Total No. of Questions :12]

SEAT No. :

P3710

[Total No. of Pages :2

[4961]-101
F.Y.M.C.A. (Engg.)
C AND C++ PROGRAMMING
(2013 Course) (Semester - I) (310901)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Neat diagrams must be ddrawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) a) What is an operator? Explain the arithmetic, relational, logical, and assignment operators in C language. **[4]**

b) What is procedure oriented programming? Why C programming is called top down design approach? **[4]**

OR

Q2) a) What is variable? What is the difference between variable and constant? **[4]**

b) Explain the use of break and continue statement in loops with example.**[4]**

Q3) Explain array of structures and structure within a structure with examples.**[8]**

OR

Q4) What is dynamic memory allocation Explain the different dynamic memory allocation functions in C. **[8]**

Q5) a) Write a C program to maintain a record of "n" student details using an array of structures with four fields (Roll number, Name, Marks, and Grade). Each field is of an appropriate data type. Print the marks of the student given student name as input. **[5]**

b) Write and explain any two preprocessor directives in C. **[4]**

OR

P.T.O.

Q6) a) Write a C function isprime(num) that accepts an integer argument and returns 1 if the argument is prime, a 0 otherwise. Write a C program that invokes this function to generate prime numbers between the given ranges. **[5]**

b) What is function? Explain call by value and call by reference with example. **[4]**

Q7) a) What is a destructor and when does a destructor member function invoked in a class? **[4]**

b) What is an inline function? State its advantages and disadvantages. **[4]**

OR

Q8) a) What is constructor? What are the characteristics of constructor? **[4]**

b) Explain the concept of object and information hiding with example. **[4]**

Q9) a) What is the inheritance? Explain multiple inheritances with example. **[4]**

b) Write a C++ program to overload binary operator. **[4]**

OR

Q10)a) What is operator overloading? List the rules for operator overloading. **[4]**

b) Explain about virtual functions with an example. **[4]**

Q11)a) Explain managing console formatted I/O with example. **[5]**

b) Short notes on: **[4]**

i) open( )

ii) write( )

OR

Q12)a) Explain with example, how manipulators are used to output streams. **[5]**

b) Short notes on: **[4]**

i) get( )

ii) tellg( )

ꕥ ꕥ ꕥ

Total No. of Questions : 12]

SEAT No. :

P3711

[Total No. of Pages : 2

[4961]-102
F.Y.M.C.A. (Engg.)
COMPUTER ORGANIZATION
(2013 Course) (310902) (Semester - I)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume Suitable data if necessary.***

Q1) a) Discuss Binary and Octal system. **[4]**

b) What is Duality theorem with an example. **[4]**

OR

Q2) a) Discuss Sum of product with an example. **[4]**

b) Explain 1's and 2's complement with an example. **[4]**

Q3) a) What is Full adder? Explain in detail. **[4]**

b) Explain encoder and decoder. **[4]**

OR

Q4) a) What is multiplexer in detail. **[4]**

b) Explain SR Flip-flop. **[4]**

Q5) a) Discuss cache memory structure. **[5]**

b) Explain DMA interfacing with processor. **[4]**

OR

Q6) a) Explain memory Hierarchy with diagram. **[5]**

b) Differentiate between DRAM and SRAM. **[4]**

P.T.O.

Q7) a) What is the need and role of CPU register? **[4]**

b) Explain RISC pipelining with example. **[4]**

OR

Q8) a) What is pipelining? Explain instruction pipelining in detail. **[4]**

b) Differentiate between RISC and CISC. **[4]**

Q9) Draw and explain 16-bit (8086) architecture in detail. **[8]**

OR

Q10)a) Explain Super scalar concept. **[4]**

b) Explain Components of Microprocessor. **[4]**

Q11)a) Write a short note on CPU performance. **[4]**

b) Explain the concept of Clusters. **[5]**

OR

Q12)a) Explain the importance of Parallel Processing. **[5]**

b) Explain SISD and MISD. **[4]**

Total No. of Questions : 12]

SEAT No. :

P3712

[Total No. of Pages : 2

[4961]-103
F.Y. M.C.A. (Engineering)
PRINCIPLES OF PROGRAMMING PRACTICES
(2013 Course) (Semester - I) (310903)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume Suitable data if necessary.***

Q1) a) Write a short note on acquiring software. **[4]**

b) What are the software development steps? **[4]**

OR

Q2) a) Compare Assembly Language and High Level Language. **[4]**

b) Write a short note on **[4]**

i) Firmware

ii) Compiler

Q3) a) Name three current problems in your life that might be solved through a heuristic approach. Explain why each of these problems is heuristic in nature. **[4]**

b) Write a short note on Interactivity Chart. **[4]**

OR

Q4) a) What are the different approaches used to solve the problem? Explain with example. **[4]**

b) Differentiate between: **[4]**

i) Constant and Variable.

ii) Expression and Equation.

P.T.O.

Q5) a) What is meant by the coupling of a module? Explain with example different levels of coupling. **[5]**

b) Write a short note on modular programming? **[5]**

OR

Q6) a) What is module? Explain different types of modules and State the rules for designing modules. **[5]**

b) Explain the three logic structures and What is meant by coupling modules? **[5]**

Q7) a) Explain Efficiency of an algorithm. **[4]**

b) Write down Exchange of values of two variables with or without third variable. **[4]**

OR

Q8) a) Write down an algorithm of generation of Pascal triangle. **[4]**

b) List and Explain factors included in implementation of an algorithm with example. **[4]**

Q9) a) Explain three different analysis and Which of these is the best to use. **[4]**

b) Explain time complexity and calculate the same for bubble sort. **[4]**

OR

Q10)a) Explain how to estimate running time of an algorithm with one method. **[4]**

b) Explain space complexity and calculate the same for selection sort. **[4]**

Q11)a) Write a short note on Immediate changeover. **[4]**

b) Design an algorithm for reverse of number with array technique. **[4]**

OR

Q12)a) Difference between testing and debugging. **[4]**

b) Design an algorithm for Binary Search. **[4]**

Total No. of Questions :12]

SEAT No. :

P3713

[Total No. of Pages :5

[4961] - 104

First Year M.C.A. (Under Engineering Faculty)

DISCRETE MATHEMATICS

(2013 Pattern) (Semester - I) (310904)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of probability table, electronic pocket calculator is allowed.***
5) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) Prove that 5^n -1 is divisible by 4 for $n \geq 1$. **[4]**

b) How many integers from 1 - 1000 are divisible by 2, or 3? **[4]**

OR

Q2) a) In a survey, 2000 people were asked whether they read India today or Business times. It was found that 1200 read India Today, 900 read Business Times and 400 read both. Find how many at least one magazine read and how many read neither. **[4]**

b) Prove Inclusive – Exclusive Principal $|A \cup B| = |A| + |B| - |A \cap B|$. **[4]**

P.T.O.

Q3) a) Using the following statement:, **[4]**

p: Mohan is rich

q: Mohan is happy

Write the following statement in symbolic form.

i) Mohan is rich but unhappy.

ii) Mohan is poor but happy.

iii) Mohan is neither rich nor happy.

iv) Mohan is poor or he is both rich and unhappy.

b) Construct truth tables to determine whether each of the following is a tautology, a contingency or a contradiction. **[4]**

i) $p \to q\,(q \to p)$

ii) $(p \wedge q) \wedge \neg (p \vee q)$

iii) $(p \wedge q) \to p$

OR

Q4) a) Prove that $p \to q$ and $\sim q \to \sim p$ are logically equivalent. **[4]**

b) Show that $(p \wedge q) \Rightarrow (p \to q)$. **[4]**

Q5) a) A die is rolled three times, find the number of faces that can appears on top. **[4]**

b) In how many ways can 8 different books be divided among Sameer, Ajay and Leela if Sameer gets 4 books; Ajay and Leela get 2 each. **[5]**

OR

Q6) a) In how many ways can 25 late admitted students be assigned to three practical batches if the first batch can accommodate 10 students, the second 8 and third only7? **[4]**

b) A box contains 6 white balls and 5 black balls. Find the number of ways, 4 balls can be drawn from the box if **[5]**

i) Two must be white.

ii) All of them have the same colour.

