Total No. of Questions : 12]

SEAT No. :

P1789

[Total No. of Pages : 2

[4761]-101
F.Y. M.C.A. (Engg.)
C AND C++ PROGRAMMING
(2013 Pattern) (Semester-I) (310901)

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) Write a short note on procedural programming language. **[4]**

b) How C programs are compiled and executed without IDE. **[4]**

OR

Q2) a) What are header files? Explain the use and function of any one header file. **[4]**

b) What is a programming language? Enlist the limitations of C language. **[4]**

Q3) a) What are structures? Explain with example. **[4]**

b) Write a program to count no. of characters in a string without using standard function. **[4]**

OR

Q4) a) Explain with example the use of pointers with examples. **[4]**

b) Explain any 2 looping statements. **[4]**

Q5) a) Write a program to swap two numbers using call by reference. **[5]**

b) Write a short note on #include directive. **[4]**

OR

P.T.O.

Q6) a) What are Macros in C? List its uses with example. **[5]**

b) Write a C program to find the factorial of a number using recursion function. **[4]**

SECTION-II

Q7) a) What is constructor? Explain Default constructor with example. **[4]**

b) What is object oriented programming? Explain any 2 features of OOP. **[4]**

OR

Q8) a) What is the difference between object oriented programming and procedure oriented programming? **[4]**

b) Explain exception handling mechanism of C++. **[4]**

Q9) a) Explain static functions in C++. **[4]**

b) What is difference between overloading and overriding. **[4]**

OR

Q10)a) List and explain various access modifiers of C++. **[4]**

b) Explain the problem of ambiguity with suitable example. **[4]**

Q11)a) Explain Command Line argument in C++. **[5]**

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

i) seekg( )

ii) tellg( )

OR

Q12)a) What are binary files and text files? **[5]**

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

i) write( )

ii) read ( )

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Total No. of Questions : 12]

SEAT No. :

P1790

[Total No. of Pages :2

[4761] - 102
F.Y.M.C.A. (Engineering Faculty)
COMPUTER ORGANIZATION
(2013 Course) (Semester - I) (310902)

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

Instructions to the candidates:

1) ***From Section I, answer (Q1 or Q2), (Q3 or Q4), (Q5 or Q6).***
2) ***From Section II, answer (Q7 or Q8), (Q9 or Q10), (Q11 or Q12).***
3) ***Answers to the two sections should be written in separate answer books.***
4) ***Neat diagrams must be drawn wherever necessary.***
5) ***Figures to the right side indicate full marks.***
6) ***Assume Suitable data if necessary.***

SECTION - I

Q1) a) Describe different types of software in detail. **[4]**

b) Explain De-Morgans' Theorem and duality theorem. **[4]**

OR

Q2) a) Convert the following: **[4]**

i) $(1001010)_2 = ?_{16}$

ii) $(10010)_2 = ?_8$

iii) $(F6B)_{16} = ?_2$

iv) $(D4A)_{16} = ?_{10}$

b) Explain any two Logic Circuits with truth table. **[4]**

Q3) Draw the diagrams for the SR, JK, D flip flops and construct truth table for each. **[9]**

OR

Q4) a) Explain multiplexer and Demultiplexer in detail. **[4]**

b) What is mean by Counter? Explain the Synchronous & Asynchronous counter? **[5]**

P.T.O.

Q5) Write a note on: **[8]**

a) DRAM

b) SDRAM

c) RDRAM

d) DDR.

OR

Q6) What is cache memory? Explain DMA with interfacing with processor. **[8]**

SECTION - II

Q7) What is the advantage of pipelining and describe its stages with a suitable diagram. **[8]**

OR

Q8) a) What is Instruction fetch and execution cycle? Explain in detail. **[4]**

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

Q9) Explain 16-bit(8086) microprocessor architecture in detail. **[8]**

OR

Q10) Explain Pentium processor architecture in detail. **[8]**

Q11) Explain parallel computer architecture classification in detail. **[9]**

OR

Q12) What is a cluster? Explain cluster architecture in detail. **[9]**

Total No. of Questions : 12]

SEAT No. :

P1791

[Total No. of Pages :2

[4761] - 103

First Year M.C.A. (Engineering)

PRINCIPLES OF PROGRAMMING PRACTICES

(2013 Course) (Semester - I) (310903)

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) Define: **[3]**

i) Hardware

ii) Software

iii) Firmware

b) Explain: **[4]**

i) Machine level language

ii) Assembly language

OR

Q2) a) Compare language C & C++. **[3]**

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

Q3) a) What are the 6 steps of problem solving. **[6]**

b) Explain: **[4]**

i) Volatile memory

ii) Buffer

OR

Q4) a) What is an algorithm? What are the advantages of writing an algorithm. **[4]**

b) Why documentation is required? State its benefits. **[6]**

P.T.O.

Q5) a) Explain local and global variables with example. **[4]**

b) What is top-down and bottom-up approach? **[4]**

OR

Q6) a) Discuss selection and iterative structures in detail. **[4]**

b) Write a program which uses a recursive algorithm. Explain how subroutines are generated? **[4]**

Q7) a) Write an algorithm for reversing digits of a number. **[5]**

b) What is flowchart? Explain with example. List all the symbols used to draw a flow chart. **[5]**

OR

Q8) a) Write an algorithm for the exchange of values of two variables with or without third variable. **[5]**

b) Write an algorithm to find perfect number. **[5]**

Q9) a) Define time complexity with example. **[4]**

b) Define asymptotic notations: **[4]**

i) Big 'Oh'.

ii) Theta.

OR

Q10)a) Describe in brief time and space complexity. **[4]**

b) Write an algorithm to find a missing number. Find frequency count of each step. **[4]**

Q11)a) What is binary search. **[3]**

b) Compare testing and debugging. **[4]**

OR

Q12)a) Assume base address 1000. Find the address of m[1][2] of the array m[4][3]. **[3]**

b) Explain merge sort algorithm. **[4]**

Total No. of Questions : 12]

SEAT No. :

P1792

[Total No. of Pages : 4

[4761] - 104
F.Y.M.C.A. (Under Engineering Faculty)
DISCRETE MATHEMATICS
(2013 Pattern) (Semester - I)

Time : 2 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 n^3-n is divisible by 3, for a positive integer n. **[4]**

b) It was found that in first year of computer science of 80 students 50 know Cobol, 55 know 'C', 46 know Pascal. It was also known that 37 know 'C' and Cobol, 28 know 'C' and Pascal, 25 know Pascal and Cobol.7 students however know none of the languages. Find how many knows all three languages. **[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. **[4]**

b) Verify that If A & B are finite sets, then $|A \cup B| = |A| + |B| - |A \cap B|$. **[4]**

Q3) a) Write the following statements in symbolic forms: **[4]**

a) Mohan is rich but unhappy.

b) Mohan is neither rich nor happy.

