Total No. of Questions : 12]

SEAT No. :

P3193

[Total No. of Pages : 2

[5256]-101

F. Y. M.C. A. (Engineering) (Semester - I)

C & C++ PROGRAMMING

(2013 Pattern)

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 the Need and Advantages of C language. **[4]**

b) Explain the different steps in compilation and execution of a C program.**[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 advantages of C language.**[4]**

Q3) a) Explain how multidimensional arrays are defined and used in C. **[4]**

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

OR

Q4) a) What is structure? What is the difference between structure and union?**[4]**

b) What is dynamic memory allocation? Explain malloc () and free () with example. **[4]**

Q5) a) Explain Function prototype, Function definition and Function Calling in C. **[5]**

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

P.T.O.

OR

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

b) Write a C program using function to calculate min, max and mean of two numbers. **[4]**

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

b) What is a Class? Explain how class is instantiated? **[4]**

OR

Q8) a) Write a short note on "Copy Constructor". **[4]**

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

Q9) a) What is friend function? What is difference between friend and static function? **[4]**

b) What is runtime polymorphism? **[4]**

OR

Q10)a) What is virtual function? Explain with example. **[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) open () ii) put ()

OR

Q12)a) What is the input stream and output stream? Explain various methods to open file. **[5]**

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

i) seekg () ii) tellg ()

Total No. of Questions : 12]

SEAT No. :

P3194

[Total No. of Pages : 2

[5256]-102

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

COMPUTER ORGANIZATION

(2013 Pattern) (Semester - I)

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) Convert the following **[4]**

i) $(1715)_8$ to Binary

ii) $(899)_{10}$ to Octal

iii) $(4567)_{10}$ to Hexadecimal

iv) $(101010001110)_2$ to decimal

b) Differentiate between Compiler and Interpreter. **[4]**

OR

Q2) a) Construct logic circuit diagram for following expression using AND/OR/NOT gates. $(\overline{A}+\overline{B}).(A+C).(B+\overline{C})$ **[4]**

b) Explain functions of Linker and Loader. **[4]**

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

b) Explain clocked RS flip flop with logic diagram and truth table. **[5]**

OR

Q4) a) Explain the operations of JK flip-flop with logic diagram and characteristic table. **[4]**

b) What is mean by counter? Differentiate between Synchronous and Asynchronous Counter. **[5]**

P.T.O.

Q5) a) Differentiate between DRAM and SRAM. **[4]**

b) Explain memory hierarchy with neat diagram. **[4]**

OR

Q6) a) Discuss DMA interfacing with processor in detail. **[4]**

b) What is cache memory? What is the need of it? **[4]**

Q7) a) Explain Instruction fetch and Execution cycle in detail. **[4]**

b) What do you mean by addressing mode?Explain any four addressing modes.**[4]**

OR

Q8) a) Discuss Data Path and Time Space Diagram. **[4]**

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

i) Hardwired program

ii) Micro Program control

Q9) Explain Pentium processor architecture in detail. **[9]**

OR

Q10)Explain 16-bit (8086) microprocessor architecture in detail. **[9]**

Q11)a) What is cluster? Explain cluster architecture. **[4]**

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

i) SISD

ii) MIMD

OR

Q12)a) What is parallel processing with respect to multiprocessor organization?**[4]**

b) Explain SMP with block diagram. **[4]**

Total No. of Questions : 12]

SEAT No. :

P3195

[Total No. of Pages : 2

[5256]-103

F. Y. M. C. A. (Engineering) (Semester - I)

PRINCIPLES OF PROGRAMMING PRACTICES

(2013 Pattern)

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 note on computer languages? **[4]**

b) Explain logical system architecture? **[4]**

OR

Q2) a) Explain software development steps? **[4]**

b) Write a note on compiler? **[4]**

Q3) a) Write a note on testing your solution. **[4]**

b) How the computer stores data in volatile memory and file? **[4]**

OR

Q4) a) What is program structure? Explain structure of C program. **[4]**

b) Explain various types of problems viz computational, logical and repetitive. **[4]**

Q5) a) Write a note on cohesion and coupling. **[5]**

b) What is data dictionary? Explain the use of it. **[4]**

OR

Q6) a) Explain selection approach with example. **[4]**

b) What is mean by modular programming? Enlist the importance of modular programming. **[5]**

P.T.O.

Q7) a) Write an algorithm to check whether the number is perfect? **[4]**

b) Give similarities and dissimilarities between algorithm and flowchart. **[4]**

OR

Q8) a) Write an algorithm to find GCD of two numbers. **[4]**

b) Write a short note on efficiency and analysis of Algorithm. **[4]**

Q9) a) How time complexity and space complexity of an algorithm is computed? **[4]**

b) Write a short note on Big-O notation. **[4]**

OR

Q10)a) What is mean by frequency count of an algorithm? Explain its importance. **[4]**

b) Explain Best case analysis using example. **[4]**

Q11)a) What is data processing? Explain business data processing. **[3]**

b) Write an algorithm to reverse an array. **[3]**

c) Explain row major and column major representation of an array. **[3]**

OR

Q12)a) Write an algorithm for binary search. **[4]**

b) Define testing and debugging. **[3]**

c) Why documentation is important? Explain **[2]**

Total No. of Questions : 12]

SEAT No. :

P3196

[Total No. of Pages : 4

[5256]-104

F. Y. M. C. A. (Under Engineering Faculty) (Semester - I)

DISCRETE MATHEMATICS

(2013 Pattern)

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

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 from Section - I and Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12 from Section - II.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Assume suitable data, if necessary.***
4) ***Neat diagrams must be drawn wherever necessary.***
5) ***Figures to the right indicate full marks.***

SECTION - I

Q1) a) If A = {a, b,{a, c}, φ} determine the following sets: **[5]**

i) A-{a,c}

ii) {{a,c}}-A

iii) A-{ {a,b} }

iv) {a, c}-A

b) Among the first 1000 positive integers : **[4]**

i) Determine the integers which are divisible by 2, 3, 5 or 7?

OR

Q2) a) Show that $n^3 + 2n$ is divisible by 3 for all $n \geq 1$ **[4]**

b) 75 children went to an amusement park, where they can ride on the merry go round, roller coaster, and the Ferris wheel. It is known that 20 of them taken all the three rides, and 55 of them taken have taken at least 2. Each ride costs 5 rupees and the total collection of the park was 700 rupees. Determine the number who did not try any of the rides. **[5]**

P.T.O.