SECTION - II

Q7) a) If A = {1}, B = {*a*, *b*}, C = {2, 3} find A × B × C, A^2, B^2 × A, C^3. **[4]**

b) Let A = {1, 2, 3, 4} and R = {(1, 2), (2, 4), (1, 3), (3, 2)} Find the transitive closure of R by Warshall's algorithm. **[4]**

OR

Q8) a) Let A = {2, 3, 4, 6} and let aRb"if a divides b". Show that R is a partial order and draw its Hasse diagram. **[4]**

b) Let A = {*a*, *b*, *c*, *d*}, R = $\{(a,a)(b,a)(b,b)(c,c)(d,d)(d,c)\}$ Determine whether R is an equivalence relation. **[4]**

Q9) a) Draw & Define the following terms: **[4]**

i) Null Graph

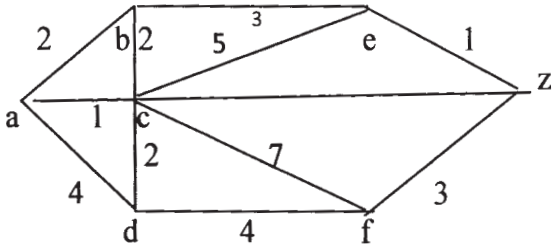
ii) Complete Graph

b) How many nodes are necessary to construct a graph with exactly 6 edges in which each node is of degree 2? **[4]**

OR

Q10) a) Draw a graph which contains a eulerian path but does not contain a eulerian circuit. **[4]**

b) Find shortest path between a-z for the given graph; using Dijkstra's algorithm: **[4]**

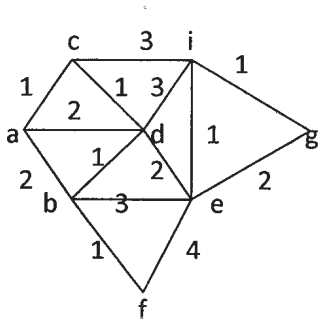


Q11) a) For each of the following sets of weights construct an optimal binary prefix code. **[4]**

For each weight in the set, give the corresponding code word:

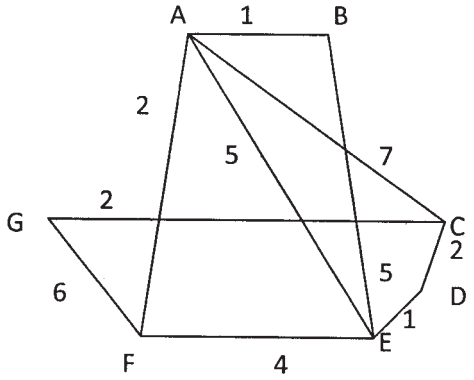
i) 1, 2, 4, 5, 6, 9, 10, 12

b) Use Prim's algorithm to construct a minimal spanning tree for the weighted graph in following figure starting from vertex a. **[5]**

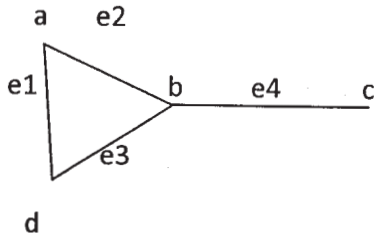


OR

Q12) a) Give the stepwise construction of minimum spanning tree for the following graph using Kruskal's algorithm. **[4]**



b) Find the fundamental cut-sets of the following graph G. **[5]**



Total No. of Questions : 12]

SEAT No. :

P3714

[Total No. of Pages : 4

[4961]-105

First Year M.C.A.(Under Engineering Faculty)

PROBABILITY AND STATISTICS

(2013Course) (Semester-I) (310905)

Time :3Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***
4) ***Use of probability table, electronic pocket calculator is allowed.***

Q1) a) Prove: "The probability of an impossible event is zero" **[4]**

b) Consider all positive integers with three different digits **[4]**

i) How many numbers are greater than 700?

ii) How many numbers are even?

iii) How many numbers are odd?

iv) How many numbers are divisible by five?

OR

Q2) a) State and prove Baye's theorem. **[4]**

b) A person applies for a job in two companies A and B. He estimates that the probability of his being selected in company A is 0.7 and being rejected at B is 0.5 and probability of at least one of his application being rejected is 0.6. What is the probability that he will be selected in at least one of the company? **[4]**

Q3) a) $F(x) = \frac{1}{2}x \quad 0 < x < 2$

$= 0 \quad$ Otherwise

Find mean, variance and standard deviation **[4]**

b) Find variance of binomial random variable. **[4]**

OR

P.T.O.

Q4) a) If X and Y are independent random variable,prove that

Var (X+Y) = Var(X) + Var (Y). **[4]**

b) A discrete random variable has probability function : $p(x)=1/2^x$ where x= 1,2.....find. **[4]**

i) the mode ii) the median

iii) compare them with the mean

Q5) a) $F_{xy}(x,y)= 1/240$ $8.5< x <10.5$ **[6]**

$120< y <240$

Find i) E [X] ii) E [Y] iii) E [X,Y]

b) Prove : COV(X,Y) = E [X,Y]– {E[X].E[Y]} **[3]**

OR

Q6) a) Show that standard normal random variable has mean zero and variance one. **[4]**

b) A continuous Joint density function for (x,y) is given by **[5]**

$F_{xy}(x,y)=C$ $8.5< x <10.5$

$120 <y <240$

Find

i) C ii) P[9<=x<10,125<=y<140

iii) find marginal density fy (y)

Q7) a) Derive computational formula for sample variance. **[4]**

$$S^2 = n \sum_{i=1}^{n} \left(X_i - \bar{X}\right)^2 / n-1$$

b) Find the maximum likelihood estimator for μ and σ^2 for random sample $X_1, X_2 ... X_n$ from a normal distribution. **[4]**

OR

Q8) a) Prove: "The sample mean $\bar{x}$ is an unbiased estimator for μ . $E[\bar{x}] = \mu$" **[4]**

b) X is Poisson random variable with parameter K. A random sample of size 4 is obtained from the distribution of x. $x_1=12$, $x_2=15$, $x_3=16$, $x_4=17$.

Determine the value of K that gives the highest probability of observing this sample. **[4]**

Q9) a) Find mean and variance for population 4,8,7,6,2,9 by drawing sample of 2 with replacement and without replacement. **[4]**

b) What is hypothesis testing? Explain the advantages of hypothesis testing. **[4]**

OR

Q10) a) Explain the terms. **[4]**

i) Interval estimate

ii) Unbiased estimate

iii) Efficient estimate

iv) Confidence limit

b) What is P value of test? How do we compute P value for two tailed test? **[4]**

Q11) a) What is acceptance sampling? What is its purpose and what are the conditions for its use? **[5]**

b) A quality control inspector at the Crunchy Potato chips company has taken 3 samples with 4 observations each of the volume of bag filled. The data and the computed means are shown in following table. **[4]**

Sample of potato chips bag volume in ounces				
Sample No	Observations			
	1	2	3	4
1	12.5	12.3	12.6	12.7
2	12.8	12.4	12.4	12.8
3	12.1	12.6	12.5	12.4
4	12.2	12.6	12.5	12.3
5	12.4	12.5	12.5	12.5
6	12.3	12.4	12.6	12.6
7	12.6	12.7	12.5	12.8
8	12.4	12.3	12.6	12.5
9	12.6	12.5	12.3	12.6
10	12.1	12.7	12.5	12.8
Mean	12.4	12.5	12.5	12.6

If the standard deviation of the bagging operation is 0.2 ounces, use the information in the table to develop control limits of 3 standard deviations for the bottling operation.

OR

Q12)a) Explain r* c test for independence **[5]**

b) Use Chi-square test to determine goodness of fit of data given below **[4]**

(χ^2_{table} (0.95)=9.49)

No of Heads (x)	p(x heads)	Expected Frequency	Observed frequency
0	0.0332	33.2 or 33	38
1	0.1619	161.9 or 162	144
2	0.3162	316.2 or 316	342
3	0.3087	308.7 or 309	287
4	0.1507	150.7 or 151	164
5	0.0294	29.4 or 29	25

Total No. of Questions : 12]

SEAT No. :

P3715

[Total No. of Pages : 3

[4961]-201
FY.M.C.A.(Faculty of Engineering)
JAVA PROGRAMMING
(2013Course) (Semester-II) (310909)

Time :3Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Answer Q1 or Q2,Q3or Q4, Q5 or Q6 , Q7 orQ 8, Q9 or Q10, Q11 or Q12.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) What is meant by garbage collection? How is it done in Java? **[4]**

b) What is the Java Virtual Machine? **[3]**

c) What are the main difference between Java platform and other Platform? **[2]**

OR

Q2) a) Explain the programming structures in Java with suitable example. **[6]**

b) What will be the initial value of an object reference which is defined as an instance variable? **[3]**

Q3) a) How can you achieve Multiple Inheritance in Java? **[4]**

b) Define Constructor? What are the Rules in defining a constructor? **[4]**

OR

Q4) a) What is the difference between a static and a non-static inner class? **[4]**

b) Can a lock be acquired on a class? **[2]**

c) Which java.util classes and interfaces support event handling? **[2]**

Q5) a) What is polymorphism? List out the difference between method Overloading and Method Overriding in java. **[6]**

b) What is meant by final class and wrapper class? **[2]**

OR

P.T.O.

Q6) a) Discuss the differences between creating a new class, extending a class and implementing an interface; and when each would be appropriate. **[5]**

b) What is Autoboxing and unboxing in Java? **[3]**

Q7) a) What is synchronization and why is it important? **[5]**

b) What is the difference between final, finally and finalize methods? **[3]**

OR

Q8) a) What is the purpose of the wait (), notify() and notify All() methods? **[3]**

b) Draw the hierarchy of Java Exception classes. **[5]**

Q9) a) What is Java Applet? What are the advantages and drawbacks of Applets? **[6]**

b) Explain the Lifecycle of Java Applet. **[3]**

OR

Q10) a) Which method of the component class is used to set the position and the size of a component? **[5]**

b) What is the purpose of the toolkit in the Abstract window Toolkit(AWT)? How does AWT work? **[4]**

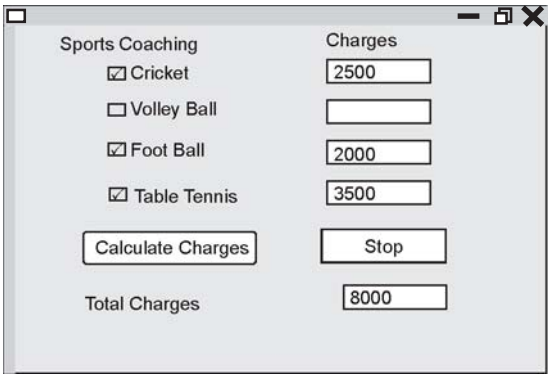
Q11) a) What is Java Swing? what is difference between container and Component in Swing? **[5]**

b) What is difference between paint and repaint in Java Swing? **[3]**

OR

Q12) Develop a sports charges application to learn manipulation of check boxes.