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

b) Drawing Venn diagram, prove that $A - (B - C) = (A - B) \cup (A \cap B \cap C)$. **[4]**

OR

P.T.O.

Q4) a) Prove the Demorgan's law for OR and AND by using Venn Diagram. **[4]**

b) Prove that $p \rightarrow (q \rightarrow r)$ and $(p \wedge \overline{r}) \rightarrow \overline{q}$ are logically equivalent. **[4]**

Q5) a) Consider the experiment of tossing a coin three times. What is the probability of getting exactly one head. **[5]**

b) An urn contains 6 red balls and 4 green balls are selected at random from box. What is the probability that 2 of the selected balls will be red and 2 will be green? **[4]**

OR

Q6) a) How many different seven persons committee can be formed each containing 3 women from an available set of 20 women and 4 men from an available set of 30 men. **[5]**

b) A die is rolled 6 times and the sequence of faces is noted. In how many sequences does the face "5" appear an even number of times? Also find the number of sequences in which "5" appears exactly twice or the face "3" appears exactly 4 times. **[4]**

SECTION - II

Q7) 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 R = {(1,4), (2,1), (2,5), (2,4), (4,3), (5,3), (3,2)} Use Warshall's algorithm to find the matrix of transitive closure. **[4]**

OR

Q8) a) Function *f*,*g*,*h* are defined on a set X = {1,2,3} as *f* = {(1,2), (2,3), (3,1)},*g* = {(1,2), (2,1), (3,3)}, *h* ={(1,1), (2,2), (3,1)} find *fog*, *gof*, *fogoh*, *fohog*. **[4]**

b) Let $f(x) = x + 2, g(x) = x - 2, h(x) = 3x$ for x belongs to R, where R = set of all real numbers. Find *gof*, *fog*. **[4]**

Q9) a) Define & draw the following Graphs: **[4]**

i) Connected Graph

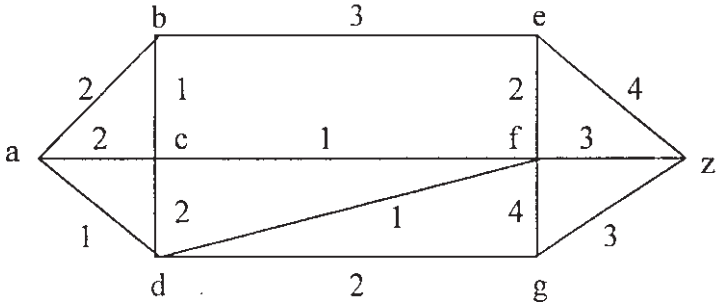
ii) Weighted Graph

b) Determine the number of edges in a graph with 6 nodes, 2 of degree 4 and 4 of degree 2. **[4]**

OR

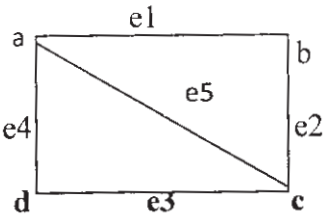
Q10)a) Is there a Hamiltonian path in a complete bipartite graph $K_{4,4}$ and $K_{4,5}$. **[4]**

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



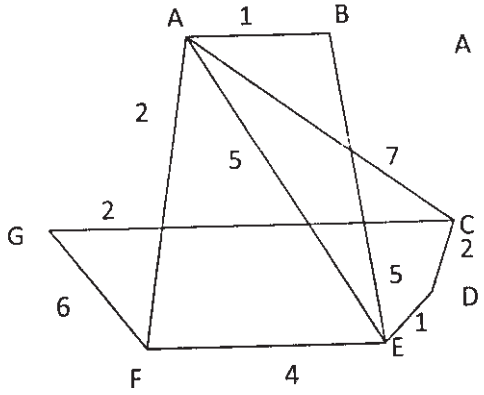
Q11)a) For each of the following sets of weights construct an optimal binary prefix code. For each weight in the set, give the corresponding code word: 1,2,3,4,5,6,9,10,12. **[5]**

b) Find all spanning trees for the following graph. **[4]**

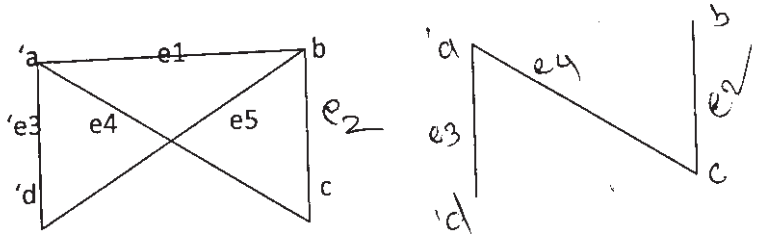


OR

Q12) a) Give the stepwise construction of minimum spanning tree for the following graph using Kruskal's algorithm. **[5]**



b) For the figure shown give fundamental circuit. **[4]**



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Total No. of Questions : 12]

SEAT No. :

P1793

[Total No. of Pages : 4

[4761] - 105
F.Y.M.C.A. (Under Engineering Faculty)
PROBABILITY AND STATISTICS
(2013 Course) (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) ***Use of probability table, electronic pocket calculator is allowed.***
4) ***Assume suitable data if necessary.***

Q1) a) A box contains 6 Red, 4 White and 5 Black balls. A person draws 4 balls from the box at random. Find the probability that among the balls drawn there is at least one ball of each colour? **[4]**

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

OR

Q2) a) Explain the terms: **[4]**

i) Conditional Probability

ii) Independent Events

b) In a factory machines A and B are producing springs of the same type. Of this production, machines A and B produce 5% and 10% defective springs resp. Machines A and B produce 40% and 60% of the total output of the factory. One spring is selected at random and it is found to be defective. What is the probability that this defective spring was produced by machine A? **[4]**

Q3) a) For what values of c is the following function a probability function? **[4]**

$$f(x) = \frac{c}{2^i}, \; i = 1, 2, 3.....$$
$$= 0, \text{ otherwise}$$

b) Derive the expression for mean and variance of Binomial distribution. **[5]**

OR

P.T.O.

Q4) a) Let X be a random variable with the following probability distribution. **[5]**

X	-3	6	9
P[X = x]	$\frac{1}{6}$	$\frac{1}{2}$	$\frac{1}{3}$

Find $E[X+1]^2$, Var [x] and Var [$3x-5$].

b) If a boy is throwing stones at a target, waht is the probability that his 10^{th} throw is his 5^{th} hit, if the probability of hitting the target at any trial is 0.5? **[4]**

Q5) a) Write a short note on Normal distribution. **[4]**

b) A joint probability distribution of a pair of random variables is given by the following table. **[4]**

X / Y	1	2	3
1	0.1	0.1	0.2
2	0.2	0.3	0.1

Find

i) Conditional distribution of X given Y= 1

ii) P [(X+Y) < 4]

iii) Marginal distribution of X

iv) Conditional distribution of Y given X = 2.