Q3) a) Construct a truth table for the following: $((\neg P \wedge Q) \vee (Q \wedge R)) \rightarrow R$ **[4]**

b) Show the equivalences $(P \rightarrow C) \wedge (Q \rightarrow C) \leftrightarrow (P \vee Q) \rightarrow C$ **[4]**

OR

Q4) a) Construct a truth table for the following **[4]**

(I) $(P \wedge Q) \vee (\neg P \wedge Q) \vee (P \wedge \neg Q) \vee (\neg P \wedge \neg Q)$

b) Rewrite the following statements using quantifier variables and predicate symbols. **[4]**

i) All birds can fly.

ii) Not all birds can fly

iii) Some men are genius

iv) Some numbers are not rational

Q5) a) Consider all positive numbers (0 to 9) with three different digits: **[4]**

i) How many are greater than 700?

ii) How many numbers are even?

b) How many distinguishable permutations of the letters in the word MISISSIPPI are there? **[4]**

OR

Q6) a) In a class of 100 students 40 are boys **[4]**

In how many ways can 10 person committee

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

SECTION - II

Q7) a) Given a relation R = {(1, 1), (1, 3), (2, 2), (3, 1), (3, 2)} on A = {1, 2, 3 }. Find the transitive closure of R by Warshall' s algorithm **[5]**

b) On the set of+ ve integers, the relation R is defined by "aRb" if and only if" a|b is even integer". Show that R is an equivalence relation. **[4]**

OR

Q8) a) Define the following terminology **[4]**

i) Relation

ii) Function

iii) Equivalence Relation

iv) Closure

b) Let A = {2,3,4,6} and let a R b id "a divides b" Show that R is a partial order and draw a Hasse diagram. **[5]**

Q9) a) Define the following terms with example: **[5]**

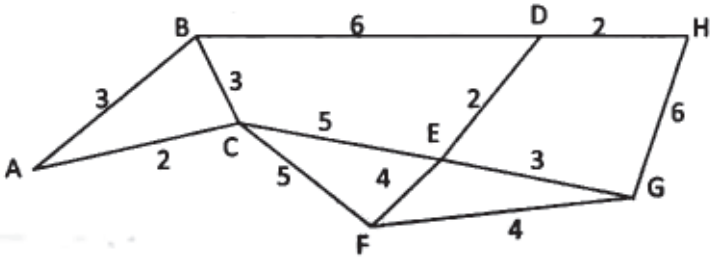
i) Euler path and Circuit

ii) Hamiltonian Path and Circuits

b) Draw the graph $K_{5,6}$ **[3]**

OR

Q10)Find the shortest path between the vertices A and H in the graph shown in following figure. **[8]**



Q11)a) For the following set of weights, construct an optimal binary prefix code. For each weight in the set give corresponding code word: **[6]**

i) 10,11,14,16,18,21

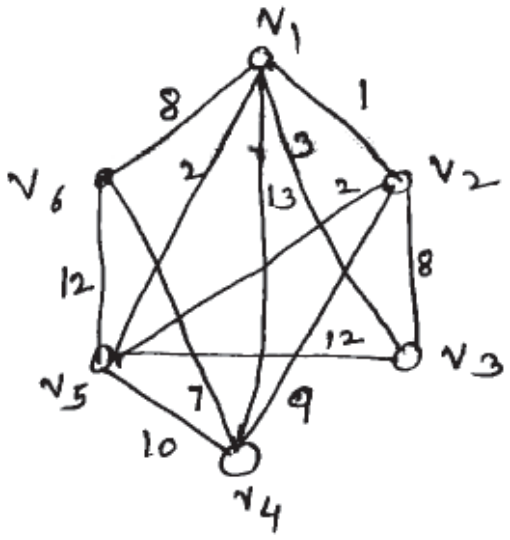
ii) 1,2,4,5,6,9,10,11,12

b) Draw all full binary tree with 7 nodes. **[2]**

OR

Q12)a) Draw all rooted tree with 4 nodes. **[2]**

b) Use kruskal's algorithm to find minimum spanning tree for the given graph.**[6]**



Total No. of Questions : 12]

SEAT No. :

P3197

[Total No. of Pages : 4

[5256]-105

F. Y. M. C. A. (Under Engineering Faculty) (Semester - I)

PROBABILITY AND STATISTICS

(2013 Pattern)

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.***
4) ***Use of probability table, electronic pocket calculator is allowed.***

Q1) a) Two cards are drawn from well shuffled pack of 52 cards. Find probability that they are both aces if first card is 1> replaced 2> not replaced **[4]**

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

OR

Q2) a) A certain company encourages its employees to participate in cricket and hockey. A survey indicates that 40% play cricket and 50% play hockey and 25% play cricket and hockey both. Find the probability of the event that **[4]**

i) an employee plays only hockey

ii) an employee plays only cricket

iii) an employee plays at least one game

b) We have 4 boxes. Box one contain 2000 components of which 5% are defective. Box two contains 500 components of which 40% are defective. Box three and four contain 1000 component each with 10% defective. We select at random one of the boxes and we remove at random a single component. **[4]**

i) what is the probability that the selected component is defective ?

ii) what is the probability that selected component is defective on the basis of evidence it come from box two?

P.T.O.

Q3) a) Find variance of binomial random variable. **[4]**

b) What is discrete random variable? If X is a discrete random variable having the following probability distribution **[4]**

X	-1	0	1
P[X = x]	1/5	3/10	1/2

Find the probability mass function of

i) 2X – 1 ii) 2x–y4

OR

Q4) a) A discrete random variable has probability function :p(x) = (½*x* where x= 1,2..... find i) the mode ii) the median iii) compare them with the mean.**[4]**

b) Let X be a discrete random variable with probability mass function **[4]**

$P[X=x]=x^2/30$, x=0,1,2,3,4

= 0 otherwise

Find the median and mode of X

Q5) a) Write a short note on weibull distribution. **[3]**

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

120<y<240

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

iii) E[X,Y]

OR

Q6) a) Show that standard normal random variable has mean zero and variance1 **[6]**

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

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

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

b) What is statistical probability ? What are the characteristics of statistical probability? **[4]**

OR

Q8) a) What is point estimator? What properties of estimator will make it a good estimator? **[4]**

b) X is Poisson random variable with parameter K. A random sample of size 4 is obtained from the distribution of x. xl = 12, x2 = 15, x3=16. x4=17. Determine the value of K that gives the highest probability of observing this sample. **[4]**

Q9) a) What is significance testing? How does it differ from hypothesis testing? **[4]**

b) A random sample of size n is selected from a normal distribution with mean μ and variance σ^2. Prove that the sample mean $\bar{X}$ is normally distributes with mean μ and variance σ^2 / n **[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? **[4]**

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. **[5]**

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) Use Chi-square test to determine goodness of fit of data given below **[5]**

($\chi^2_{table}(0.95) = 9.49$)

No of Heads (x)	p (x heads)	Expected Frequency	Observed frequency
0	0.0332	33.2 or 33	38
1	0.1619	161.9or 162	144
2	0.3162	316.2or316	342
3	0.3087	308.7 or 309	287
4	0.1507	150.7or 151	164
5	0.0294	29.4 or 29	25

b) Explain r*c test for independence **[4]**

Total No. of Questions : 12]

SEAT No. :

P3198

[Total No. of Pages : 2

[5256]-201

F. Y. M. C. A. (Engineering) (Semester - II)

JAVA PROGRAMMING

(2013 Pattern)

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

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Answer any three questions from each section.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***
5) ***Use of Calculator is allowed.***
6) ***Assume Suitable data if necessary.***

Q1) a) Explain the I/O and O/P statement use in Java with example. **[4]**

b) How many types of variable use in Java explain it. **[4]**

OR

Q2) How many types of operators use in Java. Explain any four with suitable example. **[8]**

Q3) a) Explain the static data member & method **[4]**

b) Explain the inner & anonymous classes **[4]**

OR

Q4) Write a program of string operation? (i.e length, compare, concatenation) using interface. **[8]**

Q5) a) Compare abstract class and inheritance **[5]**

b) Comment "Multiple inheritances are not available in Java **[4]**

OR

Q6) Write a program that create package with name mathsopration it contain one interface called operation and that implements by a class called math. Interface contains add, sub, multi, div etc abstracts method. **[9]**

P.T.O.