Design a form as shown in the below Figure. The aim of the application is to calculate the total charges payable by the user based on the sports selected. Note that all the text fields are disabled because they are just displaying the results and are not accepting any input from the user. The input is being taken in the form of selection of check boxes. On the selection of a particular sport check box, its charges are displayed in the adjacent text field and on the click of the calculate charges button, the charges for all the selected sports are added and displayed in the text field. **[8]**



Total No. of Questions : 12]

SEAT No. :

P3716

[Total No. of Pages : 3

[4961]-202
FY.M.C.A.(Engineering)
DATA STRUCTURES USING C
(2013 Course) (Semester-II) (310910)

Time :3Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) a) Explain the row major and column major storage representation of array with an example. **[6]**

b) Define Data structure. **[2]**

OR

Q2) a) Write a function in 'C'/ 'C++' to get a transpose of matrix of size M×N using simple transpose method. Comment on the time analysis. **[6]**

b) Define Abstract Data Type. **[2]**

Q3) a) Write Pseudo C code for inserting node in the doubly linked list. **[5]**

b) What is dynamic memory allocation? **[3]**

OR

Q4) Represent polynomial as a linked list and write a pseudo C code to perform addition on it. **[8]**

Q5) a) Convert the following infix expression to postfix using stacks. Show the contents of stack after every pass. **[5]**

(a + b / c)* (d + e)

b) Explain Circular queue as an array. **[4]**

OR

P.T.O.

Q6) a) What is Stack? What are different applications of stack. **[4]**

b) What is priority queue? Explain it with suitable example. **[5]**

Q7) a) Write a C/C++ function to delete a node from Binary Search Tree. **[6]**

b) What is minimum cost spanning tree? What are its applications? **[3]**

OR

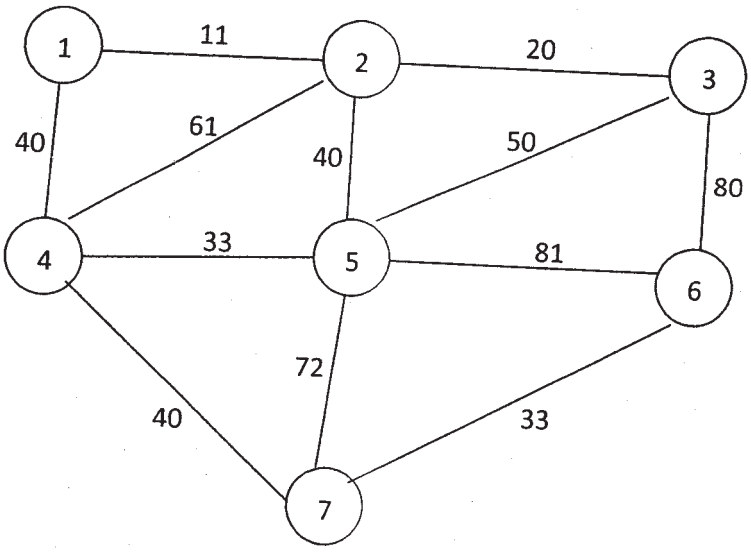
Q8) a) Define following terms: **[3]**

i) Graph

ii) Level of tree

iii) Binary Tree

b) Find the minimum cost spanning tree for the following graph using Prim's algorithm **[6]**



Q9) a) Show the stepwise execution of the Bubble sort algorithm for the following list. Give the time complexity of algorithm. **[4]**

23, 8, 44, 1, 61, 13, 58, 20, 48, 19

b) Write a C/C++ non recursive function for binary search **[4]**

OR

Q10) a) Write a pseudo C code for Quick sort algorithm. **[6]**

b) Describe the following with respect to sorting **[2]**

i) Sort Order

ii) External sorting

Q11) a) Write a short note on simple index file. **[4]**

b) What is Hash function? Explain different methods of generating hash function? **[4]**

OR

Q12) a) Compare sequential and direct access file **[4]**

b) Explain linear probing with suitable example. Give drawbacks of linear probing **[4]**

Total No. of Questions : 12]

SEAT No. :

P3717

[Total No. of Pages : 3

[4961]-203
F.Y.M.C.A. (Engg.)
WEB TECHNOLOGIES
(2013 Course) (Semester - II)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) a) Differentiate between 2 tier and 3 tier architecture with diagram. **[4]**

b) Explain in detail how a browser communicates with a web server. **[4]**

OR

Q2) a) Write a note on middleware. **[2]**

b) Enlist the applications of web technologies in e-commerce. **[3]**

c) Write note on web space registration. **[3]**

Q3) a) Explain in detail and tag. **[4]**

b) Explain use of classes in CSS with suitable example. **[4]**

OR

Q4) a) Explain embedded style sheet with example. **[3]**

b) Write an external CSS to set the following rules and link it in HTML file. Also mention whose precedence is more: internal or external style sheet. **[5]**

- Give heading
- Set paragraph with font size 13
- Set text color as blue
- Set heading text color as green

P.T.O.

Q5) a) Explain primitive data types of VBScript with example. **[5]**

b) What is scripting? What are different scenarios to make web page dynamic? **[4]**

OR

Q6) a) Explain two kinds of procedures in VBScript. **[4]**

b) What is DHTML? Explain benefits of DHTML. **[5]**

Q7) a) Write a note on event handling in Java Script. **[4]**

b) Explain the working of timers in Java Script? Also explain the drawbacks of using the timer, if any? **[4]**

OR

Q8) a) Write a Java Script code to display digital clock. **[4]**

b) If an array with name as "names' contain three elements, then how will you print the third element of this array in JavaScript? **[2]**

c) How do we add JavaScript onto a web page? **[2]**

Q9) a) What are parsed and unparsed entities in XML? **[3]**

b) What is Data Types in DTD? **[3]**

c) What is the Differences between xml schema and DTD? **[2]**

OR

Q10)a) What are the differences between Dom method and sax method? **[2]**

b) What is SOAP? **[2]**

c) What are the benefits of XML? **[2]**

d) What are namespaces? Why are they important? **[2]**

Q11)a) List out the predefined classes in PHP? **[3]**

b) What is use of header() function in PHP? **[3]**

c) How can we get the browser properties using PHP? **[3]**

OR

Q12)a) What are the differences between require and include? **[3]**

b) What is session? How can we register variables into session? **[3]**

c) Enlist the features of PHP. **[3]**

x x x

Total No. of Questions : 12]

SEAT No. :

P3718

[Total No. of Pages : 2

[4961]-204
F.Y.M.C.A. (Engg.)
SYSTEM ANALYSIS & DESIGN
(2013 Pattern) (Semester - II) (310912)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

SECTION - I

Q1) a) Discuss reuse oriented software engineering model. **[4]**

b) Discuss about Systems approach vs. engineering approach. **[4]**

OR

Q2) Discuss a case study on flexibility of information systems. **[8]**

Q3) Explain SDLC cycle in detail. **[8]**

OR

Q4) a) What is feasibility? Discuss any 2 types of feasibility. **[4]**

b) How to identify the attributes? **[4]**

Q5) a) Explain data dictionary with an example. **[4]**

b) Discuss ER diagram briefly with process specifications. **[5]**

OR

Q6) Draw Data Flow Diagram for Banking system. **[9]**

P.T.O.

SECTION - II

Q7) a) What are data input methods? Explain in detail. **[6]**

b) What is Cohesion? **[2]**

OR

Q8) Discuss ER Diagram. Draw ER diagram for blood bank management system. **[8]**

Q9) a) Discuss a case study on Software maintenance. **[4]**

b) What is importance of software testing? **[4]**

OR

Q10) What is Audit of Information system? Discuss in detail. **[8]**

Q11) a) What is component based software engineering? **[5]**

b) Discuss about service oriented architecture. **[4]**

OR

Q12) a) Write a note on Deployment of software. **[5]**

b) What is distributed software? **[4]**

x x x

Total No. of Questions : 12]

SEAT No. :

P3719

[Total No. of Pages : 2

[4961]-205

F.Y.M.C.A. (Faculty of Engineering)

MANAGEMENT THEORY & PRACTICES

(2013 Course) (Thoery) (Semester - II) (310913)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

SECTION - I

Q1) Do you feel that the Taylor's theory of Management is still valid? Justify. **[8]**

OR

Q2) The concept of management, Administration and organization in brief. **[8]**

Q3) Write difference between MOA & AOA. **[8]**

OR

Q4) Explain the difference between formal & informal organization. **[8]**

Q5) Explain Black and Moutan's Theory. **[9]**

OR

Q6) Explain Path & Goal Theory. **[9]**

P.T.O.