OR

Q6) a) The p.d.f. of a continuous random variable X is given by **[4]**

$$f(x) = kx, 2 \le x \le 4$$

i) Find k

ii) $P[205 < x \le 3]$

iii) $P[x \ge 3]$

b) A joint p.d.f. of bivariate random variables X and Y is given by **[4]**

$$f(x,y) = 6x^2y\ ,\ 0<x<1, 0<y<1$$
$$= 0 \quad , \quad \text{otherwise}$$

i) Verify that $\int_0^1\int_0^1 f(x,y)\,dx\,dy = 1$

ii) Find $P\left[0<x<\frac{3}{4}, \frac{1}{3}<y<2\right]$.

Q7) a) What is a point estimator and a point estimate? What properties of estimator make it a good estimator? **[4]**

b) Find the mean and variance of a sampling distribution of means for the population 4,8,7,6,2,9 by drawing a sample of size 2 without replacement. **[4]**

OR

Q8) a) Explain significance testing. How does it differ from hypothesis testing? **[4]**

b) Prove that $\bar{X}$ is an unbiased estimator for μ. **[4]**

Q9) a) 5000 candidates appear in a certain paper carrying a maximum of 100 marks. It was found that marks were normally distributed with mean 39.5 and standard deviation 12.5. Determine approximately the number of candidates who secured a first class for which a minimum of 60 marks is necessary. **[5]**

b) Explain Type I and Type II error. Why Type II is more significant than Type I error? **[4]**

OR

Q10)a) Write a short note on student's t-distribution. **[4]**

b) The table below gives the number of books issued from a certain library on the various days of a week.

Days	Mon	Tues	Wed	Thus	Fri	Sat
No. of books issued	120	130	110	115	135	110

Test at 5% l.o.s. whether the issuing of books is independent of a day.

$\left(\chi^2_5 = 4.5833\right)$. **[5]**

Q11)a) Ten samples each of size 5 are drawn at regular intervals from a manufacturing process. Their range is given below. Calculate the control limits with respect to R chart. Comment on the state of control. **[4]**

Sample No.	1	2	3	4	5	6	7	8	9	10
Range	7	5	7	9	5	8	8	6	7	6

(Given $D_3 = 0$, $D_4 = 2.15$).

b) Explain the following terms: **[4]**

i) Statistical Hypothesis

ii) Level of significance

iii) Critical region

OR

Q12)a) What is the purpose of SQC? What is its meaning and what are the various types of measures? **[4]**

b) Explain the term p-chart of statistical quality control. **[4]**

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Total No. of Questions : 12]

SEAT No. :

P1794

[Total No. of Pages : 2

[4761] - 201
F.Y.M.C.A. (Engineering)
JAVA PROGRAMMING
(2013 Course) (Semester - II) (310909)

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

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assuem Suitable data if necessary.***

Q1) a) Explain the structure of a Java Program with suitable diagram. **[4]**

b) What are command-line arguments and how are they used in Java? **[4]**

OR

Q2) a) What are shift operators? How many shift operators are available in Java? **[4]**

b) Discuss any two tools available in JDK. **[4]**

Q3) a) What is a Constructor? Explain parameterized constructor with the help of example. **[4]**

b) Explain static keyword. **[4]**

OR

Q4) What are Interfaces? Write a program to demonstrate Extending Interfaces. **[8]**

Q5) a) What is a package? How are they created and used? **[4]**

b) What is Single Inheritance? Explain with the help of example. **[5]**

OR

Q6) a) Explain the use of final keyword with the help of example. **[4]**

b) Explain the invocation of default constructor in Multiple Inheritance. **[5]**

P.T.O.

Q7) a) Explain the life cycle of a thread with diagram. **[5]**

b) What is an Predefined Exception? Name any three predefined exceptions? **[4]**

OR

Q8) a) What is a Thread? Explain any two thread methods with example. **[5]**

b) What is thread priority? How can it be set for a thread? **[4]**

Q9) a) What is Java Applet? Describe the complete life cycle of an Applet. **[5]**

b) Name any three Listeners used in java. **[3]**

OR

Q10) Create an Applet to draw a rectangle. Draw a filled circle inside the rectangle. **[8]**

Q11) a) Why are swing components termed as lightweight? **[4]**

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

i) JScrollPane

ii) JList

OR

Q12) Create an GUI using Swing to input five numbers in five textboxes from user and when user will click the add button, display the addition of five numbers in a label. **[8]**

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Total No. of Questions : 12]

SEAT No. :

P1795

[Total No. of Pages : 2

[4761] - 202
F.Y. M.C.A. (Faculty of Engg.)
DATA STRUCTURES AND FILES USING C & C++
(2013 Course) (Semester - II) (Thoery) (310910)

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

Instructions to the candidates:

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

Q1) Explain the different ways to represent an array with example. **[8]**

OR

Q2) What are the applications of array? Explain any one. **[8]**

Q3) What is linked list? Explain the different types of linked list with example. **[8]**

OR

Q4) Write a C pseudo code for insertion of an integer in the singly linked list. **[8]**

Q5) Convert the following infix expression into postfix expression by showing contents of stack for every iteration. **[9]**

C* (A–B * (C/A) +B) + C

OR

Q6) What is a queue? How is it represented in 'C' using array? What are the operations to be performed to implement a queue using linked list? **[9]**

Q7) Define the following terms: **[9]**

i) Connected Graph

ii) Adjacency matrix

iii) Spanning Tree

OR

P.T.O.

Q8) For the given data draw a Binary Search Tree and show the linked list representation of the same.

100,80,45,55,110,20,70,65. **[9]**

Q9) Write a non recursive algorithm for binary search and analyze its complexity. **[8]**

OR

Q10) Write pseudo C code for bubble sort and calculate its time complexity. **[8]**

Q11) What is hashing? What is hash table? Explain the different hashing functions? **[8]**

OR

Q12) What is Sequential file? Explain the sequential file operations. **[8]**

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Total No. of Questions : 12]

SEAT No. :

P1796

[Total No. of Pages : 2

[4761] - 203

F.Y.M.C.A. (Engineering Web Technologies)

WEB TECHNOLOGIES

(2013 Course) (Semester - II) (310911)

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 FTP protocol. **[5]**

b) Explain the concept of 3-tier architecture. **[4]**

OR

Q2) a) What is role of middleware? **[5]**

b) Write note on HTTP. **[4]**

Q3) Write a code in HTML that displays the HTML form as shown in below figure. **[8]**

Send e-mail to someone@example.com:

Name:

your name

E-mail:

your email

Comment:

your comment

Send Reset

OR

Q4) a) Explain types of style sheets. **[4]**

b) Explain the two tags: and . **[4]**

P.T.O.