Q7) Explain the thread life cycle with thread states & thread operation? **[8]**

OR

Q8) Create user define exception minimum balance & use it in a bank operation program. **[8]**

Q9) Explain how to development and execution of simple applet, and also draw simple geometry shapes in applet. **[9]**

OR

Q10) Write a java program to create an application which will perform following operation on Student data.(using AWT & JDBC) **[9]**

i) Insert ii) delete

iii) update

Q11) Write a program to create one button as a name quit. If you have to click on that button the application terminates. **[8]**

OR

Q12) Explain Java swing package any five **[8]**

Total No. of Questions : 12]

SEAT No. :

P3199

[Total No. of Pages : 2

[5256]-202
F. Y. M. C. A. (Engineering) (Semester - II)
DATA STRUCTURE AND FILES
(2013 Pattern)

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: **[8]**

a) Data type
b) Data Object
c) Data Structure
d) Abstract Data Type

OR

Q2) a) What is sparse matrix? How you can represent that matrix. **[4]**

b) Write a C program for addition of sparse matrix. **[4]**

Q3) What are the applications of linked list? Discuss how the linked list is used for polynomial representation? **[8]**

OR

Q4) Write a menu driven program to perform following operations on singly linked list: Create , Reverse, Search & Display. **[8]**

Q5) Explain the implementation of stack using sequential & linked organization with suitable example. **[9]**

OR

Q6) a) Convert following infix expression to postfix. **[5]**

(A+B^C)*D+E^5

(A+B) * (C–D)\E

b) Explain the application of queue in job scheduling. **[4]**

P.T.O.

Q7) Explain the sequential & linked representation of binary tree with example. **[8]**

OR

Q8) Explain the following : **[8]**

a) Adjacency Matrix

b) Adjacency List

c) Graph Traversal

d) Spanning Tree

Q9) a) Explain quick sort algorithm & state its efficiency. **[4]**

b) Define: **[4]**

i) Marge Sort

ii) Bubble Sort

OR

Q10) Explain the following concept **[8]**

a) Sort Order

b) Sort Stability

c) Efficiency & Passes

d) Internal & External Sorting

Q11) Write a C program for file handing. (Create, Display, Modify, Delete Records) **[9]**

OR

Q12) Explain Chaining with & without replacement? Explain rehashing. **[9]**

Total No. of Questions : 12]

SEAT No. :

P3200

[Total No. of Pages : 2

[5256]-203

F. Y. M. C. A. (Under Engineering Faculty) (Semester - II)

WEB TECHNOLOGIES

(2013 Pattern)

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 in brief Web Server, Mail Server & Web Browser. **[6]**

b) Write a short note on FTP. **[3]**

OR

Q2) a) Explain 3 tier architecture with example. **[6]**

b) Write a short note on Middleware. **[3]**

Q3) a) How & when will use the following HTML elements /tags in a web page design illustrate with suitable example. **[6]**

i) SPAN Tag ii) DIV Tag

b) What are cascading Style Sheets? Explain their use. **[3]**

OR

Q4) a) Write a short note on HTML text formatting tags with example. **[6]**

b) Explain Uses of Classes in CSS With proper example. **[3]**

Q5) a) Explain client side & server side scripting. **[4]**

b) Explain with example primitive data type of VBScript. **[3]**

OR

Q6) a) Explain role of DHTML with their advantages. **[4]**

b) What do you understand by java script execution environment? **[3]**

P.T.O.

Q7) a) What do you understand by following terms explain with example **[6]**

i) Use of JavaScript for FORM Validations

ii) JavaScript variables

b) Explain the concept of Scripting & use of scripting language **[3]**

OR

Q8) a) Describe the Click, Focus, Load & submit events with their attributes & tags in JavaScript **[6]**

b) Explain concept of array in JavaScript with example **[3]**

Q9) a) What is XML? Explain its features. **[6]**

b) Write a concept of XSLT With example **[3]**

OR

Q10)a) Explain in detail DTD with its example **[6]**

b) Explain SOAP in details **[3]**

Q11)Write PHP Code to accept & display student's details for Placement Agency. After successful insertion display throughout 60 % students records in proper format (Assume suitable structure.) **[7]**

OR

Q12)Write PHP Code to display list of senior citizens from citizen table.(Assume suitable table structure) **[7]**

Total No. of Questions : 12]

SEAT No. :

P3201

[Total No. of Pages : 2

[5256]-204
F. Y. M. C. A. (Engineering)
SYSTEM ANALYSIS AND DESIGN
(2013 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Attempt Q1 or Q2, Q3 or Q4, Q5or Q6, Q7 or Q8, Q9 or Q10, Q11 or Q12.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***

Q1) a) Explain the incremental model in detail. **[6]**

b) What is Software Engineering? Explain. **[3]**

OR

Q2) a) Explain Reuse oriented Software Engineering with a suitable example. **[5]**

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

Q3) a) Explain requirements elicitation and analysis. **[4]**

b) Explain Validation and verification with reference to Requirements Engineering. **[4]**

OR

Q4) a) What is Feasibility Analysis? Explain the types of Feasibility? **[4]**

b) Explain the various phases of software development. **[4]**

Q5) a) Construct a Dataflow diagram for Food Ordering System. Explain its cardinality. **[6]**

b) Explain the concept of data dictionary. **[2]**

OR

Q6) a) Draw an Entity Relationship Diagram for Airline Reservation system. Explain its cardinality. **[6]**

b) Explain process specification. **[2]**

P.T.O.

Q7) a) Explain the various methods of input data collection? **[4]**

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

OR

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

b) What is cohesion and coupling? Explain. **[4]**

Q9) a) What is software testing? Explain its types. **[5]**

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

OR

Q10)a) Write a short note on control of Information systems. **[4]**

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

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

b) Explain the concept of Component based software Engineering. **[5]**

OR

Q12)a) Explain Distributed Software Engineering in detail. **[4]**

b) What is software deployment environment? Explain in detail. **[5]**

Total No. of Questions : 12]

SEAT No. :

P3202

[Total No. of Pages : 2

[5256]-205

F. Y. M. C. A. (Faculty of Engineering) (Semester - II)

MANAGEMENT THEORY & PRACTICES (Theory)

(2013 Pattern)

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) Define management. Explain different functions of management. **[5]**

b) What is contribution of Henry Feyol to the management Science? **[4]**

OR

Q2) a) Do you feel that the Taylor's theory of Management is still valid? Justify. **[5]**

b) What are the different types of organizational structure? **[4]**

Q3) Draw block diagram & explain line, staff & functional organization. **[8]**

OR

Q4) a) What are different types of co-operative sectors? **[4]**

b) Differentiate MOA and AOA in detail. **[4]**

Q5) a) Explain Path and Goal Theory. **[4]**

b) Define Leadership and explain importance of leadership to the organization. **[4]**

OR

Q6) a) Write a difference between group and team. **[4]**

b) Explain Hersey and Blanchard Theory. **[4]**

P.T.O.

