Total No. of Questions : 12]

SEAT No. :

P2348

[Total No. of Pages : 2

[5156] - 101
FYMCA
Engg C and C++ Programming
(2013 Course) (Semester-I)

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

Instructions to the candidates:

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

Q1) a) Give the advantage & limitation of C-programming **[4]**

b) How C programs are compiled and debugged? **[4]**

OR

Q2) a) Write down the steps for executing the program without an IDE? **[4]**

b) How to create your own header file in C? **[4]**

Q3) a) What is union? What is the difference between structure and union? **[4]**

b) What is a variable? Write down the rules for writing a variable name. **[4]**

OR

Q4) a) Explain '<<' and '>>' bitwise operator with example. **[4]**

b) Write a short note on "pointers in C" **[4]**

Q5) a) What is a macro? Write a macro to find out cube of a number. **[5]**

b) Explain call by value and cell by reference with example. **[4]**

OR

Q6) a) What is the use of function prototype? Explain recursion in C with example. **[5]**

b) Explain the use of #include and #define directive in C. **[4]**

P.T.O.

Q7) a) What is Destructor? What is the use of it in programming? **[4]**

b) Write a short note on standard Input and Output operator in C++. **[4]**

OR

Q8) a) Explain polymorphism in C++. How it is implemented in C++? **[4]**

b) What is copy constructor? Explain with example. **[4]**

Q9) a) What is the difference between overloading and overriding in C++? Explain with example. **[4]**

b) Write a short note on "this" pointer. **[4]**

OR

Q10) a) What is polymorphism? Explain run time polymorphism. **[4]**

b) What is the use of virtual functions in C++? Explain with example. **[4]**

Q11) a) What is the input stream and output stream? Explain various methods to open file. **[5]**

b) Short notes on "istream" classes **[4]**

OR

Q12) a) Explain the various file stream classes needed for file manipulation. **[5]**

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

i) Write()

ii) tellp()

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

P2349 **[Total No. of Pages : 2**

[5156] - 102
F.Y.M.C.A. (Engg.)
Computer Organization
(2013 Pattern) (Semester-I)

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

Instructions to the candidates:

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

Q1) Convert the following **[9]**

a) $(6895)_{10}=?_{8}$

b) $(654)_{8} = ?_{2}$

c) $(1110110111)_{2} = ?_{8}$

d) $(AC16)_{16} = ?_{2}$

e) $(1101010101)_{2} = ?_{10}$

f) $(876)_{10} = ?_{16}$

g) $(10101100110)_{2} = ?_{16}$

h) $(5678)_{10} = ?_{2}$

i) $(7632)_{8} = ?_{10}$

OR

Q2) a) Draw logic symbol, algebraic expression and truth table for Ex-OR gate. **[3]**

b) State following Boolean algebra laws. **[6]**

i) Commutative Law

ii) Distributive Law

iii) Associative Law

Q3) Explain master slave JK flip-flop with diagram, timing diagram and truth table. **[8]**

OR

Q4) a) What is mean by counter? List out four counter and explain any one counter in detail. **[6]**

b) Define encoder and decoder. **[2]**

P.T.O.

Q5) Explain RAM and ROM in details with their differences? Explain DRAM, SDRAM, DDR, RDRAM in brief. **[8]**

OR

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

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

Q7) Explain RISC and CISC detail. **[9]**

OR

Q8) a) What is the role of system bus and describe its types. **[3]**

b) Write a short note on **[6]**

i) Hardwired program

ii) Micro program control.

