Total No. of Questions : 12]

SEAT No. :

P2923

[Total No. of Pages : 2

[5463] - 101
F.Y.M.C.A. (Engg.) (Semester - I)
C AND 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) Write down the application of C language. **[4]**

b) Write down the steps for running a C program without IDE. **[4]**

OR

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

b) Enlist the advantages of C language over assembly language. **[4]**

Q3) a) What is the difference between structure and unions in C? **[4]**

b) Write a program to find minimum number from an integer array. **[4]**

OR

Q4) a) What is the use of & and * operator in C with respect to pointers? **[4]**

b) Explain switch statement with example. **[4]**

Q5) a) State the reason why swap function with call by value does not work for swapping. **[5]**

b) What is the use of preprocessor? **[4]**

OR

Q6) a) What is the difference between macro and functions in C? **[5]**

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

P.T.O.

Q7) a) Write a short note on copy constructor? **[4]**

b) Explain various methods to protect data in C++. **[4]**

OR

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

b) Explain try-catch block in C++ **[4]**

Q9) a) What is the difference between static function and member function in C++ **[4]**

b) Write a program to overload + operator to concatenate two string. **[4]**

OR

Q10)a) What is friend function. **[4]**

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

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

b) Short notes on seekg(). **[4]**

OR

Q12)a) Explain ostream class hierarchy. **[5]**

b) Short notes on 'Reading Text Files in C++'. **[4]**

Total No. of Questions : 12]

SEAT No. :

P2924

[Total No. of Pages : 2

[5463] - 102
F.Y.M.C.A. (Engineering Faculty) (Semester - I)
COMPUTER ORGANIZATION
(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.***
4) ***Assume suitable data, if necessary.***

Q1) a) What do you mean by logic gate? Explain logic gates with truth table. **[4]**

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

i) (11011011)2 to Hex

ii) 392 to Binary

iii) 3985 to octal

iv) ADD2 to decimal

OR

Q2) a) What are the advantages and limitations of high level languages? **[4]**

b) Using Binary notation, show EBCDIC coding for the following words. **[4]**

i) CODE

ii) BYTE

Q3) a) Define race around condition. When does it occur? **[4]**

b) Explain multiplexer and demultiplexer in detail. **[5]**

OR

Q4) a) Explain clocked RS flip flop with logic diagram. **[5]**

b) Explain in detail design of Half Adder and Full Adder with truth table. **[4]**

P.T.O.

Q5) a) Explain memory hierarchy with neat diagram. **[4]**

b) What is the difference between EPROM and EEPROM? **[4]**

OR

Q6) a) What is cache memory? What is the need of it? **[4]**

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

Q7) Explain any 4 addressing modes. **[8]**

OR

Q8) a) Explain Instruction fetch and Execution cycle in detail. **[4]**

b) Explain CPU building block with neat diagram. **[4]**

Q9) Explain 16-bit (8086) microprocessor architecture in detail. **[9]**

OR

Q10) Explain Pentium processor architecture in detail. **[9]**

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

a) SISD

b) MIMD

OR

Q12) a) Explain SMP with block diagram. **[4]**

b) What is parallel processing with respect to multi processor organization? **[4]**

Total No. of Questions : 12]

SEAT No. :

P2925

[Total No. of Pages : 2

[5463] - 103
F.Y. M.C.A. (Under Faculty of Engg.) (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 side indicate full marks.***
3) ***Assume Suitable data if necessary.***

Q1) a) Explain types of software. Give three examples of each in detail. **[4]**

b) What are the different ways of acquiring software? List out their advantages and limitations. **[4]**

OR

Q2) a) Write note on Linker and interpreter. **[4]**

b) List out the steps typically followed in developing software and putting in to use. **[4]**

Q3) a) What are the six steps of the problem solving? **[5]**

b) What are the tools of problem solving. **[4]**

OR

Q4) a) Explain benefits of documentation. **[5]**

b) Explain difference between user defined data types and inbuilt data types. **[4]**

Q5) a) Name the major types of modules and explain their functions. **[4]**

b) What is the decision logic structure? **[4]**

OR

Q6) a) What is meant by the cohesion of a module? State the types of cohesion. **[4]**

b) What is a function? Give example of user defined function and inbuilt function in C. **[4]**

P.T.O.

Q7) a) Write a short note on Program verification. **[4]**

b) Write an algorithm to compute sum and average of n numbers. **[4]**

OR

Q8) a) Write an algorithm to convert character to number. **[4]**

b) Write an algorithm to generate Fibonacci sequence. **[4]**

Q9) a) Describe what is meant by the big O notation in algorithm analysis. **[4]**

b) How to estimate the running time of an algorithm? **[4]**

OR

Q10)a) Write an algorithm to find prime factor of number. Find frequency count of each step. **[4]**

b) Define Best case, Average case and Worst case with example. **[4]**

Q11)a) Write short notes on: **[9]**

i) Data Processing

ii) System maintenance

iii) Testing and Debugging

OR

Q12)a) Write and explain algorithm for Insertion sort. **[5]**

b) What is the pointer technique for finding data? Why is it used? **[4]**

Total No. of Questions : 12]

SEAT No. :

P2926

[Total No. of Pages : 4

[5463] - 104

First Year M.C.A. (Under Engineering Faculty) (Semester - I)

DISCRETE MATHEMATICS

(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) Using mathematical induction, prove that **[4]**

$1^2-2^2+3^2-4^2+...+(-1)^{n-1}n^2=(-1)^{n-1}n(n+1)/2$

b) It was found that in the first year Computer Science of 90 students know COBOL, 55 know C, 46 know JAVA. It was also found that 37 know C and COBOL, 28 know C and JAVA, 25 JAVA and COBOL and 7 students do not know any language. **[4]**

Find: i) How many know all the three languages?

ii) How many know exactly two languages?

OR

Q2) a) How many integers between 1 - 500.are divisible by 2, 3, 5, or 7? **[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]**

i) If I am in a good mood or I am not busy, then I will go for movie.

ii) If I finish my homework before dinner and it does not rain, then I will go to the ball game.

iii) I will go to a movie only if I will not study discrete structures.

iv) Either the food is good or service is good, but not both.

b) Prove that $(p \rightarrow (q \rightarrow r)) => (p \rightarrow q) \rightarrow (p \rightarrow r)$ **[4]**

OR

P.T.O.

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

b) For the universe of all integers, let P(x), Q(x), R(x), S(x) and T(x) be the following statements: **[4]**

P(x): x>0

Q(x): x is even

R(x): x is a perfect square

S(x): x is divisible by 4

T(x): x is divisible by 5

Write the following statement in symbolic form.

i) At least one integer is even.

ii) If x is even and x is perfect square, then x is divisible by 4.

iii) If x is even, then x is not divisible by 5.

iv) There exists an even integer divisible by 5.