SECTION - II

Q7) Which are the constructive conflicts and what are the strategies for conflict resolution? **[8]**

OR

Q8) Explain Motivation Theory X, Y and Z. **[8]**

Q9) Explain the role of MIS in academic structure. **[9]**

OR

Q10) Define E-business, E-communication, E-commerce and E-Collaboration. **[9]**

Q11) Explain Principle of Rationality and Bounded Rationality. **[8]**

OR

Q12)Explain decision making under risk. **[8]**

Total No. of Questions :12]

SEAT No. :

P3720

[Total No. of Pages :2

[4961]-301
S.Y.M.C.A. (Engg.)
ADVANCED JAVA
(2013 Pattern) (Semester - III) (410901)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) What is J2EE? Explain its components with diagram. **[8]**

OR

Q2) Explain Four Types of JDBC Drivers. **[8]**

Q3) a) What is servlet? Explain servlet lifecycle. **[4]**

b) What is the difference between Http Servlet and Generic Servlet? **[4]**

OR

Q4) Write a servlet program to read an text string of student for JSP/HTML Form, response back the same string in reverse. **[8]**

Q5) a) What is JSP? Explain JSP lifecycle methods. **[4]**

b) What is the difference between JSP and Servlet? **[4]**

OR

Q6) Write a program to accept the rollNo of student in JSP page and display their details for database using JDBC. Assume that STUDENT table already exists and contains the data. **[8]**

P.T.O.

Q7) What is EJB? Explain the types of EJB. **[8]**

OR

Q8) Write short notes on any 2: **[8]**

a) Session Beans

b) Entity Beans

c) Container Manged Transactions

Q9) What is spring? Explain the spring bean life cycle. **[9]**

OR

Q10) Explain the core spring modules and aspect oriented beans. **[9]**

Q11) What is HQL? Explain any four HQL queries with example. **[9]**

OR

Q12) What is Hibernate? What do you mean by Object Relational Persistence. **[9]**

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Total No. of Questions : 12]

SEAT No. :

P3721

[Total No. of Pages : 2

[4961]-302
S.Y. M.C.A. (Engineering)
DATABASE MANAGEMENT SYSTEM
(2013 Course) (Semester - III) (410902)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume Suitable data if necessary.***

Q1) a) Write difference between DBMS and File Processing System. **[4]**

b) Explain System catalogs in detail. **[4]**

OR

Q2) a) Explain DBMS Architecture with proper diagram. **[4]**

b) Define: **[4]**

i) Data Abstraction.

ii) Data Independence.

Q3) a) Consider the scenario for "Courier service system" Make your own assumptions and Draw an EER consists of Aggregation, Generalization, Specialization. **[6]**

b) Explain different types of attributes with diagram notion and suitable example. **[4]**

OR

Q4) a) Explain Specialization & Generalization with suitable example. **[6]**

b) Explain different types of constraints that we can apply on the fields of the table. **[4]**

Q5) a) Explain view in detail. **[4]**

b) Write neat syntax of

i) Index ii) Sequence **[4]**

OR

P.T.O.

Q6) a) Explain any four rules of E.F. Codd. **[4]**

b) Write short note on Referential Integrity with example. **[4]**

Q7) a) Explain different types of cursors with proper example. **[4]**

b) Explain any 4 aggregate functions with example. **[4]**

OR

Q8) a) Explain difference between stored procedure and function with example. **[4]**

b) Write short note on: Joins. **[4]**

Q9) a) Explain different Database Design approach. **[4]**

b) Explain types of Function dependency in detail. **[4]**

OR

Q10)a) Relation{ custno, custname, orderno, prodno, proddesc, qty_ordered, custaddress,date_+ordered, order_descr, qty_available, price_per_unit, total_cost}.

Normalize this relation upto 3NF with proper explanation. **[4]**

b) Explain different Anomalies and data redundancy issues with unnormalized data. **[4]**

Q11)a) What are the benefits of BigData? Explain in detail. **[4]**

b) Explain HBASE Architecture. **[4]**

OR

Q12)a) What are the advantages of NOSQL over SQL? **[4]**

b) Write short note on: NONRelational Database Systems. **[4]**

Total No. of Questions :12]

SEAT No. :

P3722

[Total No. of Pages :3

[4961]-303
S.Y.M.C.A.(Engg.)
Operating System
(2013 Course) (Semester -III) (410903)

Time : 3 Hours *[Max. Marks :50]*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) a) What is Resource Preemption? Explain sequential sharing & concurrent sharing. **[4]**

b) What is Batch Processing system? Explain functions of batch monitor? **[4]**

OR

Q2) a) Explain Jobs, Programs and processes. What is the degree of Multiprogramming? **[4]**

b) Write a short note on real time operating system. **[4]**

Q3) a) Explain Process Control Block with diagram. **[4]**

b) Explain the difference between preemptive and non preemptive process scheduling with an example. **[4]**

OR

Q4) a) Explain Scheduling criteria. Name different Scheduling Algorithms. **[4]**

P.T.O.

b) Consider a set of processes P1, P2, P3 having priorities ranging from 1 to 3. Let us assume that 1 is the highest priority whereas 3 is the least priority. Let us also assume that p1 arrives first and P3 arrives in the last. **[4]**

Process	CPU BurstTime	Priority	Arrival
p1	10	3	0
p2	5	2	1
p3	2	1	2

Calculate average waiting time and turnaround time using preemptive priority scheduling. Draw Gantt chart

Q5) a) What is deadlock? Explain two fundamental approaches for handling deadlocks. **[6]**

b) Write a note on mutual exclusion. **[3]**

OR

Q6) a) Explain the concepts: **[6]**

i) Semaphores.

ii) Monitors.

iii) Race Conditions.

b) Explain characteristics of deadlock. **[3]**

Q7) a) Explain the concepts: **[4]**

i) Memory Fragmentation.

ii) Memory Compaction.

b) Write a short note on locality of reference. **[4]**

OR

Q8) a) State the page replacement policies. Explain LRU with example. **[4]**

b) Write a short note on Contiguous and Non-Contiguous memory allocation. **[4]**

Q9) a) Consider a disk system with 100 cylinders The request to access the cylinder occur in the following sequence : 4,34,10,7,19,73,2,15,6,20. Assuming the head is at cylinder 50, What is the total distance that disk moves to satisfy all the pending requests for the following disk scheduling algorithm: **[6]**

i) SCAN.

ii) FCFS.

b) Explain free space management techniques. **[2]**

OR

Q10)a) Explain with respect to file management. **[4]**

i) Field.

ii) Record.

iii) File.

iv) Database.

b) Explain two level, tree structured cyclic graph directories. **[4]**

Q11)a) Explain various data structures used by Linux. **[4]**

b) Explain fork, wait, exec, process management system calls. **[5]**

OR

Q12)a) State silent features of Linux. **[3]**

b) Explain Inode assignment to new file. **[3]**

c) Explain different commands of Linux. (Any 3) **[3]**

Total No. of Questions :12]

SEAT No. :

P3723

[Total No. of Pages :3

[4961] - 304

S.Y. M.C.A. (Faculty of Engineering)

OBJECT ORIENTED ANALYSIS AND DESIGN

(Semester - III) (2013 Course) (410904) (Theory)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***Assume suitable data, if necessary.***

Q1) a) Explain the concept of Booch Methodology. **[4]**

b) Explain in brief the phases of Rational Unified Process. **[4]**

OR

Q2) a) Explain the design view in 4 + 1 view architecture. **[5]**

b) Differentiate SSAD and OOAD. **[3]**

Q3) a) Explian the Extensibility mechanisms of UML. **[5]**

b) What is OCL? Explain with example. **[3]**

OR

Q4) a) Draw use case diagram for booking Online Movie Ticket. Make necessary assumptions. **[5]**

b) Explain the benefits of using UML. **[3]**

P.T.O.

Q5) a) The university has arranged a project competition for which students of MCA, MCS College students can register online in a group. The panels of Judges are invited from colleges of other Universities. The rules of the competition are as follows: **[5]**

i) One college can send any number of groups.

ii) One group can how minimum 2 and maximum 4 members.

iii) One group cannot develop more than one project.

iv) One student can participate in only one project group.

v) One panel of judges consists of minimum 2 and maximum 5 judges.

vi) One panel of judges can judge many project.