SECTION - II

Q7) a) What are the constructive conflicts? **[4]**

b) What is Quality in turn of an organization? What is Total Quality management? Which are the techniques for TQM? **[5]**

OR

Q8) Write short note on: **[9]**

a) Bench marking

b) Six sigma

c) Theory of X,Y,Z

Q9) a) Explain the role of Management Information Systems (MIS) in the academic. **[4]**

b) Explain in detail Transaction Processing Systems as an application of Management Information Systems. **[4]**

OR

Q10)a) Write short note on Supply Chain Management (SCM). **[4]**

b) List the application of MIS. **[4]**

Q11)a) Write a difference between Open System and Closed System. **[4]**

b) Write a short note on Principle of Rationality / Bounded Rationality **[4]**

OR

Q12)a) Write short note on- Herbert Simpson's Model. **[4]**

b) Explain the importance of Data Mining in Decision Support Systems.**[4]**

Total No. of Questions : 12]

SEAT No. :

P3203

[Total No. of Pages : 2

[5256]-301

S. Y. M. C. A. (Faculty of Engineering) (Semester - III)

ADVANCED JAVA

(2013 Pattern)

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

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7or 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) ***Use of Calculator is allowed.***
5) ***Assume Suitable data if necessary.***

Q1) a) What is J2EE and what makes J2EE suitable for distributed multitier Applications? **[6]**

b) What are different types of Statement? **[3]**

OR

Q2) a) What is JDBC? What are the main steps in java to make JDBC connectivity? **[6]**

b) Does the JDBC-ODBC Bridge support multiple concurrent open statements per connection? **[3]**

Q3) a) What is servlet? What is the use of servlet? How servlet is loaded? **[6]**

b) What is the difference between the doGet () and doPost ()? **[2]**

OR

Q4) a) Explain the life cycle of servlet in details. **[4]**

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

P.T.O.

Q5) a) Explain in details how JSP is the useful components of J2EE application? **[5]**

b) What are the life-cycle methods for a JSP? **[3]**

OR

Q6) a) What are the 3 tags used in JSP bean development? **[3]**

b) How can we forward the request from jsp page to the servlet? **[3]**

c) What are the two ways to include the result of another page? **[2]**

Q7) a) What are Java Beans? What are the purpose of introspection? **[4]**

b) Write a note on Entity Bean and Session Bean. **[3]**

c) Write the SimpleBean code for "Hello World". **[2]**

OR

Q8) a) What is the difference between JNDI context, Initial context, session context and ejb context **[6]**

b) What is Session facade? **[3]**

Q9) a) What is Spring? What are benefits of Spring Framework? **[6]**

b) What is Aspect oriented Programming (AOP)? **[2]**

OR

Q10)a) Explain the Spring MVC module. **[4]**

b) What is the difference between Bean Factory and Application Context? **[4]**

Q11)a) What is Hibernate? Difference between get and load in Hibernate? **[6]**

b) What is Hibernate Query Language (HQL)? **[2]**

OR

Q12)a) Difference between save, persist and save Or Update methods in Hibernate? **[4]**

b) Name some important annotations used for Hibernate mapping? **[4]**

Total No. of Questions : 12]

SEAT No. :

P3204

[Total No. of Pages : 2

[5256]-302
S. Y. M. C. A. (Engg.) (Semester - III)
DATABASE MANAGEMENT SYSTEM
(2013 Pattern)

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 Two tire & Three Tire Architecture **[5]**

b) Explain Database Schema with example **[5]**

OR

Q2) a) Explain - Physical and Logical Data Independence **[4]**

b) Discuss - Entity Relationship Model. **[6]**

Q3) Construct an ER diagram for Blood Bank and convert it into tables. **[8]**

OR

Q4) Construct ER diagram of Hotel Management and convert it into tables. **[8]**

Q5) Explain - "Comprehensive Data Sub-Language Rule " with respect to Relational Data Model **[8]**

OR

Q6) a) Discuss - "View Updating Rule" with example. **[5]**

b) Explain - Indexing in Database with example. **[3]**

P.T.O.

Q7) What is cursor in P1/SQL? Explain with example. **[8]**

OR

Q8) Explain with example Group By clause and Having Clause. **[8]**

Q9) a) State and explain BCNF with example. **[5]**

b) Explain the term - Conceptual Design in database designing life cycle. **[3]**

OR

Q10) What is functional dependency? Explain the process of normalization with the help of flow chart. **[8]**

Q11) a) Explain the term - Big Data. **[5]**

b) State the difference between HBASE & RDBMS **[3]**

OR

Q12) a) Explain the term Column Oriented & Row Oriented Database. **[4]**

b) Discuss - major components of HBASE Architecture. **[4]**

Total No. of Questions : 12]

SEAT No. :

P3205

[Total No. of Pages : 3

[5256]-303

S. Y. M. C. A. (Under Faculty of Engg.) (Semester - III)

OPERATING SYSTEMS

(2013 Pattern)

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) a) Define an assembler? How does an assembler works? Explain the working of an assembler with supportive block diagram. **[4]**

b) What is loader? Explain the types of loader. **[3]**

c) Write a note on Historical evolution of Operating System. **[2]**

OR

Q2) a) Differentiate between assembler and compiler? **[3]**

b) Explain the functions and characteristics of Operating System. **[3]**

c) What is Linker? Explain the functions handled by Linker. **[3]**

Q3) a) Consider the following set of processes. **[6]**

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

Assume arrival time of all processes is at time 0 in order P1, P2, P3, P4, P5. Calculate the turnaround time and waiting time for each process using FCFS and SJF.

b) Enlist the services provided by Operating System? **[2]**

P.T.O.

OR

Q4) a) Define: **[3]**

i) Process

ii) Threads

iii) Context Switching

b) Differentiate between system call and library function. **[3]**

c) What are the different scheduling criteria for evaluating performance of scheduling algorithm? **[2]**

Q5) a) Explain any four IPC problems. **[4]**

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

OR

Q6) a) How to detect deadlock? Explain recovery mechanism for deadlock. **[4]**

b) Explain software solution for Mutual exclusion. **[2]**

c) Write a note on Monitors. **[2]**

Q7) a) What is the concept of Virtual Memory? Explain concept of logical and physical addresses. **[3]**

b) Explain demand paging and steps in handling a page fault. **[3]**

c) Write a note on Segmentation. **[3]**

OR

Q8) a) Consider the following page reference string **[6]**

1,2,3,4,2,1,5,6,1,2,3,7

Numbers of page frames are three. Show the page trace and calculate the number of page faults for the following page reference schemes:

i) LRU ii) Optimal

b) Explain the following with respect to memory management. **[3]**

i) Compaction ii) Fragmentation

iii) Swapping

Q9) a) Explain any 4 file access methods. **[4]**

b) What are the different issues related to disk performance? Explain any on disk scheduling algorithm. **[4]**

OR

Q10)a) Explain the concept of file protection, What are the different access rights given to a file? **[4]**

b) Describe structure of Disk? **[2]**

c) Explain Acyclic-Graph directory structure. **[2]**

Q11)a) Explain the following components of Linux File system: **[4]**

i) Kernel

ii) System Libraries

iii) System Utilities

b) Comment on process scheduling in Linux. Which algorithms are used in Linux for scheduling? **[4]**

OR

Q12)a) Explain Linux file system. What are different file types? **[4]**

b) Explain following commands with example: **[4]**

i) grep ii) find

iii) banner iv) cal

Total No. of Questions : 12]

SEAT No. :

P3206

[Total No. of Pages : 2

[5256]-304

S. Y. M. C. A. (Under Engineering Faculty) (Semester - III)

OBJECT ORIENTED ANALYSIS AND DESIGN

(2013 Pattern)

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

OR

Q2) a) What are benefits of OO Methodology? Give overview of different OO Methodologies in brief. **[4]**

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

Q3) a) Explain "Extensibility mechanisms in UML" in brief. **[4]**

b) State the advantages and limitations of UML. **[4]**

OR

Q4) Which are the various diagrams in UML 2.0? Explain role of each diagram in brief. **[8]**

Q5) a) Explain aggregation and generalization. **[3]**

b) Draw class diagram for Online registration on Job Portal. Make necessary assumptions. **[6]**

OR

P.T.O.