Q5) a) Suppose repetitions are not possible. **[4]**

i) How many three digit numbers can be formed from six digits 2, 3, 4, 5, 7, 9?

ii) How many of these numbers are less than 400?

iii) How many numbers are even?

iv) How many are multiple of 5?

b) Two dice are rolled together. Event A denotes that sum of the numbers on top faces is even and event B denotes that there is 4 on at least one top faces. Find P(A$\cup$B and P(A$\cap$B). **[5]**

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]**

Q7) a) LetA= {l,2,3,4} and R= {(l,2),(2,4),(1,3),(3,2)} Find the transitive closure of R by Warshall's algorithm **[4]**

b) LetA={a,b,c,d} where Rl={(a,a),(a,b),(b,d)} and R2 ={(a,d),(b,c),(b,d),(c,b)} Find R1R2, R2R1, $R2^2$, $R2^3$ **[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, l),(3,3)},h={(l,l),(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, hof, gog. **[4]**

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

i) Edge connectivity

ii) Isomorphic Graph

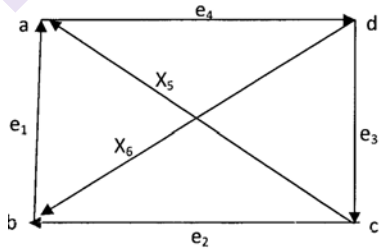
iii) Hamiltonian circuit

iv) Eulerian path

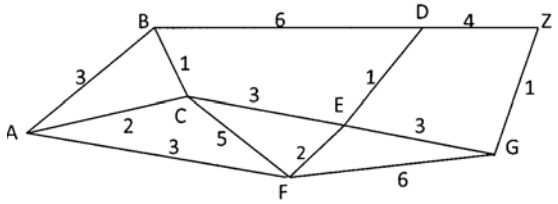
b) Determine the number of regions defined by a connected graph with 6 nodes and 10 edges. Draw the graph. **[4]**

OR

Q10)a) Consider the following graph and find out incidence matrix and Adjacency matrix of a graph. **[4]**



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

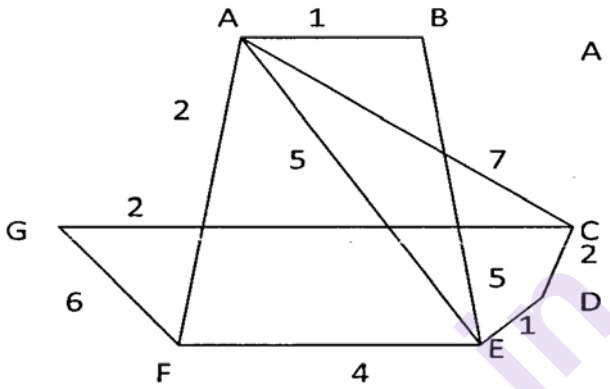


Q11)a) A tree has 2n vertices of degree 1, 3n vertices of degree 2 and n vertices of degree 3. Determine the number of vertices and edges in the tree. **[4]**

b) Explain Prim's Algorithm with example. **[5]**

OR

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



b) Define i) Full Binary Tree ii) Rooted Tree iii) center of Tree iv) Fundamental Cut set. **[4]**

Total No. of Questions : 12]

SEAT No. :

P2927

[Total No. of Pages : 3

[5463] - 105
F.Y. M.C.A. (Engg.) (Semester - I)
PROBABILITY & 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***

Q1) a) State and prove Baye's theorem **[5]**

b) A textile mill produce clothes in 3 different shades blue, brown and black. Production of these shades in 30%, 20% and 50% respectively of the total output. It is found from experience that 2%, 3%, 4% of blue, black and brown ahdes are defective. In entire production a specimen is selected and found to be defective. Find the probability that it is in black shade **[4]**

OR

Q2) a) What is event? Explain: **[6]**

i) Mutually Exclusive Events
ii) Impossible Events
iii) Compliment Events

b) What is the difference between permutation and combination **[3]**

Q3) a) Obtain probability distribution of no.s appearing on uppermost face when 2 dice are rolled simultaneously. **[4]**

b) Heights of the dogs are 600 mm, 470 mm,170 mm, 430 mm and 300 mm. Find the mean, variance and standard deviation **[4]**

OR

Q4) a) A boy rolling a die. Calculate the probability of getting 3 on the 6th roll **[4]**

b) No. of road accidents on a highway during a month follows a Poission distribution with mean 5. Find the probability that in a certain month no. of accidents on the high way will be. **[4]**

i) <3
ii) between 3 & 5
iii) >3

P.T.O.

Q5) a) Obtain mean and variance of Uniform distribution. **[4]**

b) Let (X, Y) be a discrete bivariate random variable with the following p.m.f. **[4]**

X \ Y	1	2	3
1	1/12	1/6	0
2	0	1/9	1/15
3	1/18	1/4	2/15

Find marginal and conditional probability mass distribution for X and Y.

OR

Q6) a) Determine the constant b such that a joint p.d.f. of bivariate random variables X and Y is given by: **[4]**

3xy for $0<x<1$, $0<y<b$

f(x,y) = 0 otherwise

b) Explain the following probability distributions with suitable examples **[4]**

i) Poisson Distribution

ii) Normal Distribution

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

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

i) Sample ii) Sampling

iii) Random Sampling iv) Sample Statistics.

OR

Q8) a) Explain the following terms: **[4]**

i) Confidence Interval

ii) Central Limit Theorem

b) Explain Central Limit Theorem **[4]**

Q9) a) What is hypothesis testing? Explain the procedure for testing the hypothesis **[4]**

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

OR

Q10)a) What is significance testing? How does it differ from hypothesis testing? **[4]**

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

i) Interval estimate ii) Unbiased estimate

iii) Efficient estimate iv) Confidence Limit

Q11)a) Write a note on Statistical Quality Control (SQC) **[5]**

b) Explain the procedure to draw the mean chart **[4]**

OR

Q12)a) Explain in brief X^2 test as a test of goodness of fit **[5]**

b) Write note on range chart **[4]**

Total No. of Questions : 12]

SEAT No. :

P2928

[Total No. of Pages : 2

[5463] - 201
FYMCA (Engineering) (Semester - II)
JAVA 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) ***Use of Calculator is allowed.***
4) ***Assume Suitable data if necessary.***

Q1) a) What is type casting? Explain why it is required in programming with example. **[4]**

b) What is JVM? Why Java is called platform independent language? **[4]**

OR

Q2) a) What is variable? Explain scope of variable with example. **[4]**

b) What is the Difference between Java and C++? **[4]**

Q3) What is constructor? Explain default and parameterized constructor with example. **[8]**

OR

Q4) Write a Java program to create two classes Rectangle & Circle which implements the Interface Area. Override a method Compute ( ) to find the Area of both the shapes. **[8]**

Q5) a) What is Polymorphism? Does Java support polymorphism? Explain with example. **[5]**

b) What are the uses of super and this with respect to inheritance? **[4]**

OR

Q6) a) What is an inheritance? Explain the execution of constructor in single inheritance. **[5]**

b) What is a package? How they are created? Explain with examples. **[4]**

P.T.O.