The University declares result passed on the points given by the panel of Judges. From the above assumption, Draw class diagram.

b) Explain the concept of Association and Aggregation with example. **[4]**

OR

Q6) a) Draw Class diagram for "Order Management System". Make necessary assumptions. **[5]**

b) Explain the concept of Object diagram with example. **[4]**

Q7) a) Draw sequence diagram for ATM machine. Make suitable assumption. **[5]**

b) Explain the term Interaction diagram. **[3]**

OR

Q8) a) Draw communication diagram for buying a product from vending system. Write suitable assumptions. **[5]**

b) Compare communication diagram and sequence diagram. **[3]**

Q9) a) Draw activity diagram for given order processing system where the firm receives the order. On receipt of order the order form is filled and simultaneously an invoice is sent. Once the order is filled, the delivery status is finalized. If the order is rush order the delivery is made overnight otherwise delivery is made in regular mode. The payment is received on invoice generation and order is closed. **[5]**

b) Explain the concept of Timing Diagram. **[3]**

OR

Q10) a) Draw activity diagram to resolve an issue in software design. Make suitable assumption. **[5]**

b) Explain the concept of State machine diagram. **[3]**

Q11) a) Explain component diagram with suitable example. **[5]**

b) Explain the application of UML. **[4]**

OR

Q12) a) Draw deployment diagram for web application - online ordering of book. Write your assumptions clearly. **[5]**

b) What is the use of package diagram? Explain with example. **[4]**

Total No. of Questions : 12]

SEAT No. :

P3724

[Total No. of Pages : 6

[4961]-305
S.Y.M.C.A. (Engg.)
OPERATION RESEARCH
(2013 Course) (Semester - III) (410905)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10, Q11 or Q12.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***All questions are compulsory.***
4) ***Figures to the right side indicate full marks.***
5) ***Use of elctronic pocket calculator is allowed.***
6) ***Assume Suitable data if necessary.***

Q1) a) Solve the following LPP by the Simplex method. **[6]**

Max $z = 11x_1+4x_2$

Subject to constraint

$7x_1+6x_2<=84$

$4x_1+2x_2<=32$

$x_1, x_2>=0$

b) Discuss the properties of LP model. **[3]**

OR

Q2) a) Explain **[3]**

i) Slack Variable

ii) Feasible Solution

iii) Optimum Solution

P.T.O.

b) Solve the following LPP by the Graphical method. **[6]**

Max z = 9x+13y

Subject to constraint

2x+3y<=18

2x+y<=10

x_1, x_2>=0

Q3) Find basic feasible solution by using **[8]**

a) North West corner method

b) VAM

1	2	3	4	Supply
10	2	20	11	15
12	7	9	20	25
4	14	16	18	10

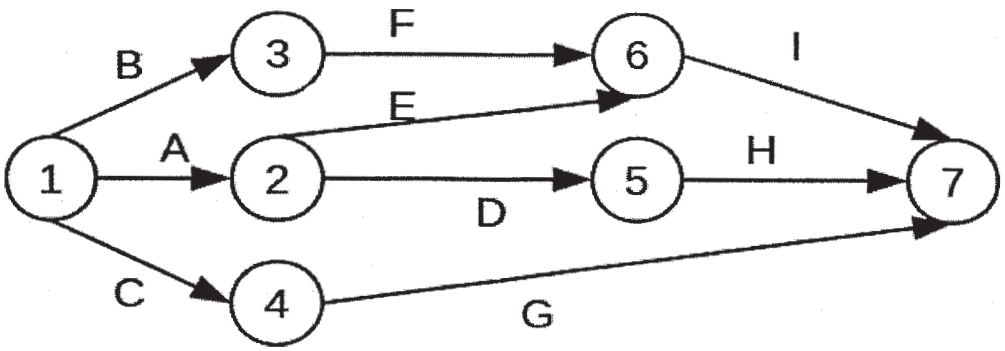
Demand 5 15 15 15

OR

Q4) Solve the given problem of Assignment using Hungarian method. **[8]**

	A	B	C	D
1	1	4	6	3
2	9	7	10	9
3	4	5	11	7
4	8	7	8	5

Q5) A project is represented by the network. **[8]**



Task	a	m	b
A	5	8	10
B	18	20	22
C	26	33	40
D	16	18	20
E	15	20	25
F	6	9	12
G	7	10	12
H	7	8	9
I	3	4	5

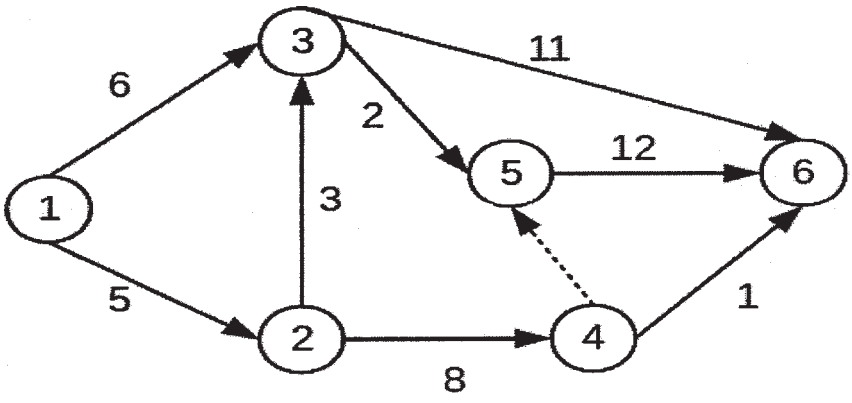
a) Determine Expected time & Variance

b) The critical path

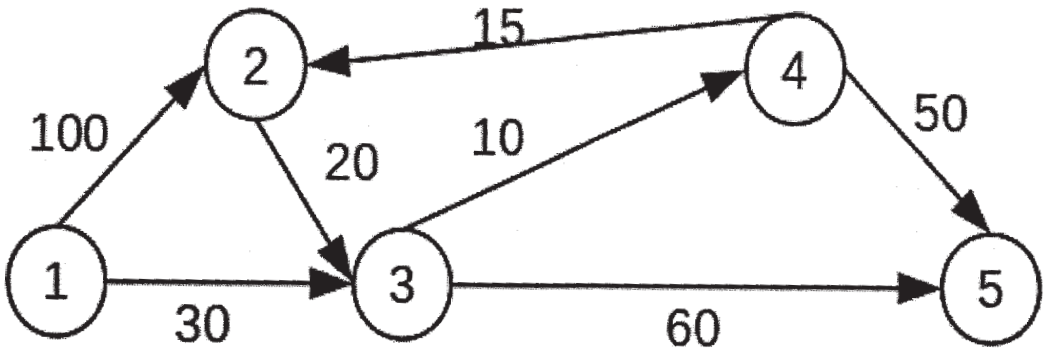
c) The possibility of node occurring at the proposed completion date if the original contract time of the completing project is 41.5 weeks.

OR

Q6) Determine critical path for the project network using forward & backward pass. **[8]**

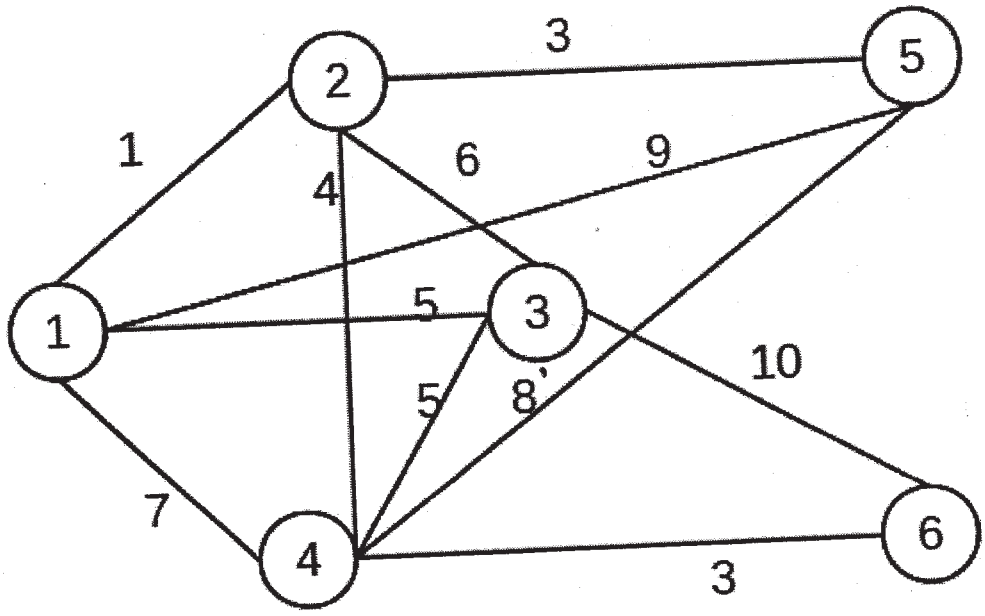


Q7) The network in following figure gives the permissible routes & their lengths in miles between city (node 1) and four other cities (nodes 2 to 5). Determine the shortest routes between city 1 and each of the reaming four cities. Find the shortest route using Dijkstra's algorithm. **[9]**



OR

Q8) Midwest TV cable company is in the process of providing cable service to 5 new housing development areas. The following figure depicts possible TV linkages among the 5 areas. The cable miles shown on each arc. Determine the most economical cable network. Draw minimum spanning tree & calculate shortest path. **[9]**



Q9) a) What are the characteristics of decision making? **[4]**

b) **[4]**

	s1	s2	s3	s4
a1	5	10	18	25
a2	8	87	12	23
a3	21	18	12	21
a4	30	22	19	15

Find decision using

i) Laplace ii) Hurwicz

iii) Regret iv) Maximin

OR

Q10)a) What is decision under risk? **[4]**

b) Suppose that following weights are specified for the simulation of Rahul & Rekha **[4]**

p=0.5, p1=0.17, p2 = 0.83, p11=0.129, p12=0.277, p13=0.594, p21=0.545, p22=0.273, p23=0.182

q = 0.5, q1=0.3, q2=0.7, q11=0.2, q12=0.3, q13=0.5, q21=0.5, q22=0.2, q23=0.3

Based on this information find the ranking.

Q11)a) Write steps in Monte Carlo simulation. **[4]**

b) Generate 4 random numbers **[4]**

b= 17, c= 111, m= 103, seed= 7

OR

Q12)a) A bakery keeps a stock of popular brand of coke. Previous experience shows that the daily demand pattern for the item with associated probabilities is given below.

Daily Demand	0	10	20	30	40	50
Probability	0.01	0.20	0.15	0.50	0.12	0.02

Simulate the demand for next 10 days. Also find the average demand/ day.