Q6) a) Draw use case diagram for "Internet banking". Make necessary assumptions. **[6]**

b) Explain the object diagram with example. **[3]**

Q7) a) Draw sequence diagram for online registration for medical test. Make suitable assumptions. **[6]**

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

OR

Q8) a) Write note on interaction overview diagram. **[3]**

b) Discuss interaction occurrences and fragments in sequence diagram with suitable example. **[6]**

Q9) a) Draw activity diagram for online test for candidate for placement. Make suitable assumptions. **[5]**

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

OR

Q10)a) Explain fork and Join with example. **[3]**

b) Draw state machine diagram for ATM. **[5]**

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

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

OR

Q12)a) Draw deployment diagram for online ordering of mobile phone. Write your assumptions clearly. **[4]**

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

Total No. of Questions : 12]

SEAT No. :

P3207

[Total No. of Pages : 5

[5256]-305

S. Y. M. C. A. (Engineering Faculty) (Semester - III)

OPERATIONS RESEARCH

(2013 Pattern)

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

Instructions to the candidates:

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

Q1) a) Solve the following LP using simplex method. **[6]**

Maximize: $Z = 6x_1 + 8x_2$

Subject to:

$5x_1 + 10x_2 \leq 60$

$4x_1 + 4x_2 \leq 40$

$x_1, x_2 \geq 0$

b) What is feasible solution & optimal solution. **[3]**

OR

Q2) a) Solve the following LPP by big M Method **[6]**

Maximize z = 6x+4y

Subject to Constraints 2x + 3y < = 30

3x + 2y < = 24

x + y = 3

where x, y > = 0

P.T.O.

b) Convert the given Primal into Dual. **[3]**

Minimize : $Z = 20x_1 - 50x_2$

Subjected to,

$15x_1 + 20x_2 \leq 35$

$20x_1 + 10x_2 \geq 15$

$5x_1 - 10x_2 \leq 16$

$x_1, x_2 \geq 0$

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

	D1	D2	D3	D4	Supply
S1	21	32	32	12	7
S2	72	32	42	62	9
S3	42	10	72	22	18
Demand	5	8	7	14	

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

OR

Q4) a) Four different jobs can be done on four different machines. The set-up & take down time costs are assumed to be prohibitively high for change over. The matrix below gives the costs in rupees of producing jobs I on machine j. **[6]**

	M1	M2	M3	M4
J1	5	7	11	6
J2	8	5	9	6
J3	4	7	10	7
J4	10	4	8	3

How the jobs should be assigned to the various machines, so that the total cost is minimized.

b) Explain the steps to solve unbalanced transportation problem **[3]**

Q5) a) From the information given below, draw network diagram & critical path. Find the probability that the project will be completed within 55 days. **[5]**

Activity	to	Tm	Tp
1-2	4	6	8
2-3	5	7	15
2-4	4	8	12
3-6	15	20	25
3-5	10	18	26
4-6	8	9	16
5-7	4	8	12
6-7	1	2	3
7-8	6	7	8

b) Write a short note an Forward pass / Press calculation **[2]**

OR

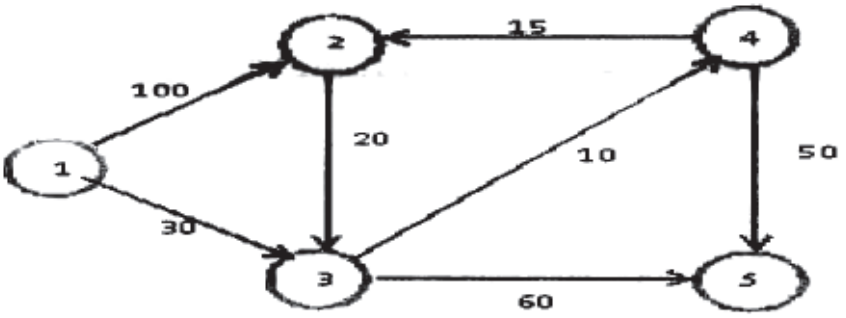
Q6) a) Listed in the table are the activities & sequencing necessary for a maintenance job on the heat exchange in a refinery. **[5]**

Activity	Description	Predecessor Activity
A	Dismantle Pipe Connection	-
B	Dismantle heater, closure & Floating Front	A
C	Remove tube bundle	B
D	Clean bolts	B
E	Clean heater & 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 & reassemble	I

Draw a network diagram for the project

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

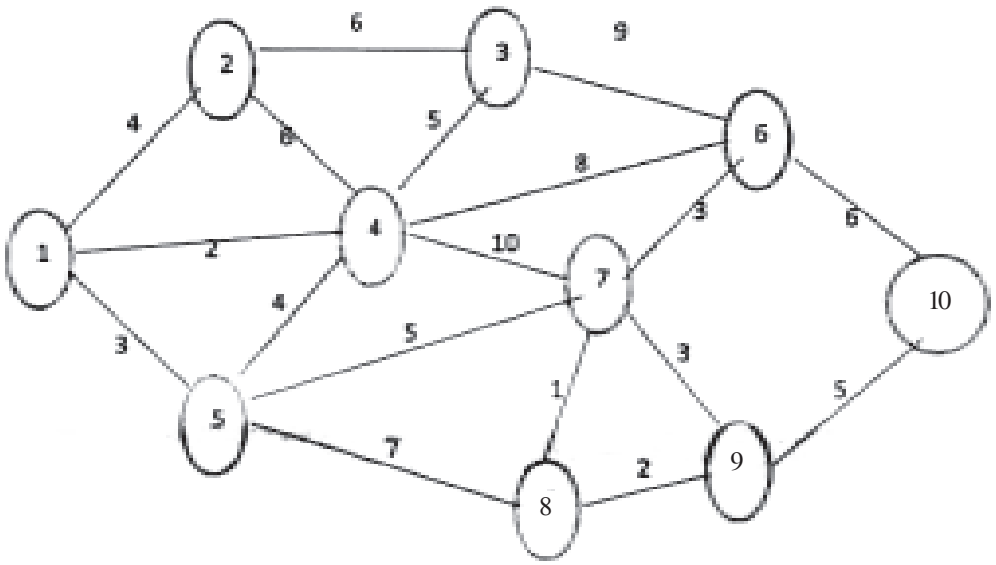
Q7) a) For the given network determine the shortest routes between city 1 & each of the remaining four city using Dijkstra's Algorithm. **[6]**



b) Write a minimum spanning tree by kruskal's algorithm **[3]**

OR

Q8) a) Consider the distance network diagram shown in below figure. Find the minimum spanning tree of this network using the PRIM algorithm. **[6]**



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

Q9) a) Analyze the decision problem using: **[6]**

i) Laplace ii) Minimax

iii) Savage iv) Hurwicz Criteria

The cost matrix for the solution is

Strategies	S1	S2	S3	S4
Al	5	10	18	25
A2	8	7	12	23
A3	21	18	12	21
A4	30	22	19	15

Given $P(s_j)$ = ¼ & a =0.5

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

OR

Q10)a) Explain in brief different approaches for decision under uncertainty with suitable examples. **[6]**