Q7) Explain with example two way to create thread in java. **[8]**

OR

Q8) Write a program to create your own exception-NoMatchException, which throw when string do not match with string "Same". **[8]**

Q9) Write a program using applet to draw circle, triangle within rectangle and fill the circle and triangle with red color. **[8]**

OR

Q10) Write an applet that contains three buttons OK, CANCEL and HELP and one textfield. If OK is pressed shown on the status bar- "OK is pressed" and the textfield should turn red. When CANCEL is pressed -shown on the status bar- "CANCEL is pressed" and text field should turn green. When HELP is pressed shown on the status bar - "HELP is pressed" and the text field should turn yellow. **[8]**

Q11) a) Write Short notes on **:** **[6]**

i) JCheckBox

ii) JButton

b) What are the attributes of Applet tags? Explain the purposes. **[3]**

OR

Q12) a) What is layout manager? Explain border layout with example. **[6]**

b) What is the difference between AWT and SWING in java? **[3]**

Total No. of Questions : 12]

SEAT No. :

P2929

[Total No. of Pages : 2

[5463] - 202
F.Y.M.C.A. (Engineering) (Semester - II)
DATA STRUCTURES USING C & C++
(2013 Pattern) (Theory)

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) Define Data Structure and explain its types. **[4]**

b) Consider the integer array arr[30] [40] declared in C ,base address of array is 700, find the address of element arr[12] [20] using row major and column major representation. **[4]**

OR

Q2) What is sparse matrix? State it's alternate representation with adjacency matrix. Also write an algorithm for simple transpose of sparse matrix. **[8]**

Q3) a) Compare singly linked list and doubly linked list. **[2]**

b) Write a pseudo C code to delete a node from singly linked list for following positions : **[6]**

i) Node at first position

ii) Node at last position

iii) Node at specified position

OR

Q4) What is doubly linked list? Write functions in 'C'/ 'C++' to perform insert and search operations on doubly linked list. **[8]**

Q5) What is Queue? Write pseudo C code to implement insert and delete operations on queue. **[9]**

OR

Q6) Write an algorithm for evaluation of postfix expression using stack. Evaluate the following postfix expression by showing stack contents. **[9]**

623 + - 382 / +*

P.T.O.

Q7) a) What is binary search tree? Construct binary search tree by inserting the following data sequentially.

79 60 88 45 93 38 78 66 **[5]**

b) Write pseudo C code to search a node in binary search tree. **[4]**

OR

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

i) Spanning tree

ii) Adjacency Matrix

iii) Connected Graph

b) Explain in detail graph traversal technique with suitable example. **[6]**

Q9) Write a function in C/C++ to implement binary search method. Show the stepwise execution of the Binary search algorithm tosearch an element 48 in following list.

1, 5,8, 13, 19,20,23,44,48,58,61 **[8]**

OR

Q10)a) Write analgorithm for bubble sort and calculate its time complexity. **[6]**

b) Explain following term **[2]**

i) Sort stability

ii) Sort efficiency

Q11)Define hash function ,state its characteristics and explain different methods of generating hash function. **[8]**

OR

Q12)a) Explain chaining with and without replacement in detail. **[4]**

b) What is the probing in the hash table? Explain linear probing. **[4]**

Total No. of Questions : 12]

SEAT No. :

P2930

[Total No. of Pages : 2

[5463] - 203
F.Y.MCA (Engineering) (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) ***Assume Suitable data if necessary***

Q1) Write note on **[9]**

a) Web Space registration

b) Middleware

c) Web Server

OR

Q2) a) Explain Dynamic website. Specify two examples of it. **[5]**

b) Explain HTTP & FTP protocols. **[4]**

Q3) a) Create HTML form for registration in course, which contains first name, Last name, Email, contact number and course name? **[4]**

b) Write a note on Frames in HTML. **[4]**

OR

Q4) a) Write HTML and external CSS file to display library information like Book name, Author name, publication, year of publication. **[5]**

b) Explain <table > tag with example. **[3]**

Q5) a) Write a VBScript code for validation of username & password entered by user though text box on login page. **[5]**

b) Explain with example procedure and functions in VBScript. **[4]**

OR

P.T.O.

Q6) a) What is DHTML? Explain the roles and benefits of DHTML. **[5]**

b) Write note on VBScript variables. **[4]**

Q7) a) Explain the working of timers in Java Script. Also explain the drawbacks of using the timer, if any? **[4]**

b) What is array in Java Script? Explain types of array in JavaScript. **[4]**

OR

Q8) a) Write a Java Script code for validation of form input username and password. **[5]**

b) Describe following events with their attributes and tags in Java Script. **[3]**

- Click
- Focus
- Load

Q9) a) Write note on SAX parser. **[3]**

b) Write XML file to describe employee details and external DTD to it. **[5]**

OR

Q10)a) Explain XSLT with simple example. **[4]**

b) Explain XML DSO with example **[4]**

Q11)a) Write PHP code to retrieve Book information from Book table.(Assume suitable table structure). **[6]**

b) Explain cookies in PHP. **[2]**

OR

Q12)a) Write PHP code to retrieve Employee information from Employee table.(Assume suitable table structure). **[6]**

b) What is difference between $message and $$message? **[2]**

Total No. of Questions : 12]

SEAT No. :

P2931

[Total No. of Pages : 2

[5463] - 204
F.Y.M.C.A. (Engineering) (Semester - II)
SYSTEM ANALYSIS AND DESIGN
(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 agile development model in detail with a suitable example. **[4]**

b) Explain Incremental life cycle model. What are its advantages & drawbacks? **[5]**

OR

Q2) a) What is information system? Explain its components in detail. **[5]**

b) Explain Reuse oriented Software Engineering in detail. **[4]**

Q3) a) Explain the requirements engineering process in detail. **[4]**

b) Explain the characteristics of software requirements. **[4]**

OR

Q4) a) What is meant by Feasibility analysis? Explain its types. **[4]**

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

Q5) a) Construct a Dataflow diagram (level 0 &1) for Hotel Automation system. Explain its cardinality. **[5]**

b) Differentiate between physical and logical DFD. **[3]**

OR

Q6) a) Draw an Entity Relationship Diagram for online shopping system. Explain its cardinality. **[5]**

b) Explain decision tables with its components. **[3]**

P.T.O.

Q7) a) Explain various coding techniques in detail. **[4]**

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

OR

Q8) a) What are the methods of input data collections? Explain with a suitable example. **[4]**

b) Differentiate between Cohesion and Coupling. **[4]**

Q9) a) Explain the concept of software Maintenance. **[4]**

b) Explain audit of information system in detail. **[4]**

OR

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

b) Explain the concept of Control of information systems in detail. **[4]**

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

b) Explain distriuted software engineering with a suitable example. **[5]**

OR

Q12)a) What is software deployment environment explain in detail. **[4]**

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

Total No. of Questions : 12]

SEAT No. :

P2932

[Total No. of Pages : 2

[5463] - 205
F.Y.M.C.A. (Faculty of Engineering) (Semester - II)
MANAGEMENT THEORY & 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 side indicate full marks.***
3) ***Assume Suitable data if necessary***

Q1) Give in brief historical developments in the management philosophy. **[8]**

OR

Q2) Write short note on Management skills & Functionalities of Management. **[8]**

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

OR

Q4) Explain Matrix organization with neat diagram and write merits & demerits of Matrix organization. **[8]**

Q5) Explain Black and Moutan's Theory with example. **[8]**

OR

Q6) Write difference between Group and Team explain with example. **[8]**

Q7) Explain Total Quality Management techniques detail with examples. **[8]**

OR

Q8) a) Explain Motivation Theory theory X, Y and Z. **[4]**

b) What are the steps in Business Process Re-engineering? Explain. **[4]**

Q9) a) Write role of MIS in academic structure. **[4]**

b) Explain the use of transaction processing system in detail. **[5]**

P.T.O.