Random numbers- 25,39,65,76,12,5,73,89,19,49 **[6]**

b) What is simulation? What are the factors affecting simulation? **[2]**

x x x

Total No. of Questions : 12]

SEAT No. :

P3725

[Total No. of Pages : 2

[4961]-401
S.Y.M.C.A.(Engineering)
ADVANCED WEB TECHNOLOGY
(2013 Course) (Semester-IV) (410909)

Time :3Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) a) Explain common Language Runtime along with its component diagram. **[4]**

b) Explain Namespaces in Visual C# and how theses namespaces are import in the program with an example. **[4]**

OR

Q2) a) List and Explain Characteristics of Visual C#. **[4]**

b) Define Managed code and explain advantages of managed code. **[4]**

Q3) a) Explain Exception Handling along with an example. **[5]**

b) What is Method Overriding and how it is implemented in C#, Give an Example. **[5]**

OR

Q4) a) Explain concept of Delegate that is used in C#. **[5]**

b) Give the Syntax of following loops/Control statement of C#2008. **[5]**

i) for ii) while

iii) do iv) foreach

v) if else

P.T.O.

Q5) a) What is Web Based Application and how to create Custom control. **[4]**

b) Draw and Explain Architecture of Windows Presentation Foundation (WPF). **[4]**

OR

Q6) a) Explain windows Presentation Foundation (WPF) along with its main features. **[4]**

b) Explain WPF 3.5 Controls (Any four). **[4]**

Q7) Explain main features of Silver light. **[8]**

OR

Q8) Explain the following ASP.NET controls with example: **[8]**

a) Validation Control (Any one)

b) Web Server Control(Any one)

Q9) Draw and Explain Architecture of Windows Communication Foundation (W.CF). **[8]**

OR

Q10)How you can display web Application or website on target server. **[8]**

Q11) a) Explain ADO.NET Architecture. **[4]**

b) Write a short note on LINQ. **[4]**

OR

Q12)Explain following concepts of C#2008: **[8]**

a) Inheritance

b) Polymorphism

Total No. of Questions : 12]

SEAT No. :

P3726

[Total No. of Pages : 2

[4961]-402

S.Y.M.C.A. (Faculty of Engineering)

BANKING FINANCIAL ACCOUNTING & MANAGEMENT

(2013 Course) (Semester - IV) (410910)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Solve either of Question 1 or 2,3 or 4,5 or 6,7 or 8,9 or 10,11 or 12 in same answer sheet.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain the 3 rules used for book keeping. **[6]**

b) Explain the purpose of creating Balance Sheet & Profit & Loss Account. **[2]**

OR

Q2) a) Explain the concepts of "Going Concern" & "Recording transactions at Cost". **[6]**

b) Explain the difference between 2-Column & 3-Column Cash Book. **[2]**

Q3) A company Produces single product. About its product following data has been given:- **[8]**

Selling price per unit – Rs. 40/-, Marginal cost per unit – Rs. 24/-

Fixed cost per annual – Rs. 1600/-

Calculate –

a) P/V Ratio,

b) Break -even sales,

c) Sales to earn a profit of Rs. 2000/-,

d) Profit at the sales of Rs. 12, 000/-

OR

P.T.O.

Q4) a) Explain the preparation of Cost Sheet. **[6]**

b) What is a Cash Budget? Explain. **[2]**

Q5) a) What is Working Capital? How its requirement is calculated? **[6]**

b) Explain the various factors affecting the working capital requirement. **[3]**

OR

Q6) a) How the working capital can be calculated for a seasonal business like selling of Alphanso Mangoes in summer? **[6]**

b) Explain the various sources of financing the Working Capital. **[3]**

Q7) Explain the role of Reserve Bank of India in regulation of banking industry. **[8]**

OR

Q8) Explain the Savings Deposit scheme and various aspects related with it. **[8]**

Q9) What is meant by Payable at Par instrument? How it benefits bank customers? **[8]**

OR

Q10) Explain the concept of Standing Instructions with example. **[8]**

Q11) What do you understand by Virtual Banking? Explain with example. **[9]**

OR

Q12) Why CBS is also known as Any Time Any Where Any How banking? Explain. **[9]**

Total No. of Questions : 12]

SEAT No. :

P3727

[Total No. of Pages : 3

[4961]-403
S.Y.M.C.A. (Engg.)
CN & INFORMATION SECURITY
(2013 Course) (Semester - IV) (410911)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

SECTION - I

Q1) a) What are different types of transmission modes? Explain. **[4]**

b) Explain LAN and WAN with diagram and usage. **[5]**

OR

Q2) a) Write short note on: **[6]**

i) Router

ii) Switches

iii) Bridges

b) List out six network hardware components. **[3]**

Q3) Explain TCP/IP model in detail with neat diagram. **[8]**

OR

Q4) Explain ALOHA and CSMA. **[8]**

P.T.O.

Q5) a) What do you mean connection oriented and connection less services. **[4]**

b) Explain different functions of transport layer. **[4]**

OR

Q6) Explain any two routing algorithm. **[8]**

SECTION - II

Q7) a) Write about Domain name system with suitable example of Domain name server. **[4]**

b) Explain how electronic mail works and list out the services offered by SMTP. **[4]**

OR

Q8) Write Short Note On: **[8]**

a) HTTP Protocol.

b) TFTP

c) Static and Dynamic Webpages

d) SMTP

Q9) a) Explain different types of attack. **[4]**

b) Explain RSA algorithm in detail. **[4]**

OR

Q10)a) Explain DES algorithm in detail. **[4]**

b) State and explain Different types of Cipher. **[4]**

Q11)a) Explain Secure socket layer. **[5]**

b) Write a short note on **[4]**

i) SNMP

ii) firewall

OR

Q12)a) Why is the SSL positioned between the application layer and the transport layer? **[5]**

b) What do you mean one time passwords? Explain in brief. **[4]**

x x x

Total No. of Questions : 12]

SEAT No. :

P3728

[Total No. of Pages : 2

[4961]-404
S.Y.M.C.A. (Engg.)
INFORMATION SYSTEMS AUDIT
(2013 Pattern) (410912) (Semester - IV) (Elective - I)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Answer to the two sections should be written in separate answer books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume Suitable data if necessary.***

SECTION - I

Q1) a) What is Information System auditing? State and explain major objectives of IS auditing in brief. **[5]**

b) What do you mean auditing through the computer? Explain. **[3]**

OR

Q2) Why there is a need for control & audit of computer systems? **[8]**

Q3) Explain IS auditor's concern about application software might be acquired or developed by in - house - staff. **[8]**

OR

Q4) a) Briefly Explain the risk areas and control used in Electronic Data Interchange. **[4]**

b) Explain Operating System control. **[4]**

Q5) What are the three ways in which the IS auditor can get involved in the system development process in detail? **[9]**

OR

Q6) Write short note on **[9]**

a) Risk & controls of OOM

b) Auditor's role in working of QA/QC of SDLC.

c) Auditor's role in SDLC.

P.T.O.

SECTION - II

Q7) How the auditors can make judgment about the Controls in design of data entry screens? Explain with example. **[9]**

OR

Q8) Explain the concept of BCP in the context of a Bank. **[9]**

Q9) A person is buying home gadgets through online shopping. Discuss security related Issues that an IS Auditor needs to consider in such case. **[8]**

OR

Q10) What is Segregation of duties? Explain how an auditor checks it in information system staffing? **[8]**

Q11) a) State any 2 control frameworks available for IS Auditing. **[2]**

b) Explain COBIT key principles for governance and management of enterprise IT in brief. **[6]**

OR

Q12) Explain7 enablers of COBIT Framework with suitable diagram and explanation. **[8]**

Total No. of Questions : 12]

SEAT No. :

P3729

[Total No. of Pages : 3

[4961]-405
S.Y.M.C.A. (Engg)
CYBER LAWS
(2013 Pattern) (Semester - IV) (410912) (Elective - I)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) a) Explain Internet Ownership and Management. **[4]**

b) Explain social issues in regulation of cyberspace. **[4]**

OR

Q2) a) Write a note on digital signature. **[4]**

b) What is VPN? Explain with respect to cyberspace. **[4]**

Q3) a) Write note on digital divide. **[4]**

b) Write a note on IT ACT. **[4]**

OR

Q4) a) Explain conventions and protocols concerning Cyberspace. **[4]**

b) Discuss the arguments in favour and against of the regulation of cyberspace? What are your views on this issue? **[4]**

P.T.O.

