MCA - I Sem (CBSGS) NOV-DEC '15

OBJECT ORIENTED PROGRAMMING

QP CODE: **25308**

[TOTAL MARKS: 80]

(3 Hours)

N.B.: 1) Question No. 1 is Compulsory

2) Attempt any four questions from Q.No.2 to Q.No. 7

Q1. (A) Write a program that reads a text file and creates another file that is identical except that every sequence of consecutive blank spaces is replaced by a single space. [10]

(B) What is a friend function? Explain its need in object oriented programming. [10]

Q2. (A) Explain the features of object oriented programming language. [08]

(B) Write a program to convert distance from meter to centimeter and centimeter to meter using object to object conversion. [07]

Q3. (A) Define constructor and destructors in C++. Explain different types of constructors with example. [08]

(B) What is operator overloading? Explain with example how pre and post increment operators are overloaded. [07]

Q4. (A) Explain the use of try, catch and throw keywords with example. [08]

(B) What are the components of Standard Template Library? [07]

Q5. (A) What is Multipath inheritance? What ambiguity arises in it? How it can be resolved explain with example. [08]

(B) Explain pointers and virtual functions in C++ . [07]

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Q 6 (A) What are manipulators ? Write a program using any four manipulators that tag parameter

(B) Explain the function templates with multiple arguments with example.

Q 7 Write short notes on any THREE (07

a) Inline Functions
b) Constant data members and functions
c) New and Delete operator
d) Function Overriding.

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MCA - I Sem - Computer Organisation & Architecture

QP CODE : **25315**

[Total Marks : 80]

(3 Hours)

N.B. : 1) Question No.1 is **compulsory.**
2) Attempt any **four** from the remaining **six** questions.

1. (a) i) Explain S-R flip-flop with truth table and circuit diagram. (10)
ii) Simplify the following expression using K-map and draw the circuit diagram using NAND gate
$Y = f(A,B,C,D) = \sum m(0,1,2,3,5,7,8,9,11,14)$
(b) i) Why NAND and NOR gates are termed as universal gates. (6)
ii) Convert (4)
a) $(95.5)_{10}$ to hexadecimal.
b) $AB + AC^{l} + BC$ into standard SOP form.

2. (a) Explain states of instruction cycle using diagram. (07)
(b) List and explain different addressing modes with suitable diagrams. (08)

3. (a) Explain data flow in fetch cycle, indirect cycle and interrupt cycle along with suitable diagrams. (07)
(b) Write a note on six stages of instruction pipeline and effect of conditional branching on the same. (08)

4. (a) Discuss the control signals in Control unit. (07)
(b) Discuss the limitations of superscalar organization. (08)

5. (a) What are the different types of parallel processing system? What is their significance in practical parallel processing approaches? Explain. (07)
(b) Discuss programmed I/O and interrupt driven I/O. (08)

6. (a) Explain the concept of symmetric multiprocessors. (07)
(b) Discuss any two mapping functions of cache memory. (08)

7. Write Short Notes on *any three* :- (15)
a) Cloud computing
b) Micro-Programmed Control
c) RAID
d) SRAM

Immediate A
direct EA = A
Indirect EA = (A)
Register EA = R
Register Indirect EA = (R)
Displacement EA = A + (R)
Stack

MCA - I Sem

Software Engg.

Q.P. Code : 25313

Marks: 80Marks

NOTE: I) Question no.1 is compulsory
II) Attempt any 4 out of the remaining questions
III) Use of calculator is allowed.

Q.1	(a)	Consider the database application with following information: It has 5 screens with 5 views each and 6 data tables for 3 servers and 4 clients. It may generate 2 reports of 5 sections each from 6 data tables for 2servers and 3 clients. There is 10% reuse of object points. Developers experience and capability in the similar environment slow. The maturity of organization in terms of capability is also low. Calculate the project point count, new object points and effort to develop such a project.	10 Marks
	(b)	Discuss Software Requirement specifications.	10 Marks
Q.2	(a)	Explain RAD model and Spiral model with advantages and disadvantages.	8Marks
	(b)	What is meant by software reliability? Explain any two reliability growth model.	7
Q.3	(a)	Explain Fact Finding Technique.	8 marks
	(b)	Explain Mc Call's software quality model in detail.	7 Marks
Q.4	(a)	Consider a software project with 8 tasks T1-T8.Duration of 8 tasks in weeks are 10, 25, 15,10,15,8,15,10 respectively.T2 and T3 can start when T1 is complete.T4 can start when T2 and T3 are complete. T5 and T6 can start when T4 is complete. T7 can start when T5 and T6 are complete. T8 can start when T7 is complete. Assuming above description answer the following questions. a) What is the latest start time for T6? b) What is the slack time for T2 and T3? c) Which tasks are on critical path?	8 Marks
	(b)	Explain in brief the relation between People and Effort.	7 Marks
Q.5	(a)	. Consider a project with the following functional units: Number of User inputs = 30 Number of User outputs = 42 Number of User enquiries = 08 Number of User files = 07 Number of External Interfaces = 06 Assume that all complexity adjustment values are moderate. Compute the function points for the project.	8 marks
	(b)	Short Notes on cost benefits analysis.	7 Marks
Q.6	(a)	What is software maintenance cost? Explain types of Maintenance.	8 Marks
	(b)	Explain how Formal technical review is conducted. Explain how FTR helps in software quality assurance.	7Marks
Q.7		Write a short notes on: (Any Three) a)Structured Analysis b)HIPO chart c)Warnier orr Diagram d)Degree of Rigor	15 Marks