OR

Q10)a) Explain the challenge and trends in Customer Relationship Management. **[4]**

b) Write a short note on - Supply Chain Management (SCM). **[5]**

Q11)a) Explain Principle of Rationality and Bounded Rationality. **[4]**

b) Explain Decision Making tools- Autocratic, Participative. **[5]**

OR

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

b) Write down different types of decision and explain on what basis we decide type of risk. **[5]**

Total No. of Questions : 12]

SEAT No. :

P 2933

[Total No. of Pages : 2

[5463]- 301

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

ADVANCED JAVA

(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) What is J2EE? Explain the J2EE Architecture. **[8]**

OR

Q2) What is JDBC? Explain JDBC Architecture. **[8]**

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

OR

Q4) Explain lifecycle of Servlet? Also Write notes on HttpServlet & Generic Servlet. **[8]**

Q5) Write JSP Program to display student records in html table using JDBC, Assuming that students table contains StudId, StudName, StudAdd, and StudMob as fields & Mysql/Oracle/MS-ACCESS as RDBMS. **[9]**

OR

Q6) What is MVC Concept? Explain MVC Architecture & its Advantages. **[9]**

Q7) List & Describe difference between Stateful & Stateless Session beans. **[8]**

OR

Q8) What are Enterprise Java beans? Write a note on : **[8]**

i) Session beans ii) Entity beans

P.T.O.

Q9) a) What is Spring? List out the Advantage of Spring Framework. **[6]**

b) Write a note on "Aspect Oriented Programming (AOP). **[2]**

OR

Q10)a) Describe Spring MVC Modules. **[4]**

b) Explain the Tabular Difference between Bean Factory & Application Context. **[4]**

Q11)a) What is Hibernate? Explain get & load method of Hibernate. **[6]**

b) Justify your answers that where we may use Hibernate Query Language (HQL). **[3]**

OR

Q12) Write Short Description of following method of Hibernate **[9]**

i) Save. ii) Persist. iii) Save or Update.

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Total No. of Questions : 12]

SEAT No. :

P 2934

[Total No. of Pages : 3

[5463]- 302

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

DATABASE MANAGEMENT SYSTEM

(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) What are the different components of DBMS? Explain the overall structure of DBMS with suitable diagram. **[9]**

OR

Q2) Write a short note on following.

a) System Catalogs **[5]**

b) Data Independence **[4]**

Q3) a) What is constraint? Explain the following types of constraints with example. **[4]**

i) Domain Constraints

ii) Entity integrity Constraints

b) What are the differences between ER diagram and EER diagram? **[4]**

OR

Q4) a) Write short notes on ER-Model. **[4]**

P.T.O.

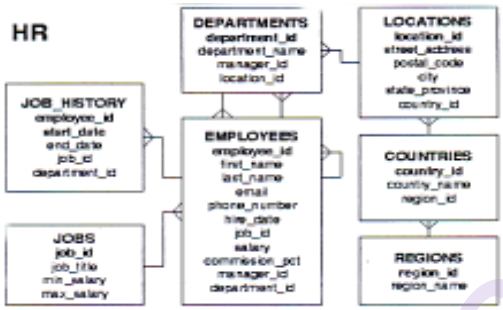
b) What is attribute? Explain the different types of attributes with suitable example. **[4]**

Q5) a) What are the different Codd's rules? Give the list of it. **[4]**

b) Write short notes on Relational model. **[4]**

OR

Q6) Implement the following ER diagram. **[8]**



SECTION - II

Q7) What is joins in sql? Explain the following types of joins with suitable example. **[8]**

a) Equi-join

b) Nonequi-join

c) Inner join

d) Natural join

OR

Q8) a) Consider the following relation. **[4]**

EMP (empno, ename, job, sal ,mgr, hiredate, comm deptno) Write a PL/SQL Procedure to insert record in to the EMP table.

b) Write a PL/SQL Function to find the age of Employee. **[4]**

Q9) What is normalization? Explain the following normal forms with suitable example. **[8]**

a) First Normal Form

b) Second Normal Form

c) Third Normal Form

OR

Q10)a) Write a short notes on design methodology **[4]**

b) What is functional dependency? Explain the different types of functional dependencies with suitable example. **[4]**

Q11)Write a short notes on **[5]**

a) Big Data **[4]**

b) NoSql

OR

Q12)a) Give the syntax and example of following hbase commands Create, put, scan, get. **[5]**

b) Write a short notes on hbase architecure. **[4]**

Total No. of Questions : 12]

SEAT No. :

P 2935

[Total No. of Pages : 2

[5463]- 303

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

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) ***Assume Suitable data if necessary.***

Q1) a) Explain the phases of Compiler. **[4]**

b) State any four functions of Operating System in brief. **[4]**

OR

Q2) a) Differentiate between assembler and compiler. **[4]**

b) What is loader? Explain absolute loader. **[4]**

Q3) a) What is process? What is Process Control Block (PCB)? Explain in detail. **[4]**

b) Differentiate between process and threads. **[4]**

OR

Q4) a) Define scheduling. Explain the performance parameters of scheduling criteria. **[4]**

b) Write a note on Context Switching. **[4]**

Q5) a) What is deadlock? Explain two fundamental approaches for handling deadlocks. **[5]**

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

i) Critical Section

ii) Mutual Exclusion

P.T.O.

OR

Q6) a) Explain classical problems of Synchronization. **[5]**

b) Explain deadlock avoidance and prevention policies. **[4]**

Q7) a) What is swapping? Explain how the space is allocated using swapping. **[4]**

b) Why demand paging approach is preferred over segmentation? Explain **[4]**

OR

Q8) a) Write a note Virtual Memory Management. **[4]**

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

Q9) a) Consider a disk system with 100 cylinders. The request to access the cylinders occurs in the sequence: **[6]**

44,20,95,4,50,52,47,61,87,25.

Assume that head is at cylinder 50. What is the total distance the disk arm moves to satisfy all the pending requests for the following disk scheduling algorithms:

i) FCFC

ii) SSTF

iii) SCAN

b) Describe Acyclic–Graph directory structure. **[2]**

OR

Q10)a) Differentiate between Linked allocation and Index allocation. **[4]**

b) Explain virtual file system. **[4]**

Q11)a) Explain following commands with syntax. **[6]**

i) bc

ii) expr

iii) factor

b) Explain the process state transition for the Linux with diagram. **[3]**

OR

Q12)a) Explain five different commands for Linux. **[5]**

b) Explain the user, kernel and hardware interface of Linux operating system. **[4]**

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Total No. of Questions : 12]

SEAT No. :

P2936

[Total No. of Pages : 2

[5463] - 304
S.Y. M.C.A. (Faculty of Engg.) (Semester - III)
OBJECT ORIENTED ANALYSIS AND DESIGN
(2013 Pattern) (Theory)

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

Instructions to the candidates:

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

Q1) a) Explain the Rambaugh Methodology. **[4]**

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

OR

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

b) What are the benefits of OO Methodologies? **[3]**

Q3) a) Explain in details about UML meta model. **[5]**

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

OR

Q4) a) Draw use case diagram for Credit card processing. Make necessary assumptions. **[5]**

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

Q5) a) Draw Class diagram for "Courier Management System". Make necessary assumptions. **[5]**

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

OR

Q6) a) Draw Class diagram for "Online Shopping Portal". Make necessary assumptions. **[5]**

b) Write a note on Object Diagram. **[4]**

P.T.O.