Q5) Write VB script to reverse the string, replace character 'a' with characters 'aaa' in the string and return specified number of characters from the string. **[8]**

OR

Q6) a) Explain kinds of procedures in VB script. **[5]**

b) Describe how web server can be made dynamic. **[3]**

Q7) a) Explain Event handling in JavaScript with suitable example. **[5]**

b) Explain how JavaScript objects are different from C++/Java objects. **[4]**

OR

Q8) a) Write a JavaScript code to check the password strength when user is typing his password. (Do not write code on submit button) **[5]**

Password length >=10	Strong
Password length <10 and >=5	Medium
Password length <4	Weak

b) How to use array in JavaScript? Also explain types of array? **[4]**

Q9) a) Write a note on style sheets in XML. **[4]**

b) Give difference between DTD and XML schema. **[4]**

OR

Q10)a) Discuss XSLT? **[4]**

b) What is XML namespace? Why it is important? **[4]**

Q11)a) Give difference between GET and POST methods. **[3]**

b) How to declare array in PHP? Write PHP code to demonstrate array. **[5]**

OR

Q12)a) Discuss features of PHP. **[5]**

b) What is difference between $message and $$message? **[3]**

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Total No. of Questions : 12]

SEAT No. :

P1797

[Total No. of Pages : 2

[4761]-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) Explain software process model with a suitable example. **[6]**

b) What is meant by Engineering process? Explain. **[3]**

OR

Q2) a) Differentiate between software as a product and software as a process. **[5]**

b) Explain the advantages and drawbacks of waterfall model. **[4]**

Q3) a) What is requirements analysis? Explain characteristics of requirements. **[4]**

b) Explain the concept of Software Development life cycle with an example. **[4]**

OR

Q4) a) Define Feasibility Study. Explain Technical & Economical feasibilities. **[4]**

b) Explain the concept of identification of attributes with an example. **[4]**

Q5) a) Construct a Dataflow diagram (level 0 & 1) for railway reservation system. Explain its cardinality. **[6]**

b) Explain the concept of Decision Tables. **[2]**

OR

P.T.O.

Q6) a) Draw an Entity Relationship Diagram for MCA entrance exam system. Explain its cardinality. **[6]**

b) Explain Data Dictionary. **[2]**

SECTION-II

Q7) a) Explain the objectives of Output Design. **[4]**

b) Explain the technique of designing Output Reports. **[4]**

OR

Q8) a) Explain the various coding techniques with a suitable example. **[4]**

b) Explain the concept of Cohesion and Coupling. **[4]**

Q9) a) What is meant by software Maintenance? Why it is needed? What is meant by Maintenance cost? **[5]**

b) What is information system? Explain. **[3]**

OR

Q10)a) Define the concept of Software Testing. Explain its various types. **[4]**

b) What is meant by software security? Explain. **[4]**

Q11)a) Explain in detail service oriented architecture. **[4]**

b) Differentiate between component based Software Engineering and Distributed Software Engineering. **[5]**

OR

Q12)a) Explain software deployment environment in detail. **[4]**

b) Differentiate between software development and software deployment environment. **[5]**

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Total No. of Questions : 12]

SEAT No. :

P1798

[Total No. of Pages : 2

[4761]-205
F.Y. M.C.A. (Faculty of Engg.)
MANAGEMENT THEORY & PRACTICES
(2013 Course) (Semester-II) (310913)

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) Explain Management as an Art, Science, Profession and Importance, justify the statement. **[8]**

OR

Q2) Discuss contribution of F.W. Taylor to the development of Management. **[8]**

Q3) With the help of block diagram explain matrix organization. **[8]**

OR

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

Q5) How the team effectiveness helps in overall development of an organization? **[9]**

OR

Q6) Which are the traits, behavioral and situational approaches for leadership style? **[9]**

Q7) a) Explain Total Quality Control in brief. **[4]**

b) Explain Motivation Theory X, Y and Z. **[4]**

OR

Q8) What are the steps in Business Process Re-engineering? Explain. **[8]**

P.T.O.

Q9) Differentiate between Management Information Systems and Decision Support Systems. **[9]**

OR

Q10) What is Customer Relationship Management? Explain the challenge in Customer Relationship Management. **[9]**

Q11) Write down difference between Decision Making Environment: Open Systems & Close System. **[8]**

OR

Q12) Explain Decision Making tools with Example. **[8]**

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Total No. of Questions : 12]

SEAT No. :

P1799

[Total No. of Pages :2

[4761] - 301
S.Y.M.C.A. (Engg.)
Advanced Java
(2013 Pattern) (410901) (Semester - III)

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) Define JDBC. Describe architecture of JDBC with proper syntax and semantics. **[8]**

OR

Q2) List the steps that connect database with java application and explain components of JDBC. **[8]**

Q3) Explain Role of Deployed Descriptor (.XML) file and container in details. **[8]**

OR

Q4) Explain lifecycle of Servlet in details. **[8]**

Q5) 'JSP is similar to servlet', Elaborate with proper explanation. **[8]**

OR

Q6) Write a short note on: **[8]**

a) Expression.

b) Declaration.

c) Scriplet.

d) Include.

Q7) Explain Entity Bean with its lifecycle. **[8]**

OR

Q8) List and describe difference between Stateful and Stateless session beans. **[8]**

P.T.O.

Q9) Write & explain spring MVC form handling example. **[9]**

OR

Q10)State and explain Spring bean life cycle? **[9]**

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

OR

Q12)Explain Hibernet Architecture in details. **[9]**

Total No. of Questions : 12]

SEAT No. :

P1800

[Total No. of Pages :2

[4761] - 302
S.Y.M.C.A. (Engg.)
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) Explain advantages and disadvantages of DBMS approach. **[4]**

b) Describe Data Abstraction in detail. **[4]**

OR

Q2) a) Discuss advantages and disadvantages of different Database Models. **[4]**

b) What is Data Independence? Give example. **[4]**

Q3) Construct ER diagram of Hospital Database System. Consider different doctors, patients, nurses, test & different wards. Convert it into Relational schema. **[10]**

OR

Q4) Construct the ER diagram of Library Management consider required data. Convert it into Relational schema. **[10]**

Q5) a) Write a short note on any 4 Codd's Rules. **[4]**

b) What is view? Create a view for Employee database. **[4]**

OR

Q6) a) Explain different keys used in relational model & domain constraints with example. **[4]**

b) Explain - how Group By clause works? What is the difference between where and having clause? **[4]**

P.T.O.