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

Q11)a) What is simulation modeling? Explain Monte Carlo Simulation. **[5]**

b) Explain in brief generation of random number **[2]**

OR

Q12)a) Generate three random numbers based on multiplicative congruential method using b=17, c=111 , m =103 , seed =7 **[5]**

b) Define Simulation with their merits & demerits in brief **[2]**

Total No. of Questions : 12]

SEAT No. :

P3208

[Total No. of Pages : 2

[5256]-401

S. Y. M. C. A. (Under Engineering Faculty) (Semester - II)

ADVANCED WEB TECHNOLOGY

(2013 Pattern)

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 namespace? Explain System namespace. **[5]**

b) Explain about various value and reference types supported by c#. **[4]**

OR

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

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

i) For each ii) Structures

iii) Arrays iv) Array list

Q3) a) What is method overloading? Explain with examples. **[4]**

b) Explain exception handling with example. **[4]**

OR

Q4) a) Explain the concept of Boxing and Unboxing. **[4]**

b) What are the major features of C#? **[4]**

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

b) What are the different accessibility levels defined in .NET? Explain **[4]**

Q6) a) Explain routed events in WPF? **[4]**

b) Explain WPF relative binding / relative resource? **[4]**

P.T.O.

Q7) a) Explain Silverlight architecture. **[5]**

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

OR

Q8) a) What are the application services provided in ASP.NET? Explain. **[5]**

b) What are the basic things needed to make a Silverlight application? **[4]**

Q9) a) Explain ASP.NET page life cycle. **[4]**

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

OR

Q10)a) What is WCF? Explain Bindings and Channel Stacks with diagram. **[4]**

b) What is web service? Explain the basic steps of creating web service.**[4]**

Q11)a) What is LINQ? Explain its query syntax in brief. **[4]**

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

OR

Q12)a) Explain Connection and Command object in ADO.Net. **[4]**

b) Explain the terms Take, Skip, SkipWhile, First, FirstorDefault, Last, LastOrDefault with respect to LINQ. **[4]**

Total No. of Questions : 12]

SEAT No. :

P3209

[Total No. of Pages : 3

[5256]-402

S. Y. M. C. A. (Faculty of Engineering) (Semester - IV)

BANKING FINANCIAL ACCOUNTING & MANAGEMENT

(2013 Pattern)

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 indicate full marks.***
4) ***Assume Suitable data if necessary.***

Q1) a) Explain the Journals, Ledgers, and Subsidiary books with their formats. **[6]**

b) Explain the types of Cashbook with their formats. **[2]**

OR

Q2) a) Explain the types of accounts with their respective rules. **[6]**

b) Explain the difference between Journal posting & Ledger posting. **[2]**

Q3) Using the following data, Complete the Balance sheet given below - **[8]**

Gross Profit (20% of Sales) -	Rs.60,000/-
Shareholders Equity -	Rs.50,000/-
Credit Sales to Total Sales -	80%
Total Assets Turnover -	3 times
Inventory turnover (to cost of Sales) -	8 times
ACP (360 days a year) -	18 days
Current Ratio -	1.6
Long term debt to Equity -	40%

P.T.O.

Balance Sheet

Liabilities	Rs.	Assets	Rs.
Creditors	--	Cash	--
Long Term Debt	--	Debtors	--
Shareholders equity	50,000=00	Inventory	--
		Fixed Assets	--

Give working notes explaining the various figures that you have filled in the above Balance sheet.

OR

Q4) a) Explain different types of Costs and their use in preparation of cost sheet. **[6]**

b) Explain the concept of margin of safety as used by business. **[2]**

Q5) a) What is Working Capital? Explain Factors affecting the Working Capital? **[6]**

b) Explain the process of Working Capital Estimation. **[3]**

OR

Q6) a) How the working capital can be calculated for a seasonal business like selling of Fruits in Summer / Winter? **[6]**

b) Explain the role of banks in financing the Working Capital requirement. **[3]**

Q7) Explain the Banking Regulation Act applicable to Indian banking industry. **[8]**

OR

Q8) Explain the various loan schemes for individuals and how can one link a savings account to loan account for automated payment of EMI. **[8]**

Q9) What is meant by Control totals in transfer? How Control totals ensure correct amounts are debited and credited in multiple debit and credit transaction? **[8]**

OR

Q10) Explain the concept of Straight Through Processing in India with example. **[8]**

Q11) Explain Mobile Banking service delivery channel. How it is different from SMS Banking channel? **[9]**

OR

Q12) Explain how Net banking service delivery channel is used for paying tax online & Verifying of Online Tax Returns? **[9]**

Total No. of Questions : 12]

SEAT No. :

P3210

[Total No. of Pages : 2

[5256]-403

S. Y. M. C. A. (Engg.) (Semester - IV)

CN & INFORMATION SECURITY

(2013 Pattern)

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

Q1) a) Write short note on **[4]**

i) Peer-to-peer network

ii) Client server network

b) Explain transmission modes with examples. **[4]**

OR

Q2) Explain 4 topologies with neat diagram **[8]**

Q3) What do you mean computer network model? Differentiate between TCP/IP and OSI model in detail with neat diagram **[9]**

OR

Q4) a) Explain Go-back-n ARQ **[4]**

b) Write a short note on **[5]**

i) Bluetooth

ii) Multiple Access Protocols

Q5) a) List out Network layer Protocols. Explain any one in brief **[4]**

b) Explain two Transport Protocols in brief. **[4]**

OR

P.T.O.

Q6) Discuss the various issues related with network layer Design **[8]**

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

b) Explain Application Layer with respect to OSI & TCP/IP Model **[4]**

OR

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

a) HTTP Protocol. b) SMTP

c) DNS d) TFTP

Q9) a) Write down principles of Data security architecture **[4]**

b) What do you mean cipher? Explain different types of cipher **[5]**

OR

Q10) Explain public key cryptography with neat diagram in brief Explain RSA algorithm with example **[3 + 6 = 9]**

Q11) Write short note on **[8]**

a) SSL

b) NTP

OR

Q12) Explain any four Secure network infrastructure services. **[8]**

Total No. of Questions : 12]

SEAT No. :

P3211

[Total No. of Pages : 2

[5256]-404

S. Y. M. C. A. (Semester - IV)

INFORMATION SYSTEMS AUDIT

(2013 Pattern) (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 indicate full marks.***
3) ***Assume Suitable data if necessary.***

Q1) What do you mean by risk based approach to audit? Explain each type of risk with examples. **[9]**

OR

Q2) State the differences between Risk and Exposure. Explain in detail with example.**[9]**

Q3) Write short note on : **[8]**

a) Review of Performance

b) Procurement & other controls

OR

Q4) Explain the concept of Digital signature? In how many ways one can digitally sign messages being sent with example. **[8]**

Q5) What role auditor can play in the system testing phase and in SDLC Project Management? Explain in detail? **[8]**

OR

Q6) Why should auditors investigate whether designers have used tools for data flow / UML diagrams during design of data / information flow for a new system? **[8]**

P.T.O.