Q7) a) Draw sequence diagram for Transaction Management System. Make suitable assumption. **[5]**

b) Define the term Exceptions, regions and partitions. **[3]**

OR

Q8) a) Draw interaction overview diagram for Order Processing System. Write suitable assumptions. **[5]**

b) Differentiate sequence and collaboration Diagram. **[3]**

Q9) a) Draw activity diagram for Ticket Vending Machine. Activity is started by Traveler who needs to buy a ticket. Ticket vending machine will request trip information from Traveler. Based on the info machine will calculate payment due and request payment options. After payment is complete, ticket is dispensed to the Traveler. **[5]**

b) Describe the different notation of State Machine Diagram. **[3]**

OR

Q10)a) Explain State machine diagram with example. **[5]**

b) Write a short note on "Timing Diagram". **[3]**

Q11)a) Explain the concept of Modeling Design Pattern & Architectural Pattern. **[5]**

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

OR

Q12)a) Draw deployment diagram for web application – online shopping. Write your assumptions clearly. **[5]**

b) Describe UML Commercial applications. **[4]**

Total No. of Questions : 12]

SEAT No. :

P2937

[Total No. of Pages : 4

[5463] - 305
S.Y. M.C.A. (Under Engineering Faculty) (Semester - III)
OPERATIONS RESEARCH
(2013 Pattern)

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

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Use of electronic pocket calculator is allowed.***
4) ***Assume Suitable data, if necessary.***
5) ***The graph papers will be provided on demand.***

Q1) Solve the following LPP using Simplex Method. **[9]**

Maximize $Z = 3X_1 + 2X_2$

Subject to $4X_1 + 3X_2 \leq 12$,

$4X_1 + X_2 \leq 8$,

$4X_1 - X_2 \leq 8$,

Where $X_1, X_2 \geq 0$

OR

Q2) a) Solve the following LPP by Graphical method. **[6]**

Minimize $Z = 3X_1 + 2X_2$

Subject to, $5X_1 + X_2 \geq 10$,

$X_1 + X_2 \geq 6$,

$X_1 + 4X_2 \geq 12$,

Where $X_1, X_2 \geq 0$

b) Define following : **[3]**

i) Slack variable

ii) Feasible Solution

iii) Optimum Solution

P.T.O.

Q3) Solve following transportation problem using MODI method starting with the initial solution obtained by VAM **[8]**

		Destination				
		D_1	D_2	D_3	D_4	Supply
Source	O_1	2	2	2	1	3
	O_2	10	8	5	4	7
	O_3	7	6	6	8	5
	Demand	4	3	4	4	15

OR

Q4) a) A company has 4 jobs to be done on 4 machines. Any job can be done on any machine. The cost of doing the jobs on different machines are given below. Assign the jobs for different machines so as to minimize the total cost. **[5]**

	Machines			
Jobs	M_1	M_2	M_3	M_4
J_1	5	7	11	6
J_2	8	5	9	6
J_3	4	7	10	7
J_4	10	4	8	3

b) Write a difference between Transportation and Assignment problem. **[3]**

Q5) A project schedule has the following characteristics **[8]**

Activity	1-2	1-3	2-4	3-4	3-5	4-9	5-6	5-7	6-8	7-8	8-10	9-10
Time (days)	4	1	1	1	6	5	4	8	1	2	5	7

From the above information, you are required to :

a) Construct a network diagram.

b) Compute the earliest event time and latest event time.

c) Determine the critical path and the total project duration.

d) Compute total and free float for each activity.

OR

Q6) Eight jobs 1,2 ..... 8 are to be processed on a single machine. The processing times, due dates and importance weights of the jobs are represented in table. **[8]**

Job	Processing time ti(minutes)	Due date di(minutes)	Importance Weight wi	ti/wi
1	5	15	1	5.0
2	8	10	2	4.0
3	6	15	3	2.0
4	3	25	1	3.0
5	10	20	2	5.0
6	14	40	3	4.7
7	7	45	2	3.5
8	3	50	1	3.0

Assuming that no new jobs arrive thereafter, determine using SPT rule and WSPT rule

a) Optimal sequence,
b) Completion time of the jobs,
c) Mean flow time as well as weighted mean flow time,
d) Average in process Inventory,
e) Lateness, mean lateness and maximum lateness,
f) Number of jobs are actually late.

Q7) a) What is Goal programming? Explain any one method to solve Goal Programming Problem. **[4]**

b) Explain steps of Floyd's algorithm. **[4]**

OR

Q8) Consider the details of a distance network as shown below **[8]**

Arc	**Distance**	**Arc**	**Distance**
1-2	6	5-6	13
1-3	7	5-8	9
1-4	10	6-7	5
2-3	8	6-8	4
2-5	4	6-9	8
3-4	6	6-10	3
3-5	11	7-9	10
3-6	3	8-10	10
3-7	5	9-10	9
4-7	7		

a) Construct the distance network.

b) Find the minimum spanning tree using Kruskl's algorithm.

Q9) Find decision using. **[8]**

a) Laplace b) Minimax

c) Maximax d) Savage

e) Hurwicz for $\alpha = 0.5$

Consider following cost matrix.

	S_1	S_2	S_3	S_4
A_1	5	10	18	25
A_2	8	7	12	23
A_3	21	18	12	21
A_4	30	22	19	15

OR

Q10) A newspaper boy has the following probabilities of selling a magazine **[8]**

No. of copies sold	Probability
10	0.10
11	0.15
12	0.20
13	0.25
14	0.30

Cost of a copy is 30 paise and sale price is 50 paise. He cannot return unsold copies. How many copies should he order? Determine EVPI?

Q11) a) Write steps in Monte Carlo simulation. **[3]**

b) A confectioner sells the confectionery items, past data of demand per week in hundred kilogram with frequency is as given below. **[6]**

Daily / week	0	5	10	15	20	25
Probability	2	11	8	21	5	3

Simulate the demand for next 15 weeks. Also find average demand per week.