Q7) a) What is Trigger? Explain types of triggers with example. **[4]**

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

OR

Q8) a) Explain with example PL/SQL procedure. **[4]**

b) Explain Nested Queries with example. **[4]**

Q9) a) Explain: **[4]**

i) Multivalued Dependencies.

ii) Overlapping Candidate Key.

b) Explain Trivial dependency. **[4]**

OR

Q10)a) The closure set of F of functional dependencies for relational schema R = (A, B, C, D, E, F, G)is **[4]**

A–>B C–>DEF E–>F

Discuss the different dependencies present in this set. Normalize it upto 3NF.

b) With example explain Lossy and Lossless decomposition. **[4]**

Q11)a) How you relate Big Data with Non Relational Database. **[4]**

b) Explain the concept of Big Data with example. **[4]**

OR

Q12)a) Discuss HBASE architecture in detail. **[4]**

b) Explain - No SQL. **[4]**

Total No. of Questions : 12]

SEAT No. :

P1801

[Total No. of Pages :3

[4761] - 303
S.Y.M.C.A. (Engg.)
OPERATING SYSTEM
(2013 Course) (410903) (Semester - III)

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: **[4]**

i) Linker

ii) Loader

b) Explain the importance of system software for a computers. **[5]**

OR

Q2) a) Differentiate between a compiler and an interpreter with proper examples. **[4]**

b) Define an assembler, how does an assembler work? Explain the working of an assembler with supportive block diagram. **[5]**

Q3) a) Define scheduling. Explain the performance parameters of scheduling criteria. **[4]**

b) Enlist the services provided by operating system. Discuss the hierarchical structure to design operating system. **[4]**

OR

P.T.O.

Q4) Solve the following question using CPU Scheduling Algorithm Consider following set of jobs: **[8]**

Job	Arrival Time	Run Time
1	19	2
2	07	3
3	22	1
4	34	2

Determine finish time and turn around time using following methods.

1) Round Robin. (assume quantum = 5)

2) SJF.

Q5) a) Write short note on: **[4]**

i) Critical section.

ii) Mutual Exclusion.

b) Explain necessary conditions for deadlock to occur. **[4]**

OR

Q6) a) Explain the classic problem of Synchronization. **[4]**

b) How to avoid deadlock, explain with example. **[4]**

Q7) a) Write difference between contiguous and non-contiguous memory allocation. **[4]**

b) What is page fault rate? Explain with an example. **[5]**

OR

Q8) a) Why demand paging approach is preferred over segmentation? Explain. **[4]**

b) Consider the following page reference string 1, 2, 3, 4, 2, 1, 5, 6, 1, 2, 3, 7. Number of page frames are three. Show the page trace and calculate number of page faults for the following page reference schemes. **[5]**

i) Optimal.

Q9) a) Explain two level, tree structured and a cyclic graph directories. **[4]**

b) Explain C Scan algorithm with example. **[4]**

OR

Q10)a) Explain Virtual File System. **[4]**

b) Draw a neat diagram of linked allocation method & explain. **[4]**

Q11)Explain the following components of a Linux system. (any two) **[8]**

a) Kernel.

b) System libraries.

c) System utilities.

OR

Q12)a) List process management system calls and explain any two. **[4]**

b) What are the 2 major functionalities of a Linux Kernel? **[4]**

Total No. of Questions : 12]

SEAT No. :

P1802

[Total No. of Pages : 2

[4761] - 304

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

OBJECT ORIENTED ANALYSIS AND DESIGN

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

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 in brief new features of UML 2.0. **[4]**

b) What are benefits of OO Methodology? Give overview of different OO Methodologies in brief. **[4]**

OR

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

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

Q3) a) What are ‘‘Extensibility mechanisms in UML’’? Explain in brief. **[4]**

b) What is OCL? Explain with example **[4]**

OR

Q4) a) Which are the various structural diagrams in UML 2.0? Explain role of each diagram in brief. **[4]**

b) Explain the benefits of using UML. **[4]**

Q5) a) Explain aggregation and composition with example. **[4]**

b) Draw use case diagram for Online Railway Reservation System. Make necessary assumptions. **[5]**

OR

Q6) a) Draw Class diagram for a ‘‘Feedback Management System’’. Make necessary assumptions. **[5]**

b) Explain the object diagram with example. **[4]**

P.T.O.

Q7) a) Draw sequence diagram for ATM transaction. Make suitable assumptions. **[5]**

b) Compare sequence diagram and communication diagram. **[4]**

OR

Q8) a) Write note on interaction overview diagram. **[4]**

b) Explain interaction occurrences with suitable example. **[5]**

Q9) a) Draw activity diagram for Online Transaction Management System (e-shopping). Make suitable assumptions. **[5]**

b) Write note on timing diagram. **[3]**

OR

Q10)a) Draw state machine diagram for automatic washing machine. **[4]**

b) Explain fork and Join with example. **[4]**

Q11)a) Explain component diagram with suitable example. **[4]**

b) Describe Architectural Design Pattern in brief. **[4]**

OR

Q12) a) Draw deployment diagram for web application-online ordering of book. Write your assumptions clearly. **[4]**

b) Explain the use of package diagram in brief. **[4]**

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Total No. of Questions : 12]

SEAT No. :

P1803

[Total No. of Pages :6

[4761] - 305
S.Y.M.C.A. (Engineering Faculty)
OPERATIONS RESEARCH
(2013 Pattern) (Semester - III) (410905)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicates full marks.***

Q1) a) A firm two products x and y and has a total production capacity of 9 tonnes per day x and y requiring the same production capacity. The firm has a permanent contract to supply at least 2 tonnes of x and at least 3 tonnes of y per day to another company. Each tonne of x requires 20 machine hrs of production time and each tonne of y requires 50 machine Hrs of production time. The daily maximum possible number of machine hrs is 360. All the Firm's output can be sold, and the profit made is Rs.80 per tonne of x and Rs.120 per tonne of y.It is required to determine the production schedule for maximum profit and calculate this profit. **[6]**

b) Define the general form of LP and advantages & disadvantages of LP model. **[3]**

OR

Q2) a) Solve the following LPP using simplex method. **[6]**

Max $z = 12x_1 + 15x_2 + 14x_3$

$-x_1 + x_2 \leq 0$

$-x_1 + 2x_3 \leq 0$

$x_1 + x_2 + x_3 \leq 100$

Where $x_1, x_2, x_3 \geq 0$.

P.T.O.

b) Form the dual of the following primal problem. **[3]**

Min $z = 2x_1 + 6x_2$

$9x_1 + 3x_2 \geq 20$

Subject to $2x_1 + 7x_2 = 40$

$x_1, x_2 \geq 0$.