Q9) What are the key elements of superscalar processor organization. Explain in detail. **[8]**

OR

Q10) a) Write a short note on 'Components of Microprocessor' **[4]**

b) Draw the diagram of pentium architecture. **[4]**

Q11) a) What is SISD and MIMD? Explain in brief **[4]**

b) Explain the cluster architecture in detail. **[4]**

OR

Q12) What is parallel processing with respect to multi-processor organization? Explain in detail. **[8]**

Total No. of Questions : 12]

SEAT No. :

P2350

[Total No. of Pages : 2

[5156] - 103
F.Y.M.C.A. (Engineering)
Principles of Programming Practices
(2013 Course) (Semester-I)

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

Instructions to the candidates:

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

Q1) a) Explain the following **[2]**

i) Volatile Memory

ii) Firmware

b) What are the different ways of acquiring software? List out their advantages and limitations. **[5]**

OR

Q2) a) Differentiate between procedures oriented and object oriented programming paradigm. **[3]**

b) Which difficulties are faced in problem solving? **[4]**

Q3) a) Explain benefits of documentation. **[5]**

b) Explain the top down and bottom up approach. **[4]**

OR

Q4) a) Explain the difference between local and global variables. **[4]**

b) Define the two types of parameters. How do they differ? **[5]**

Q5) a) Discuss selection and iterative structures in detail. **[4]**

b) Write a program which uses a recursive algorithm. Explain how subroutines are generated? **[5]**

OR

P.T.O.

Q6) a) Write an algorithm for reversing digits of a number. **[4]**

b) Why are cohesion and coupling are important to programmers. **[5]**

Q7) a) Write an algorithm to find a missing number. Find frequency count of each step. **[5]**

b) Define "Big oh" and "omega" notations. **[4]**

OR

Q8) a) Define space complexity with example. **[4]**

b) What is flowchart? Explain all the symbols used to draw a flowchart. **[5]**

Q9) a) Write an algorithm to find a perfect number. **[4]**

b) Write an algorithm for exchange of values of two variables without using a third variable. **[4]**

OR

Q10) a) Explain binary search with example. **[4]**

b) Compare Testing and Debugging. **[4]**

Q11) a) Find out maximum and minimum element of an array of 10 elements. **[4]**

b) Explain look up table technique with example. **[4]**

OR

Q12) a) Explain different methods of data organizing. **[4]**

b) Explain bubble sort. **[4]**

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

P2351 **[Total No. of Pages : 4**

[5156] - 104
F.Y.M.C.A. (Under Engineering Faculty)
Discrete Mathematics
(2013 Pattern) (Semester-I)

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

Instructions to the candidates:

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

Q1) a) Among the integers 1 to 300, find how many are not divisible by 3, nor by 5. find also. **[4]**

How many are divisible by 3, but not by 7?

b) Prove the following by using Venu diagram. **[4]**

i) $(A-B)-C = A-(B \cup C)$

ii) $(A \cap B)-C = (A-C) \cap (B-C)$

OR

Q2) a) Let A = $\{\phi, a\}$. Construct the following sets. **[4]**

i) $A-\phi$

ii) $\{\phi\}-A$

iii) $A \cup P(A)$

iv) $A \cap P(A)$

b) Show that $2^n > n^3$ for $n \geq 10$ **[4]**

Q3) a) Prove that $p \to (q \to r)$ and $(p \wedge \sim r) \to \sim q$ are logically equivalent. **[4]**

b) Write the following statements in symbolic form using quantifiers **[4]**

i) Some students are intelligent, but not hardworking.

ii) If x is even, then x is not divisible by 5

iii) Each integer is either even or odd.

iv) All students have taken a course in communication skills.

OR

P.T.O.

Q4) a) Negate each of the following in such way so that a symbol ~ does not appear before a quantifier **[4]**

i) $\exists x \forall y[x > y]$

ii) $\forall y \exists x(x^2 = y]$

iii) $\forall x \forall y[(y > 0) \rightarrow (x, y > 0)]$

iv) $\forall x(x^2 > 0)$

b) Determine whether the following is a Tautology, contingency or contradiction. **[4]**

i) $(p \rightarrow q) \leftrightarrow (q \vee \sim p)$

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

Q5) a) A bit is either 0 or 1 : a byte is a sequence of 8 bits. Find. **[3]**

The number of bytes that can be formed from 8 bits.

b) From 12 mathematicians and 9 physicists, a committee of 8 is to be formed including two physicists. In how many ways can the committee be chosen so as to give majority of mathematicians? **[6]**

i) 2 physicists and 6 mathematicians

ii) 3 physicists and 5 mathematicians

OR

Q6) a) In how many ways can the letters of the word MONDAY be arranged? How many of them begin with M & end with Y? **[3]**

b) In a class of 11 students, what is the number of ways to select a committee of 5 students? Also find the number of ways if **[6]**

i) Class representative should always be included.