Random numbers - 35, 52,90,13,23,73,34,57,35,83,94,56,67,66,60

OR

Q12) a) Generate 4 reandom numbers

b = 7, c = 5, m = 12, seed = 11 **[5]**

b) What are random numbers? Write the applications of random numbers. **[4]**

Total No. of Questions : 12]

SEAT No. :

P 2938

[Total No. of Pages : 2

[5463]- 401

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

ADVANCED WEB TECHNOLOGY (Theory)

(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 .Net framework. **[6]**

b) Explain Managed and Unmanaged code. **[3]**

OR

Q2) a) What is Namespace? How these namespaces are import in the program with an example. **[5]**

b) Explain the characteristics of visual C#. **[4]**

Q3) a) Explain the concept of Exception handling in C# with an example. **[5]**

b) What is Method Overloading and how it is implemented in C#, Give with example. **[4]**

OR

Q4) a) What is Delegates in C#? Explain with example. **[5]**

b) What is Boxing and Unboxing using in C#, Give with example. **[4]**

Q5) a) Explain the architecture of WPF with well label diagram. **[5]**

b) What is Windows Form? Explain any four controls of Windows Form. **[3]**

OR

Q6) a) What are the different features of WPF? **[4]**

b) Explain any four controls of WPF in details. **[4]**

P.T.O.

Q7) What is Silverlight? Explain the different features and uses of Silverlight. **[8]**

OR

Q8) Explain the different validation controls of Asp.Net with the help of example. **[8]**

Q9) Explain the architecture of Windows communication foundation. **[8]**

OR

Q10) What is Web Services? Explain the difference between Web services and SOA. **[8]**

Q11) a) Explain the architecture of ADO.NET. **[4]**

b) What is XML? Explain the different feature of XML. **[4]**

OR

Q12) a) Explain the concept of LINQ. **[4]**

b) What is Command Object? Explain the different command object. **[4]**

Total No. of Questions : 12]

SEAT No. :

P3655

[Total No. of Pages : 3

[5463] - 402
S.Y. M.C.A. (Engg.) (Semester - IV)
BANKING AND FINANCIAL ACCOUNTING AND MANAGEMENT
(2013 Pattern)

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

Instructions to the candidates:

1) ***Attempt Q1or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10, Q11 or Q12.***
2) ***Figures to the right side indicate full marks.***
3) ***Use of electronic pocket calculator is allowed.***
4) ***Assume Suitable data if necessary.***

Q1) Journalize the following transaction in the books of Mr. Prakash: **[8]**

Date	Particulars
2012 April 1	Mr. Prakash started business with cash Rs. 80,000
2012 April 2	Purchased goods from Mona Rs. 28,000
2012 April 7	Deposited cash into Dena Bank Rs. 39,000
2012 April 10	Sold goods to Dinesh Rs. 41,000
2012 April 13	Purchased Laptop of Rs. 30,000 in cash
2012 April 17	Paid Mona by Cheque Rs. 30,000
2012 April 20	Paid wages Rs.500
2012 April 21	Received Commission Rs. 1,000

OR

Q2) a) Explain the various accounting concepts and conventions. **[4]**

b) What is Financial Accounting? What are the terms used in accounting? **[4]**

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

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

OR

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

a) P/V Ratio b) Fixed Costs

c) Sales volume to earn a profit of Rs. 30,000

P.T.O.

d) Margin of safety when profit is Rs. 90,000

Sales Rs. 1,50,000, Profit Rs. 15,000 and variable cost 80% of sales.

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

b) Define the following terms. **[4]**

i) Fixed cost

ii) Variable Cost

iii) Contribution

OR

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

Cost	Rs. (Per Unit)
Raw Material	100
Manufacturing expenses	30
Selling, administration and Financial Expenses	20
Selling price	200

The duration at various stages of the operating cycle is expected to be as follows:

Raw Material stage	2 months
Work - in - progress stage	1 month
Finished stage	½ month
Debtors stage	1 month

Assuming the monthly sales level of 2,500 units, estimate the gross working capital requirement. Desired cash balance is 5% of the gross working capital requirement, and working - progress in 25% complete with respect to manufacturing expenses.

Q7) Explain the types of accounts that one can open in a bank branch. **[8]**

OR

Q8) Explain the functions of Reserve Bank of India. **[8]**

Q9) a) Differentiate between RTGS and NEFT. **[4]**

b) Explain online and offline transactions in a bank branch. **[4]**

OR

Q10) Explain Electronic Clearing Service. **[8]**

Q11) Explain concept of Core Banking System. **[9]**

OR

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

a) POS banking

b) Mobile Banking

c) ATM system and its working

Total No. of Questions : 12]

SEAT No. :

P 2939

[Total No. of Pages : 2

[5463]- 403

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

COMPUTER NETWORK & INFORMATION SECURITY

(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) Discuss the services provided by network. **[5]**

b) Explain Code Division Multiplexing with example. **[5]**

OR

Q2) a) Write a short note on network types. **[4]**

b) Discuss different types of networking components and topology used in your college. **[6]**

Q3) a) Explain in brief different layers of OSI model along with their functions. **[6]**

b) State the difference between two versions of ALOHA **[2]**

OR

Q4) a) What is collision in networking? Explain any two collision free protocols. **[6]**

b) What is MAC? Explain its frame format. **[2]**

Q5) a) Discuss Count to Infinity Problem **[4]**

b) What is conjunction. Discuss its control policies. **[4]**

OR

Q6) a) For the address 221.46.75.64, find the class of the network and network address. **[2]**

b) What is socket? Discuss its structure and types. **[6]**

P.T.O.

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

b) Explain different mail access protocols. **[4]**

OR

Q8) a) What is DNS? How it works? **[5]**

b) Write a note on MIME. **[3]**

Q9) a) If N = 119, Public Key E = 5 and Private key D = 77, then demonstrate how to send the character F using RSA. **[3]**

b) Write a note on cryptography components. **[5]**

OR

Q10)a) Waht is cipher? Explain its types. **[3]**

b) Explain Diffie-Hellman based key agreement protocol. **[5]**

Q11)a) Discuss the importance of Security Socket Layer. **[4]**

b) How the OTP is useful for safe transaction. **[4]**

OR

Q12)a) Write a note on firewall. **[4]**

b) Discusses different situation where biometric devices are useful. **[4]**

Total No. of Questions : 12]

SEAT No. :

P 2940

[Total No. of Pages : 2

[5463]- 404

S.Y. M.C.A. (Engineering) (Elective - I)

INFORMATION SYSTEMS AUDIT

(2013 Pattern)

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

Instructions to the candidates:

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

Q1) a) What are the major objectives of Information System Auditing? Explain the meaning of each one of them. **[8]**

OR

Q2) a) Explain in details the overview of audit process. **[4]**

b) What is computer audit software? How it is used in the audit of Audit Information System. **[4]**

Q3) a) Write short note on **[4]**

i) Risk and control of OOM

ii) LAN

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

i) QA & QC

ii) WAN

OR

Q4) a) Explain details of Electronic Payment scheme. **[4]**

b) What is encryption? How it is done? **[4]**

Q5) a) Explain auditor role in SDLC. **[5]**

b) Explain Problem Management. **[4]**

P.T.O.