Q7) Why it is not desirable to implement an information system with all preventive controls following principle of "Prevention is better than cure". Justify your answer. **[8]**

OR

Q8) a) Explain the differences between Physical & Logical Access. **[4]**

b) What are the Environmental controls? Explain. **[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) Implementing Core Banking System in bank is part of short term plan or long term plan. Justify your answer. **[8]**

Q11) a) Explain the COBIT5 framework with suitable diagram. **[4]**

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

OR

Q12) a) Explain the benefits of implementing of COBIT5 against other standards like COSO or ISO 27000. **[4]**

b) Explain how COBIT5 RACI Chart brings responsibility with in the organisation with example. **[5]**

Total No. of Questions : 12]

SEAT No. :

P3212

[Total No. of Pages : 2

[5256]-405

S. Y. M. C. A. (Engg.) (Semester - IV)

CYBER LAW

(2013 Pattern) (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) What do you mean by Internet Ownership & Management in the cyber space? Explain. **[8]**

OR

Q2) a) Write short notes on Data Convergence. **[4]**

b) Explain Internet telephony & VPN in brief'? **[4]**

Q3) a) Discuss the issues concerning Democracy? **[4]**

b) Critically analyze the Laws & entities governing cyber space? **[4]**

OR

Q4) a) Explain International treaties with suitable case study? **[4]**

b) Describe the promotion of Global commons? **[4]**

Q5) What are conventional crimes? (4) Explain with suitable example. **[8]**

OR

Q6) a) How many types of Cyber Crime can be done using Electronic Mail? **[4]**

b) Discuss the Crimes related to IPRs, with a suitable case study. **[4]**

P.T.O.

Q7) a) How can we protect consumer in Cyber Space? **[4]**

b) Differentiate between Advertising & Taxation & E-Commerce. **[4]**

OR

Q8) Discuss in brief the Evolution of E-Commerce. **[8]**

Q9) What do you understand by Non-Original Database, explain with the help of a suitable case study? **[8]**

OR

Q10)a) Explain the concept of P2P Networking. **[4]**

b) Enumerate Intellectual properties in Cyber space. **[4]**

Q11)Discuss the Privacy Rights (5) within its Legal framework in Detail? **[10]**

OR

Q12)a) What is the importance of Security Audit (VA/PT) **[5]**

b) Define Data Security as an important Part of Cyber Space? **[5]**

Total No. of Questions : 12]

SEAT No. :

P3213

[Total No. of Pages : 2

[5256]-406

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

IT GOVERNANCE

(2013 Pattern) (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) What is IT Governance? What is the Purpose of IT Governance. **[5]**

b) State the six attributes of IT Governance Assessment Maturity Model. **[3]**

OR

Q2) a) Explain Key Governance Roles and Responsibilities in IT Governance **[4]**

b) Explain future state of IT Governance **[4]**

Q3) a) Write short notes on **[5]**

i) Results of Ineffective IT Governance

ii) Value propositions from Best-in-Class Companies on Governance.

b) State the three critical pillars of IT Governance. **[3]**

OR

Q4) a) Explain in brief important components of IT Governance. **[5]**

b) Explain results of poor IT Governance. **[3]**

Q5) Explain Current and Emerging Business/IT Strategy and Governance Best Practice Frameworks and Standards with suitable diagram. **[9]**

OR

P.T.O.

Q6) Explain the IT Governance best practice reference models & frameworks. **[9]**

Q7) What are the Principles for Aligning IT to the Business More Effectively? Explain in detail. **[8]**

OR

Q8) Explain Business and IT Plan Integration Flow in detail **[8]**

Q9) Explain the Principle for achieving excellence in project Management in detail.**[9]**

OR

Q10)State the Project Management Life Cycle Phases in detail. **[9]**

Q11)a) Explain the Differences Between Domestic and Off Shore Deals **[4]**

b) What do you mean by Contract Negotiation and management. **[4]**

OR

Q12) Write short note on : **[8]**

a) Major Outsourcing

b) Trends IT balancing Dilemma

Total No. of Questions : 12]

SEAT No. :

P3214

[Total No. of Pages : 2

[5256]-407

S. Y. M. C. A. (Engineering) (Semester - IV)

IT SERVICE MANAGEMENT

(2013 Pattern)

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) a) Explain in detail service leadership and service mapping. **[4]**

b) Explain Benchmarking & flowcharting of service management. **[4]**

OR

Q2) a) Why service management is important? **[6]**

b) Explain the productivity of service management. **[2]**

Q3) a) Comment "Service management as a strategic asset". **[4]**

b) Explain Service management automation. **[4]**

OR

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

Q5) a) What are key activities in service operation? **[4]**

b) Explain the process objectives & value challenges of service transition. **[5]**

OR

Q6) What is continual service operation? Explain its key principles and objectives. **[9]**

P.T.O.

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

OR

Q8) Explain the IT service continuity management objectives, concept, activities & business continuity management. **[8]**

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

OR

Q12) Explain key activities, purpose & objectives of IT operation management. **[9]**

Total No. of Questions : 12]

SEAT No. :

P3215

[Total No. of Pages : 2

[5256]-408

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

ADVANCED DBMS

(2013 Pattern) (Semester - IV)

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

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

OR

Q2) a) Consider the following query, **[4]**

"Select balance from account where balance <2500."

Write relational algebra expression for the above query and explain query evaluation plan.

b) With a suitable example, explain the materialization approach. **[4]**

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

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

OR

Q4) a) Explain the structure of Transaction Server Process with diagram **[4]**

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

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

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

P.T.O.

OR

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

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

Q7) a) Explain structured types and inheritance with example in SQL. **[4]**

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

OR

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 XML databases? Explain XML Database Types. **[4]**

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

OR

Q10) Write short note on:

a) Oracle Database and XML **[4]**

b) Generating XML pages using Basic SQL **[4]**

Q11) a) What is NoSQL? Compare relational (RDBMS) and NoSQL database. **[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) sharding

c) master-slave replication

d) peer to peer replication.

Total No. of Questions : 12]

SEAT No. :

P3216

[Total No. of Pages : 2

[5256]-501

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

RECENT TECHNOLOGIES IN IT

(2013 Pattern)

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) List and explain the steps to configure PHP on the Linux Machine. **[4]**

b) Differentiate between PHP and CGI, ASP,JSP. **[4]**

OR

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

b) List and Explain various PHP configuration Files. **[4]**

Q3) a) List and Explain steps to connect to MYSQL database in PHP **[4]**

b) Explain how to display database table contents in HTML Form **[4]**

OR

Q4) a) What is the use of phpmyadmin in MySql? **[4]**

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

Q5) a) Write a short note on use of arrays in PHP. **[5]**

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

OR

Q6) a) Explain multidimensional arrays with suitable example. **[5]**

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

P.T.O.

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

b) Write a short note on "Implementing Interfaces in PHP" **[4]**

OR

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

i) Creating Constructors

ii) Class Constants.

b) Write a short note on variable scope in PHP. **[4]**

Q9) a) Explain how to read file contents in PHP. **[4]**

b) Write a PHP program to create a file and write "Hello PHP" in the file. **[4]**

OR

Q10)a) Write a short note on Listing file and Changing Directory of file system in PHP. **[4]**

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

i) file_get_contents( )

ii) fgets( )

Q11)a) Write a short note on session 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 are query string? Explain with example. **[4]**

Total No. of Questions : 12]

SEAT No. :

P3217

[Total No. of Pages : 3

[5256]-502

T. Y. M. C. A. (Engineering) (Semester - V)

SOFTWARE TESTING AND QUALITY ASSURANCE

(2013 Pattern)

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) a) Explain quality control and quality assurance with example. **[4]**

b) What is SQA? Explain SQA plan in detail. **[4]**

OR

Q2) a) Explain the concept of software reliability. **[4]**

b) What are the components of test plan? Explain execution of test plan in detail. **[4]**

Q3) a) Explain V&V Model in detail. **[4]**

b) Explain the concept of bug, error, failure with example **[4]**

OR

Q4) What is test case? Write test cases for pin change service and withdraw amount from ATM system. **[8]**

P.T.O.