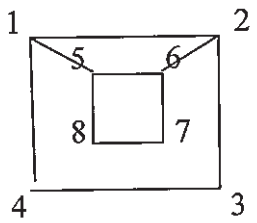
ii) Last ranker should always be excluded.

Q7) If A = {1, 2, 3, 4} and R = {(1, 2), (2, 4), (1, 3), (3, 2)} find its transitive closure by Warshall's Algorithm. **[8]**

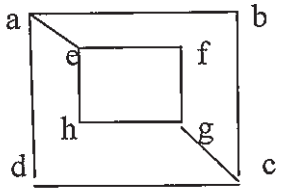
OR

Q8) Let A = {2, 3, 4, 6} and let a R b if a divides b. Show that R is a partial order and draw its Hasse diagram. **[8]**

Q9) a) Define isomorphism of graphs. Determine whether following graphs are isomorphic or not. **[5]**



G_1

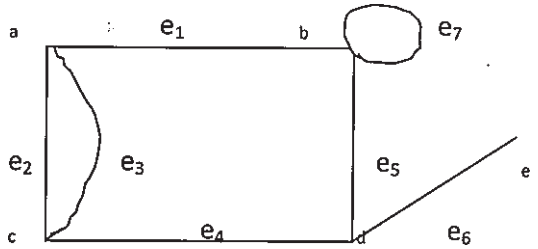


G2

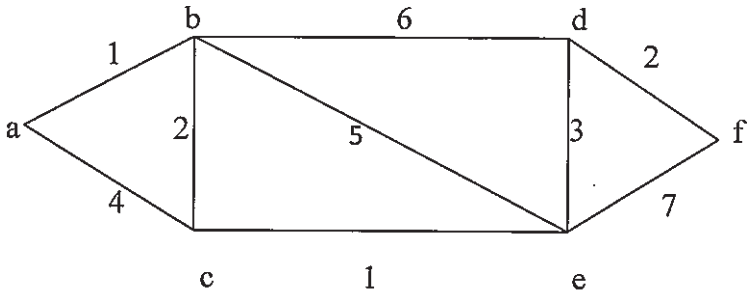
b) Define edge connectivity and vertex connectivity with example. **[3]**

OR

Q10) a) Find the adjacency matrix and incidence matrix of following graph.**[4]**

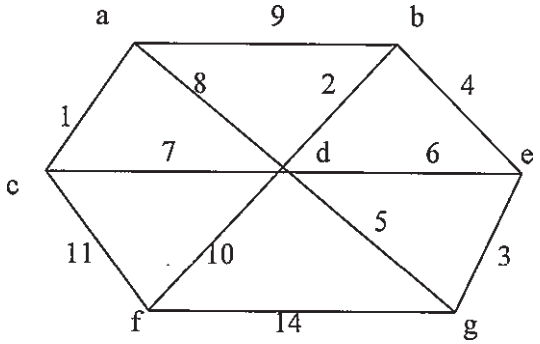


b) Apply Dijkstra's algorithm to the graph given below and find the shortest path from a to f **[4]**



Q11) a) Construct an optimal binary prefix code for the following sets of weights 1, 2, 4, 5, 6, 9, 10, 12. Also find code words for each weight in the set. **[3]**

b) Use Kruskal's algorithm to determine a minimum spanning tree for the graph shown below. **[6]**



OR

Q12) a) Define **[5]**

i) Rooted tree

ii) m-ary tree

iii) full binary tree

iv) height of tree

v) spanning tree

b) Explain prim's Algorithm to find minimum spanning tree. **[4]**

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

P2352 **[Total No. of Pages : 3**

[5156] - 105
F.Y.M.C.A. (Under Engineering Faculty)
Probability and Statistics
(2013 Pattern) (Semester-I)

