain the desirable properties of Transactions 7M

7. a) Explain how to implement lock and unlock requests 7M
   b) Explain ARIES recovery algorithm 7M

8. a) Explain compression of file organization 7M
   b) Explain indexed sequential access methods 7M

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Hall Ticket Number :										

R-11/R-13

Code : 1GC43

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2016

Environmental Science

(Common to CE, ME and CSE)

Max. Marks: 70 **Time: 03 Hours**

Answer *any five* questions
All Questions carry equal marks (14 Marks each)

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1.	a)	Define environment? Explain the branches of Environmental education.	7M
	b)	What is a Biosphere? Discuss its significance.	7M
2.		Write a brief note on.	
		a) a) Floods.	7M
		b) b) Use of alternate energy resources.	7M
3.	a)	What are the environmental hazards associated with mineral extraction.	7M
	b)	Discuss, we live in a world where in natural resources are limited?	7M
4.	a)	Discuss the effects and control measures of marine pollution.	7M
	b)	Write a brief account of solid waste management.	7M
5.		Discuss the structure and functions of forest ecosystem.	14M
6.	a)	List the main biogeographic zones in India.	8M
	b)	What is biodiversity? Write a note on poaching of wild life.	6M
7.	a)	What are the causes effects and control measures of Global warming?	8M
	b)	Write a short note on waste land reclamation.	6M
8.	a)	Explain the necessity of value education.	7M
	b)	What is the role of information technology (IT) in environment and human health?	7M

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Hall Ticket Number :										

R-11/R-13

Code : 1G144

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2016

Formal Languages and Automata Theory

(Computer Science & Engineering)

Max. Marks: 70 **Time: 03 Hours**

Answer *any* **five** questions

All Questions carry equal marks (14 Marks each)

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1. a) Distinguish with between the DFA, NFA and ε-NFA 6M

   b) Convert the following NFA TO DFA using subset Construction

δ	0	1
→p	{p,q}	{p}
q	Ø	r
*r	{p,r}	{r}

8M

2. a) Consider the following ε-NFA

δ	ε	a	b
→p	{r}	{q}	{p,r}
q	Ø	{p}	Ø
*r	{p,q}	{r}	{p}

   i) Compute the ε-Closure of each state

   ii) Give the set of all strings of length 3 or less accepted by the automata

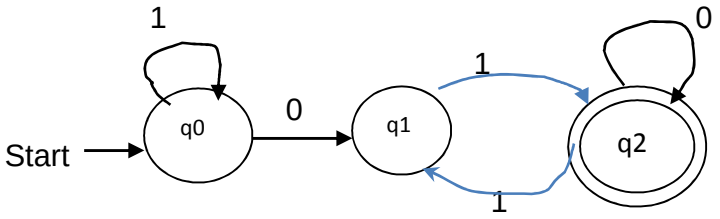
   iii) Convert the automata to DFA 6M

   b) When two states are equivalent or distinguishable? Minimize the following DFA using the Table filling algorithm?

δ	0	1
→q1	q2	q3
q2	q3	q5
*q3	q4	q5
q4	q3	q5
*q5	q2	q5

8M

3. a) Obtain Regular expression from the following finite automata using state elimination method



6M

   b) State and prove the pumping lemma for regular language 8M

4. a) Define CFG. Design a context free grammar for language
   - **i.** $L=\{a^i b^j c^k$, where i= j+k, I, j.k ≥0$\}$
   - **ii.** $L= \{ 0^{n+2} 1^n: n\geq 1\}$ 8M

   b) Consider the grammar E→ +EE/*EE/-EE/x/y. Find the left most deviation, right most deviation and parse free for the showing "+*-xyxy" 6M

5. a) What are useless Productions? Eliminate € unit and useless production from the following grammar.

   A→ bA/Bba/aa

   B→ aBa/b/D

   C→ CA/AC/B

   D→ a/€ 10M

   b) Prove that the context free language are closed under union 4M

6. Discuss the language accepted by PDA. Design PDA to accept the following language $L=\{0^{2n} 1^n/ n\geq 1\}$ draw the transition diagram for the constructed PDA. Also show the moves made by PDA for the Strings. "000011". 14M

7. Design Turing's Machine to accept the language $L=\{a^n. b^n. c^n / n\geq 1\}$. Also give the graphical representation and Instantaneous description (ID) for the import "aabbcc". 14M

8. Write a short note
   - a) Chomsky Hierarchy 4M
   - b) Universal Turing Machine 5M
   - c) Post Correspondence Problem 5M

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Hall Ticket Number :										

R-11/R-13

Code : 1G145

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2016

Object Oriented Programming through JAVA

(Common to CSE & IT)

Max. Marks: 70 **Time: 03 Hours**

Answer *any* **five** questions

All Questions carry equal marks (14 Marks each)

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1. a) Explain use of command line arguments in java
   b) Write a program to implement constructor overloading.

2. a) Explain briefly about access modifiers and their usage.
   b) Explain polymorphism with an example.

3. a) Explain about abstract classes and abstract methods.
   b) List the differnces between classes and interfaces.

4. a) Explain life cycle of a thread
   b) Explain about try-catch functionality in Exception handling

5. a) Write about Event classes and Event Listeners.
   b) Explain graphics class methods in java.

6. a) Describe the different stages in the life cyle of an applet.
   b) Write a program to find the factorial of a given number using Applets.

7. a) Write about limitations of AWT.
   b) Write a java program to implement TabbedPanes and Scroll bars.

8. a) Discuss about java.net package.
   b) Write about network addresses and ports.

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