Q3) a) Obtain an optimal solution to the transportation problem by MODI method. **[6]**

	D_1	D_2	D_3	D_4	Supply
S_1	19	30	50	10	7
S_2	70	30	40	60	9
S_3	40	8	70	20	18
Demand	5	8	7	14	34

b) Write short note on Hungarian method. **[3]**

OR

Q4) a) The owner of a small machine shop has four machine available to assign fire jobs. Find the assignment of machines to jobs that will result in the Max profit. **[6]**

	Jobs				
Products	A	B	C	D	E
1	6.20	7.80	5.00	10.10	8.20
2	7.10	8.40	6.10	7.30	5.90
3	8.70	9.20	11.10	7.10	8.10
4	4.80	6.40	8.70	7.70	8.00

b) Write short note on Trans-shipment method. **[3]**

Q5) a) A small project consists of seven activities for which the relevant data are given below. **[5]**

Activity	Proceding Activity	Activity Duratio Day 5
A	-	4
B	-	7
C	-	6
D	A,B	5
E	A,B	7
F	C,D,E	6
G	C,D,E	5

i) Draw the network and find the project completion time.

ii) Calculate total float for each of the activities.

b) Write a short note on forward pass/press calculation. **[2]**

OR

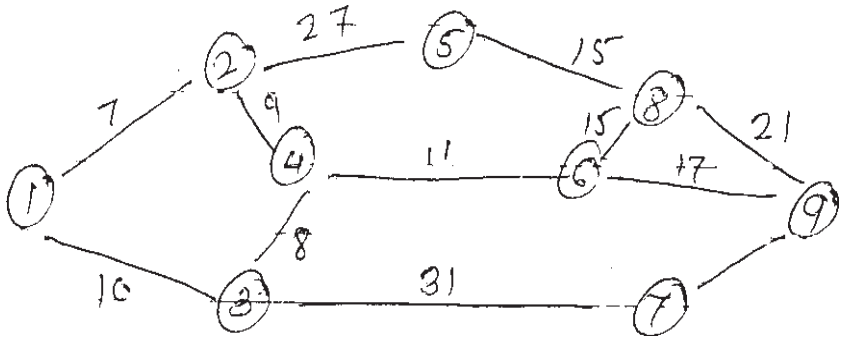
Q6) a) Listed in the table are the activities and sequencing necessary for a maintenance job on the heat exchange in a refinery. **[5]**

Activity	Description	Predecessor Activity
A	Dismantle pipe connection	-
B	Dismantle heater, closure and Floating front	A
C	Remove tube bundle	B
D	Clean bolts	B
E	Clean heater and floating head front	B
F	Clean tube bundle	C
G	Clean shell	C
H	Replace tube bundle	F,G
I	Prepare shell pressure test	D,E,H
J	Prepare tube pressure test and reassemble	I

Draw a network diagram for the project.

b) Write a short note on backward pass/press calculations. **[2]**

Q7) a) Find the shortest path form node 1 to node 9 of the distance network shown in below fig using dijkstro's algorithm. **[6]**



b) Write a note on minimum spanning tree by Krushal's algorithm. **[3]**

OR

Q8) a) There are eight jobs, each of which has to go through the machines A and B in order AB processing time in hours are given as follows: **[6]**

Jobs	1	2	3	4	5	6	7	8
Machine A	8	10	10	6	12	1	5	9
Machine B	7	4	3	9	11	6	4	2

Determine a sequence of these jobs that will minimize the total elapsed time.

b) Write algorithm of shortest path model by Floyd's algorithm. **[3]**

Q9) a) Estimated levels of sales (Units). **[6]**

Strategies	N_1	N_2	N_3
S_1	7,00,000	3,00,000	1,50,000
S_2	5,00,000	4,50,0000	0
S_3	3,00,000	3,00,000	3,00,000

Which strategy should be concern executive choose the basis of

i) Maximin

ii) Minimax

iii) Maximax

iv) Laplace

b) Give the significance of Decision Analysis what are the steps of decision making process. **[3]**

OR

Q10)a) The probability of the demand for lorries for hiring on any day in a given district is as follows. **[6]**

Demanded No of lorries	0	1	2	3	4
Probability	0.1	0.2	0.3	0.2	0.2

Lorries have a fixed cost of Rs.90 each day to keep the daily hire charges (net of variable costs of running) Rs.200. If the lorry hire company owns 4 lorries, what is it's daily expectations? If the company is about to go into business and currently has no lorries. How many lorries should it buy.

b) What is decision making under risk? Explain expected value criterion.**[3]**

Q11)a) A bakery keeps stok of a popular brand a cake previous experience shows the daily demand pattern for the item with associated probabilities as given below. **[5]**

Daily Demand (No)	0	10	20	30	40	50
Probability	0.01	0.20	0.15	0.50	0.12	0.02

Use the following sequence of random number to simulate the demand for next 10 days.

Random Numbers:25,39,65,76,12,05,73,89,19,49.

Also estimate the daily average demand for the cakes on the basis of simulated data.

b) Explain in brief generation of Random Numbers. **[2]**

OR

Q12)a) What is simulation experiment & Discuss the factors affecting simulation. **[5]**

b) Write a note on Monte Carlo simulation. **[2]**

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Total No. of Questions : 12]

SEAT No. :

P1804

[Total No. of Pages : 2

[4761] - 401

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

ADVANCED WEB TECHNOLOGY

(2013 Course) (Semester - IV) (410909)

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) Write a short note on .Net framework. **[5]**

b) What is the difference between System.Array. Copyto() and System.Array.Clone()? Explain with examples. **[4]**

OR

Q2) a) Explain how to implement Delegates in C#.NET. **[5]**

b) Explain managed and unmanaged code. **[4]**

Q3) a) Explain Sorted, SelectedMode, Multicolumn, SelectedItem and Selected Index properties of ListBox control. **[4]**

b) What are WPF and XAML? Explain. **[4]**

OR

Q4) a) What is garbage collector? How it works? **[4]**

b) What is Boxing and Unboxing concepts using in C#. Explain with suitable examples. **[4]**

Q5) a) Explain WPF architecture. **[4]**

b) What do you understand about .NET Assemblies? What is the difference between Private and Shared Assemblies? **[4]**

OR

P.T.O.