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

Instructions to the candidates:

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

Q1) a) Explain the terms: **[4]**

i) Marginal Probability

ii) Two dimensional distribution

b) A certain firm has plants A. B and C producing 25%. 45% and 30% respectively of the total output. The probabilities of non-defective product From these plants are 0.80, 0.85 and 0.90 respectively. An item is selected from the total output of these plants and found to be defective. What is the probability that it is produced by plant A? **[5]**

OR

Q2) a) State and prove Baye's theorem. **[5]**

b) A box contains 5 red and 10 blue balls. 2 balls are drawn at random from the box. Find the probability that among the balls drawn, there is at least I ball of each color. **[4]**

Q3) a) Define with example **[4]**

i) Probability Mass Function

ii) Conditional Probability

b) Write note on poisson distribution. **[4]**

OR

P.T.O.

Q4) a) Explain the terms: **[4]**

i) Independent events

ii) Axioms of Probability

b) A random variable has the following probability mass function **[4]**

X	−2	−1	0	1
P(x)	0.4	K	0.2	0.3

Find

i) K

ii) E(X)

Q5) a) Obtain mean of Binomial Distribution. **[4]**

b) A joint p.d.f of random variable X is given by: **[4]**

$$f(x) = \begin{cases} k(1+x) & \text{for } 2<x<5 \\ 0 & \text{otherwise} \end{cases}$$

Find

i) k

ii) f(2<x<4)

OR

Q6) a) Let (X, Y) be a discrete bivariate random variable with the following p.m.f. **[4]**

Y	X		
	1	2	3
0	1/12	1/6	0
1	0	1/9	1/5
2	1/18	1/4	2/5

Find marginal probability mass distribution for X and Y

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

i) Geometric Distribution

ii) Uniform Distribution

Q7) a) What is point estimator and point estimate? Discuss its properties. **[5]**

b) A population consists of 5 numbers {2, 3. 6. 8. 11}. Consider all possible samples of size 2 that can be drawn with replacement from the population. Find the mean of sampling distribution of mean. **[4]**

OR

Q8) a) Write note on Central limit Theorem **[4]**

b) What is hypothesis testing? Explain the procedure for Testing of Hypothesis. **[5]**

Q9) a) What do you mean by sampling distribution? What is standard error?**[4]**

b) What is x^2 distribution? Explain properties and applications of x^2 distribution **[4]**

OR

Q10) a) Explain student's t-distribution and its applications. **[4]**

b) Explain the following terms:

i) Type I and type II errors

ii) Level of Significance **[4]**

Q11) a) Write note on Statistical Quality Control (SQC). **[4]**

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. **[4]**

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

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

P2353 **[Total No. of Pages : 2**

[5156] - 201
FYMCA (Engineering)
Java Programming
(2013 Pattern) (Semester-II)

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

Instructions to the candidates:

1) ***Answers Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or* Q10, 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) Explain any four Java features. **[4]**

b) What is String class in Java? Explain the methods that accomplish String manipulation tasks. **[4]**

OR

Q2) a) Explain Java Tokens with its types. **[4]**

b) What are Vectors? Explain the advantages of Vectors over arrays. List any two Vector methods. **[4]**

Q3) a) What is constructor? Explain it with suitable example. **[4]**

b) With suitable example explain the concept of Inner Classes. **[4]**

OR

Q4) a) Explain the term Garbage Collection. What is finalize method. **[4]**

b) What is Interface? Explain nested interfaces with suitable example. **[4]**

Q5) a) What is Package? Give an example that how to use Package in Java.**[4]**

b) How Interfaces are used in Multiple inheritance. Explain with example. **[5]**

OR

Q6) a) What is autoboxing and unboxing in Java? **[4]**

b) Explain four categories of visibility for class members in Packages with suitable table. **[5]**

P.T.O.