Q5) a) Explain crime related to IPRs. **[5]**

b) Comment: Internet crimes are different from other technology crimes. **[4]**

OR

Q6) a) What are cyber wrongs? Discuss the concept of technology base and technology neutral wrongs. **[5]**

b) Define:

i) Cyber Stalking

ii) Cyber Pornography **[4]**

Q7) a) What is e-commerce? Explain evolution of e-commerce. **[4]**

b) Explain features of Online Contracts. **[4]**

OR

Q8) a) Explain different types of advertising used for e-commerce. **[4]**

b) What are the different issues emerging from online contracting? **[4]**

Q9) a) Explain the following terms: **[6]**

i) Linking

ii) In lining

iii) Framing

b) Write note on management of IPR in cyberspace. **[2]**

OR

Q10)a) Explain search engines and their abuse. **[4]**

b) How do we protect non original database? **[4]**

Q11)a) What are different emerging issues in data protection and privacy? **[4]**

b) Explain national legal framework and international legal framework for protecting privacy? **[5]**

OR

Q12)a) Write note on data security. **[3]**

b) Explain evolving trends in information security. **[3]**

c) Explain network security (VA/PT). **[3]**

x x x

Total No. of Questions : 12]

SEAT No. :

P3730

[Total No. of Pages : 2

[4961]-406

S.Y.M.C.A. (Under Engineering Faculty)

IT GOVERNANCE

(2013 Course) (Elective - I)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Use of probability table, electronic pocket calculator is allowed.***
4) ***Assume suitable data if necessary.***

Q1) a) Explain the prerequisites for Creating a Successful IT Governance Program. **[5]**

b) What do you mean by IT Governance Decision Rights & Demand Management. **[4]**

OR

Q2) What is ITG Assessment Maturity Model? Explain each maturity levels. **[9]**

Q3) Explain the need of IT/Business Governance Policy and Process. **[8]**

OR

Q4) Explain Three Critical Pillars of IT Governance – Organization/People, Process and Technology. **[8]**

Q5) a) Explain the best practices to be followed in IT Governance. **[4]**

b) Explain standards of IT Governance. **[4]**

OR

P.T.O.

Q6) Explain the benefits of using an Integrated IT Governance Framework. **[8]**

Q7) a) What is the Board's Role in Driving Business/IT Alignment. **[6]**

b) What do you mean by Frameworks and standards for IT Governance. **[3]**

OR

Q8) Explain Investment (Portfolio) Management maturity and IT Engagement (Relationship) Model. **[9]**

Q9) a) What do you mean by PM maturity model, explain. **[4]**

b) Explain Fast Track versus Complex PM Initiatives. **[4]**

OR

Q10)a) Explain The Roles of the Program Management Office (PMO). **[4]**

b) What do you mean by PM Governance and Escalation Framework. **[4]**

Q11)What do you mean by outsourcing Decision-Making Scorecard? Explain various Issues and Challenges of outsourcing. **[8]**

OR

Q12)a) Write the Differences Between Domestic and Off Shore Deals. **[4]**

b) Explain the Steps in Vendor Selection for Outsourcing. **[4]**

Total No. of Questions : 12]

SEAT No. :

P3731

[Total No. of Pages : 2

[4961]-407
S.Y.M.C.A. Engineering
IT SERVICE MANAGEMENT
(2013 Course) (410912) (Semester - IV) (Elective - I)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Use of Calculator is allowed.***
4) ***Assume Suitable data if necessary.***

Q1) Explain in detail service leadership and service mapping. **[8]**

OR

Q2) a) What is internal Marketing? **[2]**

b) Explain Flow charting & Benchmarking of service management. **[6]**

Q3) a) Explain IT service provider types. **[4]**

b) Write note on Automating service management process. **[4]**

OR

Q4) Explain five major aspects of service design. **[8]**

Q5) a) What are the process objectives & value challenges of service transition? **[4]**

b) Explain the value of service operation of service operation. **[5]**

OR

Q6) Explain continual service improvement with its purpose, objectives & key principles. **[9]**

Q7) Explain scope, purpose and objectives of IT service continuity management. **[8]**

OR

Q8) Explain key activities, metrics and role in IT service continuity management. **[8]**

P.T.O.

Q9) What is information security management system? Explain its objectives and purpose. **[8]**

OR

Q10) What is access management? Explain its relationships with other service management processes. **[8]**

Q11) Explain key activities, purpose & objectives of IT operation management. **[9]**

OR

Q12) What is Technical Management? Explain Key activities and relationships with other service management functions. **[9]**

Total No. of Questions : 12]

SEAT No. :

P3732

[Total No. of Pages :2

[4961]-408

S.Y.M.C.A.(Under Engineering Faculty)

ADVANCED DBMS

(2013 Course)

Time :3Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Assume suitable data if necessary.***

Q1) a) With suitable diagram explain the steps in query processing. **[4]**

b) Describe Binary Search algorithm for selection operation. **[4]**

OR

Q2) a) Consider the following query "Select balance from account where balance < 2500." write relational algebra expression for the above query and explain query evaluation plan. **[4]**

b) Explain materialization evaluation with a suitable example. **[4]**

Q3) a) Differentiate between centralized and client-server systems. **[4]**

b) Explain parallel database architectures. **[4]**

OR

Q4) a) Explain speed up and scaleup in parallel databases with suitable diagram. **[4]**

b) Explain the structure of Transaction Server Process with diagram. **[4]**

Q5) a) Explain Distributed DBMS Architectures. **[4]**

b) Explain need for Distributed Databases. **[4]**

OR

Q6) a) Explain Distributed query processing methodology. **[4]**

b) Explain Data and Access Control. **[4]**

Q7) a) Explain structured types with example. **[4]**

b) Explain object identity and reference types with examples. **[4]**

OR

P.T.O.

Q8) a) What is persistent programming language and how it is different from embedded language? **[4]**

b) Explain need of complex data type? **[4]**

Q9) a) What is the purpose of XML? What are the rules for XML. **[4]**

b) What is a Native XML Database? Features of Native XML Database. **[4]**

OR

Q10) Write short note on: **[8]**

a) XML schema document

b) Generating XML pages using Basic SQL.

Q11) a) What is NoSQL? Explain its features and applications in brief. **[4]**

b) What is Graph Databases? What are the pros and cons of Graph database? **[3]**

c) What is Schema-less Databases? What are the pros and cons of Schema-less Databases? **[3]**

OR

Q12) Write short note on: **[10]**

a) Single server.

b) master-slave replication

c) Sharding

d) peer to peer replication.

Total No. of Questions :12]

SEAT No. :

P3733

[Total No. of Pages :3

[4961]-501
T.Y.M.C.A. (Engg.)
RECENT TECHNOLOGIES IN IT
(2013 Pattern) (Semester - V) (510901)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) a) Write down the characteristics and advantages of LAMP technology. **[4]**

b) Write a short note on installing and configuring Apache Server. **[4]**

OR

Q2) a) Explain in short LAMP stack. **[4]**

b) List and explain various PHP configuration files. **[4]**

Q3) a) List and explain any two php function used to works with mysql database. **[4]**

b) Write a short note on CRUD operations of mysql. **[4]**

OR

Q4) a) Write a php code to connect to mysql database, fire a select query and display the result in HTML table. **[4]**

b) Write short note on 'User input using Form'. **[4]**

Q5) a) Write a short note on associative array in PHP. **[5]**

b) List and Explain any 4 string function of PHP. **[4]**

OR

P.T.O.

Q6) a) List and explain date and time function of PHP. **[5]**

b) Explain how input is taken and how outputs are generated in PHP. **[4]**

Q7) a) How Pass by value and Pass by reference is implemented in PHP? **[4]**

b) Explain inheritance in PHP. **[4]**

OR

Q8) a) Explain following with syntax: **[4]**

i) Creating constructors.

ii) Creating Destructors.

iii) Abstract Class.

iv) Class constants.

b) Write a short note on 'Variable Scope' in PHP. **[4]**

Q9) a) Explain following function with syntax and use. **[4]**

i) fopen ( )

ii) fwrite ( )

b) Write a program to check whether a file exist or not, if it exists then display its directory name. **[4]**

OR

Q10)a) Write a short note on: **[4]**

i) Listing a file in directory.

ii) Changing directory.

b) Explain the functions with syntax and use: **[4]**

i) file_get_contents( )

ii) fgets( )

Q11)a) Write a short note on cookies in php. **[5]**

b) Explain any 2 super global variable. **[4]**

OR

Q12)a) How files are uploaded in PHP? Explain with example. **[5]**

b) What is session? How it is implemented in PHP? **[4]**

EEE

Total No. of Questions :12]

SEAT No. :

P3734

[Total No. of Pages :2

[4961]-502

T.Y.M.C.A. (Under Engineering Faculty)

SOFTWARE TESTING AND QUALITY ASSURANCE

(2013 Pattern) (Semester - V) (510902)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Use of probability table, electronic pocket calculator is allowed.***
4) ***Assume suitable data if necessary.***

Q1) Explain the terms: **[8]**

a) Quality

b) Quality Assurance

c) Quality control

d) Software quality metrics

OR

Q2) Write note on **[8]**

a) Six Sigma

b) CMM

Q3) Write test case for flight reservation. **[8]**

OR

Q4) a) Explain verification and validation concept. **[4]**

b) Explain testing life cycle. **[4]**

P.T.O.