Q6) a) Explain different types of trigger in WPF. **[4]**

b) List and explain any five common properties and events of controls. **[4]**

Q7) a) What is the need of CSS in ASP.NET? Explain the different types of CSS in ASP.NET. **[5]**

b) What is Silverlight.js file? Explain with an example. **[4]**

OR

Q8) a) Explain Silverlight architecture. **[5]**

b) Explain any two ASP.NET server control. **[4]**

Q9) a) Briefly explain the features and applications domains of following Web Services: **[4]**

i) WSDL

ii) SOAP

b) What is binding and how many types of bindings are there in WCF? Explain. **[4]**

OR

Q10)a) What is the difference WCF and Web services? **[4]**

b) What are the protocols supported by web services built with ASP.NET to exchange data? **[4]**

Q11)a) Explain ADO.NET object model with help of suitable diagram. **[4]**

b) Write short note on XPath. **[4]**

OR

Q12)a) What is LINQ? Explain its query syntax in brief and give its advantages. **[4]**

b) Waht is the role of the DataSet object in ADO.NET? Write a difference between DataSet and DataReader. **[4]**

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Total No. of Questions : 12]

SEAT No. :

P1805

[Total No. of Pages : 3

[4761] - 402

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

BANKING AND FINANCIAL ACCOUNTING AND MANAGEMENT

(2013 Pattern) (Semester - IV)

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 side indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) What is financial Accounting? What are the terms used in accounting? **[4]**

b) Explain the use of Cash Book. Explain the types of Cash Book? **[4]**

OR

Q2) Journalize the following transaction in the books of Mr. Akshay: **[8]**

2010 April 1	Mr. Akshay started business with Cash Rs. 80,000.
2010April 2	Purchased goods from Mona Rs.28,000.
2010 April 7	Deposited cash into Dena Bank Rs. 39,000.
2010 April 10	Sold goods to Dinesh Rs. 41,000.
2010 April 13	Purchased Labtop of Rs. 30,000 in cash.
2010 April 17	Paid Mona by Cheque Rs. 30,000.
2010 April 20	Paid Wages Rs. 500.
2010 April 21	Received Commission Rs. 1,000.

Q3) a) Explain the Motives of holding Cash? **[4]**

b) What are different elements of Cost? Explain in brief? **[4]**

OR

P.T.O.

Q4) From the following particulars calculate, **[8]**

a) Contribution per unit

b) P/V Ratio

c) BEP (units and in rupees)

d) What will be the selling price per unit if BEP down to 25,000 units?

Fixed Expenses Rs. 1,50,000, Selling price per unit Rs.15, Variable Cost per unit Rs. 10.

Q5) a) What is working capital? Explain the types of working capital? **[5]**

b) Explain the sources of working capital with suitable example? **[4]**

OR

Q6) From the following information you are requested to calculate the amount of working capital: **[9]**

Cost	Rs.
Material	20
Labour	10
Direct Expenses	8
Total Cost	38
+ Profit	12
Sales	50

Other information:

Total units produced in a year Rs. 24,000, Debtors are allowed 6 weeks credit, Creditors allowing 4 weeks credit, WIP remains in stock for one month. Finished goods remain in stock for ½ month, Raw material in stock for one month, Wages are paid with a lag of one month, and Contingent reserve is 20%.

Q7) Discuss the regulatory authorities for banking in India? **[8]**

OR

Q8) Classify and explain different types of accounts in bank. **[8]**

Q9) Explain the various types of negotiable instruments with their features? **[8]**

OR

Q10) Explain the online and offline transactions in a bank branch. **[8]**

Q11) How the online money transfer works across different banks in India? Explain any 2 schemes. **[9]**

OR

Q12) Write short notes on: **[9]**

a) ATM system and its working

b) Mobile banking

c) POS banking

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Total No. of Questions : 12]

SEAT No. :

P1806

[Total No. of Pages : 2

[4761]-403
S.Y. M.C.A. (Engg.)
CN & INFORMATION SECURITY
(2013 Pattern) (Semester-IV) (410911)

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 Coaxial and fiber optic media in detail. **[5]**

b) What do you mean unguided media? Explain any one in brief. **[4]**

OR

Q2) a) Explain three switching techniques in brief. **[6]**

b) Differentiate LAN, MAN and WAN. **[3]**

Q3) a) Explain Sliding window protocol with suitable diagram. **[4]**

b) Write short note on framing. **[4]**

OR

Q4) Explain OSI layer in detail with neat diagram. **[8]**

Q5) a) What are different routing algorithms, explain any one in detail. **[4]**

b) Explain the IPv6 protocol header format. **[4]**

OR

Q6) a) Explain RIP and OSPF routing algorithms. **[4]**

b) Give the details of Internet protocol. **[4]**

P.T.O.

Q7) a) Explain how electronic mail works and list out the services offered by SMTP. **[4]**

b) Write a difference between FTP and TFTP. **[4]**

OR

Q8) Write short note on: **[8]**

a) FTP Protocol.

b) MIME.

c) Mail gateways.

d) SMTP.

Q9) Explain Symmetric cryptography and asymmetric cryptography algorithm. **[8]**

OR

Q10)a) Explain RSA algorithm with example. **[4]**

b) Explain Diffie-Hellman based Key agreement protocol. **[4]**

Q11)a) How DNS certificate works. **[5]**

b) Explain PKI components and their application. **[4]**

OR

Q12) Write short note on: **[9]**

a) SSL.

b) NTP.

c) SNMP.

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Total No. of Questions : 12] **SEAT No. :**

P3397 **[Total No. of Pages :2**

[4761]-404
S.Y.M.C.A-(Faculty of Engineering)
Information Systems Audit
(2013 Pattern) (Elective - I)

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

Instructions to the candidates:

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

SECTION -I

Q1) Describe the Standards used for IS Audit. Explain the standards related with evidence. **[8]**

OR

Q2) Describe various steps involved in IS audit. Draw required flowchart. **[8]**

Q3) Explain concept of Digital signature? How are digital signatures used to send signed, secrete message with example. How can one achieve confidentiality, integrity and non repudiation? **[8]**

OR

Q4) Write short note on any 2 of the following. **[8]**

a) Operating System controls

b) Firewall controls

c) Network controls

Q5) a) What role is played by IS Auditor in Software Project Management? **[5]**

b) Explain different types of testing used by IS Auditor with example. **[4]**

P.T.O.

OR

Q6) What is advantage of involving the IS Auditor in software Development from start of project? What constraints does it put on Auditor when he is asked to audit the same system in whose design he was involved from beginning? **[9]**

SECTION - II

Q7) What could be the best evidence from Auditors point of view of business Continuity Plan of a bank? Justify your answer. **[8]**

OR

Q8) a) Explain the various validation controls at field, file and batch level with example. **[4]**

b) What is control? What are the control objectives? **[4]**

Q9) a) Why we need to have amendments in old Human Resource Policy when an organization implements IT Systems like ERP across entire organization ? Which amendments are required in your opinion? **[4]**

b) Prepare Virus policy for your company as it does not have one. How will you implement it? **[4]**

OR

Q10) What help you will get as an IS Auditor with an organizational hierarchy chart & chart showing responsibilities of various posts in an organization ? Justify your answer. **[8]**

Q11) a) What is a Holistic Approach in COBIT 5? **[4]**

b) Discuss COBIT 5 Enterprise Enablers. **[5]**

OR

Q12) Explain how a bank which has implemented Core Banking System can implement COBIT 5 frame work. Prepare a sample RACI chart for key internal staff members. **[9]**

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Total No. of Questions : 12]

SEAT No. :

P1807

[Total No. of Pages : 2

[4761]-405
S.Y. M.C.A. (Engg.)
CYBER LAW
(2013 Course) (Semester-IV) (Elective-I) (410912)

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 Cyberspace and its Architecture. **[4]**

b) Explain Data security & its Management. **[4]**

OR

Q2) a) Write a note on Digital Signature. Also state its benefits. **[4]**

b) Explain UNCITRAL Model Law on Electronic Commerce. **[4]**

Q3) a) Write a note on e-governance. **[4]**

b) Explain National Sovereignty and role of government in cyberspace. **[4]**

OR

Q4) Explain in detail International treaties, conventions and protocols concerning cyber space along with the guidelines issued by various ministries. **[8]**

Q5) a) Define: **[6]**

i) Cyber Stalking.

ii) Cyber Terrorism.

b) Explain applicable law in Cyberspace. **[3]**

OR

P.T.O.