Q7) Why Thread is called as light weight? Explain two methods of Thread creation with suitable example. **[9]**

OR

Q8) a) Explain the Methods: isAlive() and join() **[4]**

b) With example explain the keyword finally in exception handling **[5]**

Q9) a) How parameters are passed using Param tag in Applet. Give suitable example to demonstrate its use. **[5]**

b) Explain any three Event classes in Java **[3]**

OR

Q10) Write a Applet program to draw a smiling face. **[8]**

Q11) Create a Swing application which is displaying two buttons on the screen True and False. On pressing the buttons following messages should be displayed. **[8]**

True:True was pressed

False:False was pressed

OR

Q12) Explain any four Swing component classes: **[8]**

- JTree
- JTable
- JTextField
- JList
- JCheckBox

✦✦✦✦

Total No. of Questions : 12]

SEAT No. :

P2354

[Total No. of Pages : 2

[5156] - 202
FYMCA (Engineering)
Data Structure Using C & C++
(2013 Pattern) (Semester-II)

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

Instructions to the candidates:

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

Q1) What is array? Write an ADT for array. Describe memory representation of a multidimensional array. **[8]**

OR

Q2) Explain the following: **[8]**

a) Polynomial and its operation

b) Addition of sparse matrix

Q3) Explain Doubly linked list? Write a pseudo C++ code for insertion of a node into DLL as an end node. Also shows the graphical representation of the above operation. **[8]**

OR

Q4) What is Linked List? Explain Linked List representation of polynomial. Write a pseudo C++ code for addition of two polynomial. **[8]**

Q5) a) What is Stack? Write an ADT for Stack. **[4]**

b) What is Circular Queue? Describe linked representation of Circular Queue. **[5]**

OR

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

(A+B)*(C–D)/E

b) What is Queue? Write an ADT for Queue. **[4]**

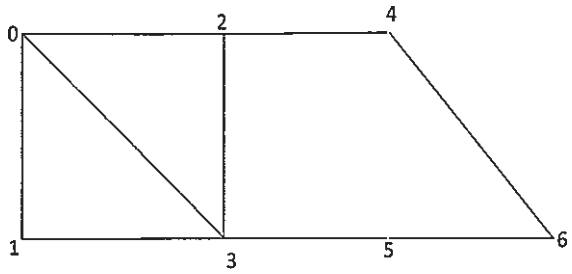
P.T.O.

Q7) a) What is tree? Explain Binary Search Tree. **[4]**

b) Describe Conversion of general tree to binary tree with example. **[4]**

OR

Q8) Use the following graph for the construction of Adjacency Matrix, adjacency List, BFS and DFS starting point 0. **[8]**



Q9) Sort the following numbers using quick sort. Show all the passes to sort the values in descending order: **[8]**

40, 20, 10, 80, 60, 50, 7, 30, 100

OR

Q10) a) Write an algorithm for binary Search method. **[4]**

b) Explain internal and external sorting. **[4]**

Q11) a) Explain simple index files. **[4]**

b) Define hashing function and state its characteristics. **[5]**

OR

Q12) What is Collision? Given a set of values 10, 100, 32, 45, 58, 126, 3, 29, 200, 400, 0. Create a Hash table & resolve collision if any using chaining without replacement. **[9]**

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

P2355 **[Total No. of Pages : 2**

[5156] - 203
FYMCA (Engineering)
Web Technologies
(2013 Pattern) (Semester-II)

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

Instructions to the candidates:

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

Q1) a) Write a note on WWW? What is role of middleware? **[6]**

b) Compare static and dynamic website **[3]**

OR

Q2) a) Explain web server, mail server and web browser. **[6]**

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

Q3) a) Differentiate between Inline style sheet and External style sheet. **[4]**

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

OR

Q4) a) How to use classes in CSS? **[4]**

b) Explain and tag with example. **[4]**

Q5) a) Explain the procedure of creating interactive web pages using DHTML. **[4]**

b) Differentiate between server side scripting and client side scripting. **[4]**

OR

Q6) a) Write a VBScript program to generate Fibonacci series. **[4]**

b) Explain the role and benefits of DHTML. **[4]**

P.T.O.