OR

Q6) a) Explain the Black box and White box testing in details. **[5]**

b) What is a review? Why the reviews are required? **[4]**

Q7) a) What is evidence? What are various evidence evaluation techniques? **[4]**

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

OR

Q8) a) Explain the preparation of Business continuity plan with different phases. **[4]**

b) What is control? What are the control objectives? Explain in detail. **[4]**

Q9) a) Explain Security and Privacy Issues addressed in IT security policy. **[4]**

b) Explain IT plans with respect to short term goals and long term goals. **[4]**

OR

Q10)a) Explain various HR policy in detail. **[4]**

b) What is role of steering committee? Explain in brief. **[4]**

Q11)a) Explain COBIT5 Principles with examples. **[5]**

b) What is a Holistic Approach in COBIT5? **[4]**

OR

Q12) Explain 7 enablers of COBIT Framework with suitable diagram. **[9]**

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Total No. of Questions : 12]

SEAT No. :

P 2941

[Total No. of Pages : 2

[5463]- 405

S.Y. M.C.A. (Engineering) (Elective - I)

CYBER LAW

(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 Data Encryption. **[4]**

b) Explain Internet Telephony &VPN. **[4]**

OR

Q2) a) Explain social issues in Regulation of cyber space. **[4]**

b) What is convergence? **[4]**

Q3) a) How we can promote Global common. **[4]**

b) Discuss Laws & entities governing cyberspace. **[4]**

OR

Q4) Discuss International treaties, Convention & Protocols concerning cyber space. **[8]**

Q5) a) Write a note on Forgery & Fraud. **[3]**

b) Define crimes related to Data Alteration /Destruction. **[3]**

c) Explain cyber Terrorism? **[3]**

OR

Q6) a) Explain process of online dispute resolution in cyber space? **[5]**

b) Discuss cyber stalking? **[4]**

P.T.O.

Q7) a) Discuss Evolution of E-commerce in brief. **[4]**

b) Explain how consumer can be protected in cyberspace? **[4]**

OR

Q8) a) Discuss cyber Laws related to Advertisement &Taxation. **[4]**

b) Explain issues emerging from Online Contracting? **[4]**

Q9) a) Discuss Domain name issues with a suitable case study. **[4]**

b) Write note on Linking, In lining and Framing? **[5]**

OR

Q10)a) Write note on Digita1 Rights Management? **[4]**

b) Explain Search Engines and their abuse? **[5]**

Q11)a) Explain concept of Security in Cyberspace? **[4]**

b) Explain Privacy related wrongs and remedies? **[4]**

OR

Q12) Which are the emerging issues in Data protection and privacy in India? Explain with a case study **[8]**

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Total No. of Questions : 12]

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

IT GOVERNANCE

(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) What is IT Governance? Explain in detail the prerequisites for Creating a Successful IT Governance Program in detail. **[8]**

OR

Q2) a) Explain Integrated IT Governance framework and road map. **[4]**

b) What is the Purpose of IT Governance? **[4]**

Q3) a) Describe the value propositions from Best-in-Class Companies on Governance. **[4]**

b) Explain in brief important components of IT Governance. **[4]**

OR

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

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

OR

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

P.T.O.

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

OR

Q8) Explain the portfolio triangle with suitable example. **[8]**

Q9) a) Explain the Principle for achieving excellence in Project Management. **[4]**

b) Explain the Project Management Life Cycle Phases & Key Components. **[5]**

OR

Q10) What do you mean by project governance and escalation framework. **[9]**

Q11) a) Explain the difference between off shore and domestic deal. **[4]**

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

OR

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

a) Vendor Selection Process Flow

b) IT balancing Dilemma.

Total No. of Questions : 12]

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P 2943

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

IT SERVICE MANAGEMENT (Elective - I)

(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) Explain the following Terms. **[8]**

a) Service Leadership.

b) Internal Marking.

c) Flowcharting.

d) Benchmarking.

OR

Q2) Explain the current status & future prospects of IT Service Management with suitable example **[8]**

Q3) a) Explain any two IT Service Management Provider types in details. **[4]**

b) Explain the Automating IT Service Management Processes. **[4]**

OR

Q4) Explain in details of Service Design packages. **[8]**

Q5) Explain the Purpose, Objective & Key Principle of Continual Service Improvement. **[9]**

OR

Q6) a) Explain the role of Service Transition. **[4]**

b) Explain the key activities & functions of Service Operation. **[5]**

P.T.O.

Q7) Explain the Metrics & Role of IT Service Management. **[8]**

OR

Q8) Explain the relationship service continuity management with other Service Management. **[8]**

Q9) Explain the Facility Management in details. **[8]**

OR

Q10) Explain the Information Security Policy in details **[8]**

Q11) What is Technical Management? Write the Objective of Technical Management. **[9]**

OR

Q12) Explain the key activities of IT Operations Management. **[9]**

Total No. of Questions : 12]

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

ADVANCED DBMS

(2013 Pattern)

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

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

OR

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

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

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

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

OR

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

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

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

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

OR

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

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

P.T.O.

Q7) a) Explain structured types with example. **[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 the purpose of XML? What are the rules for XML? **[4]**

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

OR

Q10) Write short note on:

a) XML schema document

b) Generating XML pages using Basic SQL **[8]**

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

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

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

OR

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

a) Single server

b) Sharding

c) Master-slave replication

d) Peer to peer replication.

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Total No. of Questions : 12]

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[5463]- 501

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

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) Write down the characteristics of LAMP technology. **[4]**

b) What is the use of Apache in LAMP stack. **[4]**

OR

Q2) a) Explain how to configure PHP. **[4]**

b) Compare PHP with CGI. **[4]**

Q3) a) How to start mysql from terminal and write the command to select the database. **[4]**

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

OR

Q4) a) How to use phpmyadmin for database operation. **[4]**

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

Q5) a) Write a PHP code to display array in sorted manner. **[5]**

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

OR

Q6) a) Explain how variables are declared and used in PHP. **[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) What is the use of Interfaces in PHP? Explain with example. **[4]**

OR

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

i) Abstract Class

ii) Class Constants

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

Q9) a) Explain function for writing on text file with syntax and example. **[4]**

b) Write a program to create a directory and create a file in that directory. **[4]**

OR

Q10)a) Write a short note on working with directory in PHP. **[4]**

b) Explain the function file_get_contents() with syntax and use : **[4]**

Q11)a) What are cookies? What is the disadvantage of it in PHP? **[5]**

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

OR

Q12)a) How users are redirected from one page to another in PHP? **[5]**

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

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Total No. of Questions : 12]

SEAT No. :

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[5463]- 502

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

SOFTWARE TESTING AND QUALITY ASSURANCE

(2013 Pattern)

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

Instructions to the candidates:

1) ***Answer any six questions.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume Suitable data if necessary.***

Q1) Write down difference between Quality Assurance and Quality Control with example. **[8]**

OR

Q2) Explain with example the six sigma measure of software quality. **[8]**

Q3) a) What is software testing? Explain software testing life cycle. **[4]**

b) What is verification and validation? List out different types of reviews used at different phases of software development life cycle. **[4]**

OR

Q4) a) Write test cases for deposit and withdraw in banking system. **[4]**

b) List the components of test plan. Explain test environment and test deliverables in detail. **[4]**

Q5) What is McCabe's Cyclomatic complexity? Write a program to find largest number from two numbers. **[9]**

a) Draw control flow diagram (CFD) for the above program

b) Calculate the Cyclomatic complexity of the program

OR

Q6) What is a black box testing? Explain boundary value analysis with example. Write boundary value test case for a password field which accepts minimum 6 characters and maximum 10 characters **[9]**

P.T.O.