Q6) Give various crimes and torts committed using internet with suitable case studies. **[9]**

Q7) Explain online contracts & discuss the issues emerging from online contracting. Refer an authentic case study for the same. **[8]**

OR

Q8) a) Write note on consumer protection in Cyberspace. **[4]**

b) Explain Payment Mechanism in Cyberspace. **[4]**

Q9) a) Explain search engines and their abuse. **[3]**

b) What are the liabilities of Inter-net Services Providers? **[3]**

c) Define Web testing. **[2]**

OR

Q10)a) Write note on Intellectual Property in Cyberspace. **[4]**

b) Explain Digital Rights Management. **[4]**

Q11)a) Explain National Legal Framework for Protecting Privacy. **[3]**

b) Explain concept of Security in Cyberspace. **[3]**

c) Write note on data protection position in India. **[3]**

OR

Q12)a) Write a note on Security Audit (VA/PT). **[3]**

b) Explain BPOs and Legal Regime in India. **[3]**

c) Enlist various legal response to technological vulnerabilities. **[3]**

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Total No. of Questions : 12]

SEAT No. :

P4425

[Total No. of Pages :2

[4761] - 406
S.Y.M.C.A. (Under Engineering Faculty)
IT GOVERNANCE
(2013 Course) (410912)

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 calcualtor is allowed.***
4) ***Assume suitable data if required.***

Q1) a) Explain Integrated IT Governance Framework and Road-map. **[5]**

b) What is IT Governance? Define its purpose. **[4]**

OR

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

Q3) a) Explain the results of Ineffective IT Governance. **[4]**

b) Explain the Three Critical Pillars of IT Governance. **[4]**

OR

Q4) Explain why DO Organizations Need an IT/Business Governance Policy and Process. **[8]**

Q5) a) What do you mean by Integrated IT Governance Framework? **[4]**

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

OR

Q6) Explain the IT Governance Best practice Reference Models and Frameworks. **[8]**

P.T.O.

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

b) What are the Five Stages of IT? Explain in brief. **[3]**

OR

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

Q9) a) Explain the Principle for Achieving Excellence in Project Management. **[4]**

b) Explain the PM Maturity Model. **[4]**

OR

Q10)a) What do you mean by PM Governance and Escalation Framework. **[4]**

b) Explain the roles of the Program Management Office (PMO). **[4]**

Q11)a) What do you mean by Contract Negotiations and Management. **[4]**

b) Explain the outsourcing decision making score-card. **[4]**

OR

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

b) Explain the Key Governance Roles in Vendor selection for Outsourcing Selection. **[4]**

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Total No. of Questions : 12]

SEAT No. :

P1808

[Total No. of Pages : 2

[4761]-407
S.Y. M.C.A. (Engg.)
IT SERVICE MANAGEMENT
(2013 Course) (Semester-IV) (Elective-I) (410912)

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) ***Use of calculator is allowed.***
4) ***Assume suitable data if necessary.***

Q1) What is service management? Differentiate between best practice & good practices. **[8]**

OR

Q2) a) What is service management benchmarking? **[2]**

b) Explain the current status & future prospects of service management with suitable example. **[6]**

Q3) a) Explain the four P's of strategy. **[4]**

b) Explain service life cycle & service strategy. **[4]**

OR

Q4) What is service design? Explain any three major aspects of service design. **[8]**

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

b) Explain the key activities & function of service operation. **[5]**

OR

Q6) What is continual service improvement? Explain their purpose, objectives & key principal. **[9]**

P.T.O.

Q7) Write in brief about service continuity management, with real time application on it. **[8]**

OR

Q8) Explain the service management processes relationship, metrics & roles of service continuity management. **[8]**

Q9) a) Explain the information security policies. **[4]**

b) Explain the information security management system. **[4]**

OR

Q10) What is access management & facilities management process? **[8]**

Q11) Explain IT operations management in brief with scope, purpose & objectives. **[9]**

OR

Q12) Explain Technical Management in brief with scope, purpose & objectives. **[9]**

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Total No. of Questions : 12]

SEAT No. :

P1809

[Total No. of Pages : 2

[4761]-408
S.Y. M.C.A. (Under Engg. Faculty)
ADVANCED DBMS
(2013 Course) (Semester-II)

Time : 2 Hours] *[Max. Marks : 50*

Instructions to the candidates:

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

Q1) a) Explain the activities performed during the parsing phase in query processing. **[4]**

b) Describe Binary Search Algorithm for selection operation. **[5]**

OR

Q2) a) There is a difference in performance of rs and sr (where r and s are two relations) in case of nested loop join. Justify. **[5]**

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

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

b) Discuss the two main issues in parallel systems. **[4]**

OR

Q4) a) What are data servers? **[4]**

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

Q5) a) "The concept of fragmentation and replication is used for maintaining the distributed systems in various sectors". Explain. **[5]**

b) Explain need for distributed systems. **[3]**

OR

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

b) Explain top down approach in designing a distributed database. **[4]**

P.T.O.

Q7) a) Explain structure type with an example. **[4]**

b) Explain array and multiset types in SQL with an example. **[5]**

OR

Q8) a) Explain type and table inheritance with suitable example. **[5]**

b) Explain object identity and reference types in SQL. **[4]**

Q9) What is DTD? Create a DTD for the following example. **[8]**

"There is a sports competition on various individual and team events. Players from different parts of the country participate in either individual or team event. The information about the players such as their identity card (identity number is unique), name, gender (male or female), address, state, contact details (not more than 2), date of birth, event type (individual or team) etc is maintained".

OR

Q10)a) What is the purpose of XML? What are the rules for XML? **[4]**

b) Explain XML Schema document. **[4]**

Q11)a) Describe Graph Database model in detail. **[4]**

b) What is NOSQL? Explain its features and applications in brief. **[4]**

OR

Q12)a) Describe Data model in detail. **[4]**

b) Explain master-slave replication in brief. **[4]**

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