Q7) a) Write a code for validating input string and input number in JavaScript. **[6]**

b) Explain Math and Date object in JavaScript. **[3]**

OR

Q8) a) Explain event handling in JavaScript with the help of an example. **[6]**

b) Write a JavaScript program to check whether the number is palindrome or not. **[3]**

Q9) a) Explain the use of XML with CSS. **[4]**

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

OR

Q10) a) What is SAX Parser and DOM Parser? **[4]**

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

Q11) a) Explain Web server architecture model. **[4]**

b) Differentiate between CGI and Shared object model. **[4]**

OR

Q12) a) Write note on session management in PHP. **[4]**

b) Create a dynamic HTML form with PHP. **[4]**

Total No. of Questions : 12]

SEAT No. :

P2356

[Total No. of Pages : 2

[5156] - 204
F.Y.MCA (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, Q5 or 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.***
4) ***Assume suitable data if necessary.***

Q1) a) Explain the incremental model with a proper diagram **[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 incremental 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 (level 0 & 1) for Hostel admission 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. :**

P2357 **[Total No. of Pages : 2**

[5156] - 205
FYMCA (Faculty of Engineering)
Management Theory & Practices
(2013 Pattern) (Semester-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 side indicate full marks.***
4) ***Assume suitable date if necessary.***

SECTION - I

Q1) a) Define management. Explain different functions of management. **[5]**

b) Define planning. Explain different steps involved in planning. **[4]**

OR

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

b) Write a historical development of management **[4]**

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

OR

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

b) With the help of block diagram explain matrix organization. **[4]**

Q5) a) Justify "Team building helps in the organizational growth". **[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) Explain of Business process re-engineering. **[4]**

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

OR

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

i) Bench marking

ii) Six sigma

iii) 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) What is Customer Relationship Management? Explain the challenge and trends in Customer Relationship Management. **[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) How to find risk in the future and how to take decision on the basis of it. **[4]**

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

P2358 **[Total No. of Pages : 2**

[5156] - 301
SYMCA
Engg Advanced Java
(2013 Course) (Semester-III)

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

Instructions to the candidates:

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

Q1) a) What are the steps to connect oracle 10g server with JDBC in netbeans. **[5]**

b) Illustrate with diagram the JDBC driver models. **[4]**

OR

Q2) a) What is JDBC? Explain its advantages and features. **[6]**

b) What is J2EE and what makes J2EE suitable for distributed multitier applications? **[3]**

Q3) a) Write a Java program on showing the demonstration of servlet config interface. **[6]**

b) State the difference between sessions and cookies in servlets. **[2]**

OR

Q4) a) Define the Servlet Life Cycle diagrammatically. **[4]**

b) What is the difference between ServletContext and ServletConfig? **[4]**

Q5) a) Explain in details. **[4]**

i) JSP directives

ii) JSP implicit objects

b) State the JSP action elements. And explain<jsp:forward>? element.**[4]**

OR

Q6) a) How the JSP pages are processed on the web server? **[2]**

b) What is session bean? What are the two types and when to use session Beans. Illustrate? **[6]**

P.T.O.

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

b) Write the SimpleBean code for "Student details? **[5]**

OR

Q8) a) Write a note on: (any three) **[6]**

i) JNDI context

ii) Initial context

iii) Session context and

iv) EJB context

b) Explain the use of session facade? **[3]**

Q9) a) What is spring? List out the advantages of spring framework? **[6]**

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

OR

Q10) a) Describe spring MVC module. **[4]**

b) Explain the tabular difference between Bean factory and application context? **[4]**

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

b) Justify your answer that where we may use Hibernate Query Language (HQL) **[2]**

OR

Q12) a) Write a short description of following methods of Hibernate: **[6]**

i) Save

ii) Persist

iii) Save or update

b) List out the annotations used for Hibernate mapping in Hibernate application. **[2]**

Total No. of Questions : 12]