Q5) a) Explain with suitable example code coverage testing. **[5]**

b) Write note on mutation testing. **[4]**

OR

Q6) a) Explain with suitable example boundary value analysis and equivalence partitioning. **[6]**

b) Explain positive and negative testing. **[3]**

Q7) a) What is regression testing? **[4]**

b) Explain ad hoc testing. **[4]**

OR

Q8) a) What is integration testing? Explain its types. **[5]**

b) Write note on system testing. **[3]**

Q9) a) Explain defect life cycle. **[5]**

b) Explain defect classes. **[3]**

OR

Q10)a) What is defect? Explain origins of defect. **[5]**

b) Write note on defect repository. **[3]**

Q11)a) Differentiate between manual testing and automated testing. **[5]**

b) Write note on Selenium IDE. **[4]**

OR

Q12)What is automation testing? Explain different automation tools for software testing. **[9]**

EEE

Total No. of Questions : 12]

SEAT No. :

P3735

[Total No. of Pages : 2

[4961]-503
T.Y.M.C.A. (Engineering)
SOFTWARE ENGINEERING
(2013 Course) (510903) (Semester - V)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume Suitable data if necessary.***

Q1) a) Explain the concept of Extreme programming? What is its importance? **[4]**

b) Explain architecture Design elements in detail. **[4]**

OR

Q2) a) What are the major tasks conducted as part of Clean room software engineering? **[4]**

b) Explain all levels of CMMI. **[4]**

Q3) a) Explain Risk monitoring, Risk mitigation & Risk management plan. **[6]**

b) What is Work break down structure? **[2]**

OR

Q4) a) What is the goal of requirement analysis? Explain in detail. **[6]**

b) Explain Gantt charts used for project planning. **[2]**

Q5) a) Explain in detail WebApps testing. **[5]**

b) Explain Software project Management in detail. **[4]**

OR

Q6) a) What are the elements of a configuration management system? What is the importance of baselines? **[5]**

b) What are the various project constraints in Project Management. **[4]**

P.T.O.

Q7) a) Explain Dependability properties in detail. **[4]**

b) Explain the Life cycle of Risk assessment. **[4]**

OR

Q8) a) Explain Safety specifications in detail. **[4]**

b) Explain Web Service Security specification in Detail. **[4]**

Q9) a) Explain Software As A Service (SAAS). **[5]**

b) Explain the architecture patterns for distributed Systems. **[4]**

Q10)a) Explain Service Oriented Architecture (SOA) in detail. **[5]**

b) Explain client - server computing with a suitable example. **[4]**

Q11)a) Explain component level design metrics in detail. **[4]**

b) Explain Software standard specifications in detail. **[4]**

OR

Q12)a) Explain Class oriented metrics with a suitable example. **[4]**

b) What is software quality? What are the factors affecting software quality? **[4]**

Total No. of Questions :12]

SEAT No. :

P3736

[Total No. of Pages :2

[4961] - 504

T.Y. M.C.A. (Engg.)

Data Warehousing, Data Mining & Business Intelligence

(Semester - V) (2013 Pattern)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10, Q11 or Q12.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain data warehousing architecture with neat and labeled diagram. **[4]**

b) What is fact constellation? Write any one operation on cube? **[4]**

OR

Q2) a) What is data preprocessing? How the problem of missing values can be solved? **[4]**

b) Explain star schema for multidimensional databases. **[4]**

Q3) a) What are the major issues in data mining? **[4]**

b) Find dissimilarity between binary variables of (Jack, Mary), (Jack, Jim) and (Mary, jim). **[5]**

Assume the values Y and P = 1 and the value N = 0.

Name	Gender	Fever	Cough	Test - 1	Test - 2	Test - 3	Test - 4
Jack	M	Y	N	P	N	N	N
Mary	F	Y	N	P	N	P	N
Jim	M	Y	P	N	N	N	N

OR

P.T.O.

Q4) a) What kinds of data and patterns can be mined in data mining? **[4]**

b) What is data object and attribute types? Explain with example. **[5]**

Q5) a) What is text mining? What are its measures? **[4]**

b) What are outliers? Explain outlier analysis in detail. **[4]**

OR

Q6) a) What is Bayesian classifier? Explain Bays theorem basics. **[4]**

b) Explain Apriori algorithm with example. **[4]**

Q7) a) Write and explain BI components. **[4]**

b) Explain Dimensional technology and BI. **[4]**

OR

Q8) a) Explain reporting and querying in analytical user requirements. **[4]**

b) Explain OLAP server. **[4]**

Q9) What is data architecture strategy? **[8]**

OR

Q10) a) Explain atomic layer alternatives. **[4]**

b) Explain operational data store. **[4]**

Q11) What is BIRT? Explain advantages of BIRT. **[9]**

OR

Q12) What are the functionalities of BIRT. **[9]**

Total No. of Questions :12]

SEAT No. :

P3737

[Total No. of Pages :2

[4961] - 505

T. Y. M.C.A. (Engg.)

ANIMATION & GAMING

(Semester - I) (2013 Course) (510905) (Elective - II)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Neat diagrms must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data, if necessary.***

Q1) a) Write short note on Raster and Random Scan display. **[4]**

b) Explain cathode ray tube (CRT) in detail. **[4]**

OR

Q2) a) Explain DDA algorithm of the line drawing. **[6]**

b) Explain applications of Computer Graphics. **[2]**

Q3) a) Explain animation with their types. **[4]**

b) What is hierarchical animation and why it is necessary? **[4]**

OR

Q4) a) Distinguish between client-pull and server push animation. **[4]**

b) Discuss the role of shockwave format in web based animation. **[4]**

Q5) a) List and explain different animation drawing tools. **[5]**

b) Explain 2D virtual drawing for animation? **[4]**

OR

P.T.O.

Q6) a) What is meant by anatomy and body language? **[4]**

b) Explain various steps in developing animation character? **[5]**

Q7) a) What is game development? **[3]**

b) What is software architecture? Explain 2D game software architecture. **[4]**

c) List different languages used for game programming. **[2]**

OR

Q8) a) What is game theory? **[2]**

b) Explain 3D game software architecture. **[4]**

c) Explain role of AI in game programming. **[3]**

Q9) a) What are Advantages of Writing Games in Java? **[4]**

b) Explain different types of computer games. **[4]**

OR

Q10) a) What are prerequisites to run java on system & explain in brief. **[4]**

b) State and explain different object oriented concepts in java. **[4]**

Q11) a) Explain structure of simple game in java. **[4]**

b) Explain actor class and its methods. **[4]**

OR

Q12) a) Explain in details blocking v/s non-blocking loops? **[4]**

b) Which are different state controls in java? **[4]**

Total No. of Questions :12]

SEAT No. :

P3738

[Total No. of Pages :2

[4961] - 506

T. Y. M.C.A.

(Faculty of Engineering)

MOBILE COMPUTING

(Semester - V) (2013 Course) (Elective - II) (510905)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Solve either of Question 1 or 2, 3 or 4, 5 ro 6, 7 or 8, 9 or 10, 11 or 12 in same answer sheet.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

SECTION - I

Q1) What is the concept behind GSM and CDMA technologies? Explain with diagram. **[9]**

OR

Q2) Explain the concept of HLR and VLR. Explain with diagram. **[9]**

Q3) What are the types of Wireless networks? **[8]**

OR

Q4) Write a short note on **[8]**

a) Protocol stack

b) Application environment

c) Mobile IP

d) Bluetooth

P.T.O.

Q5) a) Explain the Data Management Issues in Mobile Computing. **[4]**

b) Explain CODA File System and its features. **[4]**

OR

Q6) a) Explain the Agent technology for Data Management in mobile networks. What are the advantages of Agent Technology? **[4]**

b) *Disconnected operation* is the solution to the Disconnected Client in distributed system. Explain. **[4]**

SECTION - II

Q7) a) Compare the features provided by following mobile operating systems: Android, Windows Phone. **[4]**

b) Explain about UI Layouts of Android. State the types of Layouts. Explain in brief any two of them. **[4]**

OR

Q8) a) What is the functionality of an Activity in Android OS? State the Callbacks of Activity Class. Write a simple program for generating the log messages using these callbacks. **[6]**

b) What are the different security considerations in Palm OS? **[2]**

Q9) a) Explain File System Structure in Android. **[4]**

b) Write a program for accessing user's Current Location. (Assume *GPSTracker, java* file is avilable with you.) **[5]**

OR

Q10) Explain the Location based Services. How can one access them in Android? **[9]**

Q11) Write a short note on Bluetooth. How can one access it in Android? **[8]**

OR

Q12) Write a program for sending Email on Android OS. **[8]**

Total No. of Questions :12]

SEAT No. :

P3739

[Total No. of Pages :2

[4961] - 507

T. Y. M.C.A. (Engg.)

HIGH PERFORMANCE COMPUTER NETWORKS

(Semester - V) (2013 Course) (Elective - II) (510905)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Answer to the tow sections should be written in separate answer books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) Explain ISDN. **[4]**

b) Explain switching with example. **[4]**

OR

Q2) a) Discuss DSL. **[4]**

b) Explain the mode of communication. **[4]**

Q3) Explain the best of best effort service. **[8]**

OR

Q4) a) Discuss scheduling mechanisms. **[4]**

b) Write a note on: **[4]**

i) SIP

ii) H.323

P.T.O.

Q5) Write about MPLS based VPN. **[9]**

OR

Q6) a) Explain point to point tunneling protocol. **[4]**

b) Explain security in VPN. **[5]**

SECTION - II

Q7) a) Explain the Poisson distribution model? **[4]**

b) Explain the Little's theorem with the help of example? **[4]**

OR

Q8) a) Explain the traffic model with fundamental use. **[4]**

b) What is Network Performance? Explain the performance measures. **[4]**

Q9) a) Write a short note on Encryption, Decryption. **[4]**

b) Explain the problem of key exchange in cryptography. **[4]**

OR

Q10) a) How digital signature helps to provide security in cryptography. **[4]**

b) What is playback attack? How to overcome it? **[4]**

Q11) a) Why there is the need of Network Management? **[4]**

b) Write a note on SMI. **[5]**

OR

Q12) What is ASN.1? Which are the keywords includes in ASN. 1? **[9]**