Q7) Explain usability testing and performance testing with example. **[8]**

OR

Q8) What are the different types of software testing level? Explain integration and system testing with example. **[8]**

Q9) Explain defect, bug, error ,failure terms with example ? Explain Defect life cycle. **[8]**

OR

Q10)Explain the following term : **[8]**

a) Database testing

b) Web based Testing

Q11)a) What is the difference between Selenium IDE and WebDriver? **[5]**

b) What is Automation Testing? What are the benefits of Automation Testing? **[4]**

OR

Q12)a) List out the test types that are supported by Selenium? What are the advantages of Selenium? **[5]**

b) Difference between manual testing and automation testing **[4]**

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Total No. of Questions : 12]

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

SOFTWARE ENGINEERING

(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 System Organization? Explain any 2 models in system organization. **[5]**

b) Differentiate : Personal Process Model and Team Process Model. **[4]**

OR

Q2) a) What is Extreme Programming (XP) in agile software development model? **[6]**

b) Explain Critical Software with example. **[3]**

Q3) a) Explain in brief: Network Diagram Creation and Analysis. **[5]**

b) What are the significance of Gantt chart? **[3]**

OR

Q4) a) What do you mean by Requirement Analysis? **[5]**

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

Q5) a) What is configuration Management? **[4]**

b) What is Quality Management? **[4]**

OR

Q6) a) What is Verification & Validation? Explain with example. **[4]**

b) What is the need to revise the project plan? **[4]**

P.T.O.

Q7) a) What are the specifications of Security? **[4]**

b) What are the principle properties of Dependability? **[4]**

OR

Q8) a) Write basic terminologies of Safety? Explain with example. **[4]**

b) What is Hazard Identification and Hazard Assessment? **[4]**

Q9) a) What are the issues of distributed system? **[4]**

b) What are the different patterns of distributed system? **[4]**

OR

Q10)a) What do you mean by SAAS model? What are the benefits of SAAS Model? **[4]**

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

Q11)a) Draw a diagram and Explain McCall's quality factors that affect the software quality. **[6]**

b) Define the following terms: 1) Measure 2) Measurement 3) Metric **[3]**

OR

Q12)a) Explain the metrics for source code. **[3]**

b) Write the metrics for maintenance, **[3]**

c) What do you mean by Software Metric? Describe its advantages. **[3]**

Total No. of Questions : 12]

SEAT No. :

P 2948

[Total No. of Pages : 2

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

Data Warehousing, Data Mining & Business Intelligence

(2013 Pattern)

Time : 2 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) Write a short note on Data Warehouse architecture **[5]**

b) Explain various operations on a data cube **[4]**

OR

Q2) a) Describe OLAP with example **[5]**

b) Explain the need and steps for data pre processing **[4]**

Q3) a) Explain Data mining with respect to Adhar card database **[4]**

b) Elaborate data mining on image data and voice data **[4]**

OR

Q4) a) Explain the issues related with data mining **[4]**

b) Write a short note on the technologies used for data mining **[4]**

Q5) a) Explain Descriptive data mining techniques **[4]**

b) Elaborate Text mining with example **[4]**

OR

Q6) Discuss with examples: **[8]**

a) K means algorithm

b) Apriori algorithm

P.T.O.

Q7) a) Explain importance of ETL for business intelligence **[4]**

b) How can statistical analysis of data improve business perspectives? **[4]**

OR

Q8) a) How are reporting tools helpful for decision making? **[4]**

b) Explain Business intelligence wrt e- commerce website **[4]**

Q9) a) Explain Business intelligence architecture **[4]**

b) What are data marts? How can they be useful for business? **[4]**

OR

Q10) How to choose the appropriate Business intelligence architecture? Explain each type with example. **[8]**

Q11) Elaborate Business Intelligence reporting tools **[9]**

OR

Q12) Consider the scenario: A company 'ABC' in Automobile sector wishes to launch a new car 'XYZ', in a new country. Which aspects need to be studied and how Will BI tool help? **[9]**

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Total No. of Questions : 12]

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P2950

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T.Y.MCA. (Engg.) (Semester - V)
MOBILE COMPUTING (Elective - II)
(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) Explain the architecture of GSM **[9]**

OR

Q2) Explain the GPRS Protocols in details. **[9]**

Q3) Explain the architecture of Bluetooth in suitable diagram. **[8]**

OR

Q4) Explain IEEE 802.11 in details. **[8]**

Q5) a) Write a short notes on data management issues. **[4]**

b) Write short notes on disconnected operations. **[4]**

OR

Q6) a) Explain the CODA file system and its features. **[4]**

b) Write a short notes on data replication. **[4]**

SECTION - II

Q7) Write short notes on following mobile operating systems. **[8]**

a) Android

b) Windows Phone

OR

Q8) a) What are the features of Android? Explain in short. **[4]**

b) Explain the android architecture in details. **[4]**

P.T.O.

Q9) Explain with suitable example **[8]**

a) Intents

b) Adapters

OR

Q10) What is dialog? Explain the different methods of creating dialog. **[8]**

Q11) What is SQLite database? Create the database for Employee details and perform the following operations. **[9]**

a) insert

b) Delete

OR

Q12 Write a program for sending Email on Android OS. **[9]**

Total No. of Questions : 12]

SEAT No. :

P2951

[Total No. of Pages : 2

[5463] - 507
T.Y. M.C.A. (Engineering) (Semester - V)
HIGH PERFORMANCE COMPUTER NETWORKS (Elective - II)
(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 architecture of ATM Network. **[5]**

b) Explain types of multiplexing? **[4]**

OR

Q2) a) What is Switching? Explain the Packet-Switching mechanism? **[4]**

b) What is ISDN and explain the architecture of ISDN? **[5]**

Q3) a) Explain the simple session using SIP & Tracking the callee? **[4]**

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

OR

Q4) a) What is QoS? Explain Priority Queuing Scheduling Mechanism? **[4]**

b) Write Short Note on: 1) Integrated Services 2) DiffServ **[4]**

Q5) a) Write short note on: 1) Tunneling in VPN 2) MPLS Header **[4]**

b) Differentiate between remote access VPN & Site-to-site VPN. **[4]**

OR

Q6) a) What is VPN? Also explain the difference between Hybrid & VPN N/W? **[4]**

b) What are overlay networks? Explain. **[4]**

Q7) a) Write short note on: Traffic burstiness? **[4]**

b) Explain the Little's theorem with the help of example? **[5]**

P.T.O.

OR

Q8) a) What is Network Performance? Explain the performance measures? **[5]**

b) Explain the traffic model with fundamental use? **[4]**

Q9) a) Explain the problem of key exchange? **[4]**

b) Write Short Note: **[4]**

i) Passive Attack

ii) Active Attacks

OR

Q10)a) What is firewall? Describe the working of Application Gateways? **[4]**

b) Explain the techniques, which are used by attackers to break the security of a packet filter? **[4]**

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

b) Explain the role of SNMP in network management with neat diagram? **[4]**

OR

Q12)a) What is ASN. 1? Which are the keywords includes in ASN. 1? **[4]**

b) What is the MIB? Explain the objects in MIB? **[4]**