SEAT No. :

P2360

[Total No. of Pages : 2

[5156] - 303
SYMCA (Under Faculty of Engg.)
Operating Systems
(2013 Course) (Semester-III)

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

Instructions to the candidates:

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

Q1) a) Explain the PASS-I of assembler. **[4]**

b) Explain an relocating loader with its advantages and disadvantages. **[3]**

c) Compare application software and system software. **[2]**

OR

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

i) Real Time Operating System.

ii) Time Sharing Operating System

b) Define **[6]**

i) Cross Compiler

ii) Optimizing Compiler

iii) Bootstrap Compiler

Q3) a) Consider the following set of processes, with the length of the CPU burst given in milliseconds. **[5]**

Process	Burst Time	Arrival Time	Priority
P1	8	0	4
P2	6	1	6
P3	7	3	3
P4	9	3	1

Illustrate the execution of these process using non pre-emptive SJF and priority pre-emptive CPU scheduling algorithms. Also calculate average waiting time?

b) What is process? What is process control block(PCB)? Explain in detail. **[3]**

OR

P.T.O.

Q4) a) Explain preemptive priority process scheduling algorithm with the help of example. **[4]**

b) Explain context switching? **[2]**

c) Write a note on interrupt mechanism **[2]**

Q5) a) Explain the requirements of Mutual exclusion. **[4]**

b) Explain deadlock prevention techniques. **[4]**

OR

Q6) a) Explain characteristics of Deadlock. **[4]**

b) Write a note on race condition. **[2]**

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

Q7) a) What is swapping? Explain how the space is allocated using swapping? **[3]**

b) Write a note with respect to contiguous memory management scheme. **[3]**

i) Sharing

ii) Protection

iii) Access Time

c) Explain the concept of fetch and replacement. **[3]**

OR

Q8) a) Explain the concept of segmentation? What is paged segmentation? **[3]**

b) Why demand paging approach is preferred over segmentation? Explain **[3]**

c) Write a note on virtual memory management. **[3]**

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

b) Write a note on file protection. **[4]**

OR

Q10) a) What are the different issues related to disk performance? Explain any one disk scheduling algorithm with suitable example. **[4]**

b) Explain file system structure **[4]**

Q11) a) Explain the following terms:

i) Linux Kernel

ii) Virtual file system in Linux **[4]**

b) Explain process management system call. **[4]**

OR

Q12) a) Draw and explain the basic structure of Linux File System. **[4]**

b) Explain any four shell commands with example. **[4]**

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Total No. of Questions : 12]

SEAT No. :

P2361

[Total No. of Pages : 2

[5156] - 304
S.Y.M.C.A. (Under Engineering Faculty)
Object Oriented Analysis and Design
(2013 Pattern) (Semester-III)

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

Instructions to the candidates:

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

Q1) a) Explain Rumbaugh's Object Modeling Technique in brief. **[4]**

b) What are two views of Software Development? State the difference between them **[5]**

OR

Q2) a) Describe The Booch Methodology that helps to design the system using object paradigm. **[5]**

b) Explain how Iterative and Incremental architecture approach are modeled in UML? **[4]**

Q3) a) List the relevant changes in features and enhancements in UML 2.0**[4]**

b) Draw a Use Case diagram for Online Transaction Management System (e-shopping). Make necessary assumptions. **[4]**

OR

Q4) a) What is the difference between <<include>> and <<extend>>.Explain with suitable example. **[4]**

b) Which are various behavioral diagrams in UML 2.0? Explain role of each of them. **[4]**

Q5) a) Explain the following adornment on association: Association names, Qualified Association, Association Classes, N-ary Association **[4]**

b) Give reverse and forward engineering of a Class diagram. **[4]**

OR

P.T.O.