MCA - I Sem

Discrete Mathematics. 27/11/2015

Q.P. Code : 25318

(3 Hours) **[Total Marks : 80**

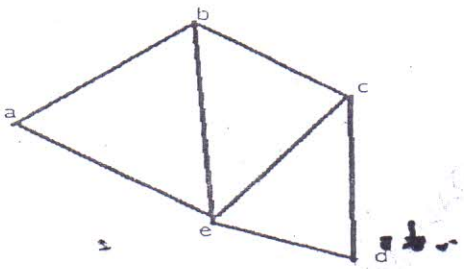
N.B.: (1) Q1. is compulsory, attempt any 4 questions out of remaining six questions
(2) Assume any necessary data to justify the same
(3) Figures to the right indicate full marks
(4) Use of scientific calculator is allowed

Q1 a) Determine whether the relation on the set A is reflective, irreflective, symmetric, asymmetric, antisymmetric or transitive. Give the necessary explanation to your answer. (10)
A=Set of all positive integers, aRb, iff GCD(a,b)=1

Q1 b) State the Tower of Hanoi problem and obtain the corresponding recurrence relation indicating the suitable initial conditions(s). Solve the recurrence relation obtained. (10)

Q2 a) Find the transitive closure of R of the following using by Warshall's algorithm (10)
A={1,2,3,4,5} R={ (1,1) (1,4) (2,2) (3,4) (3,5) (4,1) (5,2) (5,5) }

Q2 b) Find the adjacency list and adjacency matrix for the following graph (05)



Q3 a) Consider (3,6) encoding function e as follows: (10)
e(000) = 000000, e(001) = 000110, e(010) = 010010, e(011) = 010100
e(100) = 100101, e(101) = 100011, e(110) = 110111, e(111) = 110001
Show that the encoding function e is a group code.
Decode the code word 101101 with maximum likelihood technique.

Q3 b) Establish the following result without using truth tables. (use the laws of logic to show the following equivalence) (05)
$(P \rightarrow Q) \wedge (R \rightarrow Q) \equiv (P \vee R) \rightarrow Q$.

Q4 a) Let V = {vo, w, a, b, c} S={a, b, c} (10)
Let → be the relation on V^* given by the relation
1. $V_0 \rightarrow aw$ 2. $w \rightarrow bbw$ 3. $w \rightarrow c$
Consider a phase structure grammar $G=(V, S, v_0, \rightarrow)$
(i) Derive the sentence ab^4c. Also draw the derivation tree.
(ii) Derive the sentence ab^6c. Also draw the derivation tree.
(iii) Derive the sentence ab^8c. Also draw the derivation tree.

Q4 b) Find the solution of the recurrence relation defined by $a_n=3a_{n-1}-2a_{n-2}$ with $a_1=5$ (05)

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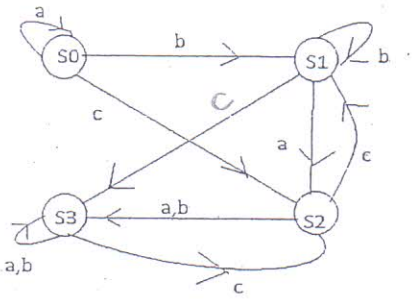
and $a_2=3$

Q5 a) Let A={1,2,3,4,12}. Consider the relation R as aRb iff 'a divides b' Show that R is a partial order relation. Draw the Hasse diagram of the Poset (A,R). (10)

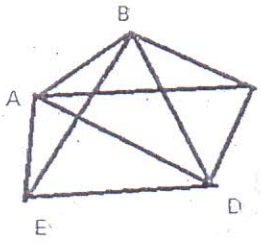
Q5 b) Construct a transition table for a finite state machine whose diagraph is shown below. (05)



Q6 a) Let S=Set of integers. Define the relation R on A=SxS as aRb if and only if $a \equiv b \pmod 2$. (10)
i) Show that R is an equivalence relation
ii) Determine A/R.

Q6 b) If G is a group with identity e. Show that if $a^2 = e$ for all a in G, then every element is its own inverse. (05)

Q7 a) Consider the graph. Find and Euler path or Euler circuit, if exists. If it does not exists, why not? (10)



Q7 b) Let T be the set of even integers. Show that (Z, +) and (T,+) are isomorphic, where Z is the set of integers. (05)

IXICH – I Sem
Principles & Perspective of Mgmt.

QP CODE : **25321**

[Total Marks : 80]

(3 Hours)

N.B. : 1) Question No.1 is **compulsory.**
2) Attempt any **four** from the remaining **six** questions.

1. (a) Discuss the different leadership styles with examples. (10)
   (b) Explain the contributions of Henry Fayol, to the development of management thought. (10)

2. (a) How does long-term planning differ from short-term planning? How can both be coordinated? (07)
   (b) "Management process is considered to consist of certain function". List and Elaborate these functions in a logical order. (08)

3. (a) What is Span of Management? Explain the Narrow span and Wide Span of Control? (07)
   (b) What are the major features of strategic decision and tactical decision? How do you differentiate between the two? (08)

4. (a) What are the basic types of organization structures? Explain the Flat Organization structure? (07)
   (b) What is motivation? Explain McGregor's Theory "X" and Theory "Y". (08)

5. (a) What are the steps in planning process? (07)
   (b) Define the term Training and development. Explain the various methods of training and development. (08)

6. (a) What is marketing mix? Explain briefly the components of marketing mix. (07)
   (b) What do you mean by Performance Appraisal? Explain various methods of Performance Appraisal? (08)

7. Write Short Notes on <u>any three</u> :- (15)

   a. Maslow's Need Hierarchy Theory
   b. Product Life Cycle
   c. Line Authority
   d. Recruitment and Selection
   e. Advertisement and Promotion

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