Q5) a) Write an equivalence partition test case and boundary value analysis test case for following example. **[5]**

A program calculates LIC premium as follows:

i) Base premium for all ages is 0.50

ii) based on age group additional monthly premium has to be paid

Age group	Additional premium
Under 35	1
35to59	2
Above 60	3

b) What is white box testing? Explain code coverage types **[4]**

OR

Q6) a) Write a program to check given number is odd or even **[5]**

i) draw control flow diagram(CFD) for the above program.

ii) Calculate the cyclomatic complexity of the program using three techniques.

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

White box testing and Black box testing

Q7) What is the different phases/levels software testing? Explain integration and system testing. **[8]**

OR

Q8) What is regression testing ?Explain different types of regression testing with example **[8]**

Q9) a) What is defect? State the different classes of defect with example. **[4]**

b) Explain web testing in detail. **[4]**

OR

Q10)a) Explain Defect life cycle. **[4]**

b) What is performance testing? Which are the different factors considered in performance testing? **[4]**

Q11)a) Short notes on : **[5]**

Selenium IDE

b) Explain difference between automated testing and manual testing. **[4]**

OR

Q12)a) Short notes on: **[5]**

Selenium command

b) What is the difference between selenium and QTP. **[4]**

Total No. of Questions : 12]

SEAT No. :

P3218

[Total No. of Pages : 2

[5256]-503

T. Y. M. C. A. (Engineering) (Semester - V)

SOFTWARE ENGINEERING

(2013 Pattern)

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.***

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]**

OR

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. :

P3219

[Total No. of Pages : 2

[5256]-504

T. Y. M. C. A. (Engineering) (Semester - V)

DATA WAREHOUSING, DATA MINING & BUSINESS INTELLIGENCE

(2013 Pattern)

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

Instructions to the candidates:

1) ***Solve Q1or Q2, Q3or Q4, Q5or Q6, Q7or Q8, Q9or Q10, Q11or Q12.***
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) a) Write a note on Star schema & Snowflake schema. **[4]**

b) What is the need of data preprocessing? **[4]**

OR

Q2) a) What is OLAP? Write operations on cube. **[4]**

b) What is data warehousing? What are advantages of data warehousing? **[4]**

Q3) a) What is data object and attribute types? Explain with example. **[4]**

b) What are the major issues in data mining? **[5]**

OR

Q4) a) What is data similarity & data dissimilarity? **[4]**

b) What is data mining? Explain technologies used for mining. **[5]**

P.T.O.

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

b) What is clustering? Explain k means algorithm. **[4]**

OR

Q6) a) Explain descriptive and predictive data mining. **[4]**

b) Find frequently appeared item set using Apriori algorithm. **[4]**

TID	ITEMS
100	ACD
200	BCE
300	ABCE
400	BE

Q7) a) Explain ETL process in detail. **[5]**

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

OR

Q8) a) What are analytical user requirements? **[5]**

b) What is ODS? Explain features of it in detail. **[4]**

Q9) a) What is the strategy while choosing right data architecture? **[4]**

b) Explain business logical model. **[4]**

OR

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

b) Explain data marts. **[4]**

Q11)What is BIRT? Explain advantages of BIRT. **[8]**

OR

Q12)What are the challenges of BIRT? **[8]**

Total No. of Questions : 12]

SEAT No. :

P3220

[Total No. of Pages : 2

[5256]-505
T. Y. M. C. A. (Engineering)
ANIMATION & GAMING
(2013 Pattern) (Elective - 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) Write short note on pixel and frame buffer **[4]**

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

OR

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

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

Q3) a) Explain different techniques of Animation. **[4]**

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

OR

Q4) a) Explain principles of animation. **[4]**

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

Q5) a) Explain rapid sketching and drawing in animation. **[5]**

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

P.T.O.

OR

Q6) a) Explain sequential movement drawing? **[4]**

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

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

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

c) Explain role of AI in game programming. **[2]**

OR

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

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

c) List different languages used for 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) Explain basic tools in Java for creating games. **[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 concept of collision detection. **[4]**

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

Total No. of Questions : 12]

SEAT No. :

P3221

[Total No. of Pages : 2

[5256]-506

T. Y. M. C. A. (Engineering) (Semester - V)

MOBILE COMPUTING

(2013 Pattern) (Elective - II)

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 indicate full marks.***
4) ***Assume Suitable data if necessary.***

Q1) a) Explain the concept of Cellular Network. **[5]**

b) What is the cell broadcast service? **[4]**

OR

Q2) a) Explain the concept of location management. **[5]**

b) Define the term "Handoff". **[4]**

Q3) a) Explain the concept of Wireless Multiple Access Protocol. **[5]**

b) What is Wireless LAN? **[3]**

OR

Q4) a) Explain the architecture of Wireless Application Protocol. **[5]**

b) Explain the term "Data Broadcasting". **[3]**

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

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

OR

P.T.O.

Q6) a) Explain Quality of Service(QoS) in mobile wireless networks. **[4]**

b) What are the different types of wireless access technologies that may connect mobile users to the wired network? **[4]**

Q7) a) Compare the features provided by following mobile operating systems: Android, Symbian, 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 Record Management System? How the records are handled in J2ME? **[4]**

b) Explain in brief about HelloSymbian in Symbian operating system. **[4]**

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

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

OR

Q10)a) Define Dialogs, their use. How Dialogs are structured? **[4]**

b) Explain Location Based Service. **[5]**

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

b) Write a program for implementation of Bluetooth. **[4]**

OR

Q12)Write a program for accessing an email account on Android OS. **[8]**

Total No. of Questions : 12]

SEAT No. :

P3222

[Total No. of Pages : 2

[5256]-507

T. Y. M. C. A. (Engineering) (Semester - V)

HIGH PERFORMANCE COMPUTER NETWORKS

(2013 Pattern) (Elective - II)

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 indicate full marks.***
4) ***Assume Suitable data if necessary.***

SECTION - I

Q1) a) Explain the mode of communication. **[4]**

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

OR

Q2) a) Explain the TCP/IP protocol with example **[4]**

b) What is BISDN? Explain. **[4]**

Q3) a) Explain the limitations of best effect services. **[4]**

b) Explain scheduling mechanisms. **[4]**

OR

Q4) a) Explain differentiated services in brief. **[4]**

b) Discuss about real time streaming protocol. **[4]**

P.T.O.

Q5) What is VPN? Explain the types Of VPN in details. **[9]**

OR

Q6) a) What is traffic Engineering? **[4]**

b) Explain overlay networks-p2p connection. **[5]**

SECTION - II

Q7) a) What are the needs of the traffic modeling? **[4]**

b) Explain the Poisson distribution model? **[4]**

OR

Q8) a) Discuss about the failure of Poisson Model. **[4]**

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

Q9) a) What is Cryptography? Explain the principle of security? **[4]**

b) What is firewall? Describe the working of Application Gateways? **[4]**

OR

Q10)a) Distinguish between Symmetric and Asymmetric Key Cryptography? **[4]**

b) Write Short Note on access control? **[4]**

Q11)a) Explain the architecture of internet standard management framework. **[4]**

b) Discuss the infrastructure for network management. **[5]**

OR

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

a) SMI b) MIB

c) SNMP