Q6) a) Explain Realization and Dependency relationship with example. **[4]**

b) Draw an Object diagram for Hotel Management system. **[4]**

Q7) a) Explain the features Lifeline and Focus of Control with respect to sequence diagram. **[4]**

b) Explain the concept of Combined Fragments. **[4]**

OR

Q8) a) Draw sequence diagram for the following scenario: **[4]**

i) Search the phone number in directory

ii) Dial the number and place the call

b) What are communication diagrams? What are the notations used for communication diagram. **[4]**

Q9) a) Explain partitions and regions with respect to activity diagram. **[4]**

b) Draw a timing diagram for ATM system. **[4]**

OR

Q10) a) What are sub-states? Explain sequential sub-states and concurrent sub-states with suitable diagram. **[4]**

b) Draw an activity diagram for elevator system. **[4]**

Q11) a) How deployment diagram will be useful to fully distributed client and server system? **[5]**

b) Draw package diagram for college admission system **[4]**

OR

Q12) a) Describe component diagram. Give three types of components. **[4]**

b) How UML is useful in embedded systems? **[5]**

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

P2362 **[Total No. of Pages : 4**

[5156] - 305
S.Y.M.C.A. (Under Engineering Faculty)
Operations Research
(2013 Pattern) (Semester-III)

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

Maximize $Z = 2x_1 + x_2$

Subject to $4x_1 + 3x_2 \le 12,$

$4x_1 + x_2 \le 8,$

$4x_1 - x_2 \le 8,$

where $x_1, x_2 \ge 0$

OR

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

Maximize $Z = 6x_1 + 8x_2$

Subject to $5x_1 + 10x_2 \le 60,$

$4x_1 + 4x_2 \le 40,$

$10x_1 + 7x_2 \le 35,$

where $x_1, x_2 \ge 0$

b) Define following

i) Slack variable

ii) Feasible solution

iii) Optimum solution **[3]**

P.T.O.

Q3) a) Solve following transportation problem to minimize the total transportation cost. Give the transportation. schedule. Use VAM method to obtain initial basic feasible solution **[8]**

		A	B	C	D	E	Capacity
Source	P	1	2	6	2	3	800
	Q	3	4	5	8	1	600
	R	3	1	1	2	6	200
	S	4	7	3	5	4	400
	Demand	400	100	700	300	500	

OR

Q4) a) A company is faced with the problem of assigning 4 machines to 6 different jobs (one machine to one job only). The profits are estimated as below. Solve the Assignment problem to maxmize the total profit.**[6]**

		Machines			
		A	B	C	D
Jobs	1	3	6	2	6
	2	7	1	4	4
	3	3	8	5	8
	4	6	4	3	7
	5	5	2	4	3
	6	3	7	8	4

b) Write a short note on Degeneracy in the Transportation problem. **[2]**

Q5) a) Using the following table **[8]**

Activity	to	tm	Tp
1-2	1	1	7
1-3	1	4	7
1-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	3	6	15

i) Draw a network diagram

ii) Find the expected duration and variance for each activity.

iii) Find critical path

iv) What is the expected project length?

OR

Q6) Find the sequence that minimizes the total elapsed time (in hours) required to complete the following tasks on two machines. Calculate total elapsed time and idle time for both machines. **[8]**

Task	A	B	C	D	E	F	G	H	I
Machine I	2	5	4	9	6	8	7	5	4
Machine II	6	8	7	4	3	9	3	8	11

Q7) a) What is goal programming? Explain any one methods to solve goal programming problem. **[4]**

b) Explain Minimum Spanning Tree. **[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) A manufacture of a new detergent powder consisting of three varieties viz super, find and glow has to decide the appropriate variety of detergent to be lanuched on the basis of the following estimated payoffs according to sales-levels. **[8]**

Detergent Variety	Estimated Levels of sales(units)		
	50000	25000	15000
Super	45	30	20
Fine	60	45	15
Glow	75	50	10

Determine the optical decision using

a) Minimax criterion

b) Regret criterion

c) Laplace criterion

d) Hurwicz criterion. for $\alpha = 0.5$

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) Using multiplicative congruential method generate 7 random numbers with b = 17, c = 111, m = 103 and the seed = 7 **[5]**

b) What is simulation. Explain merits and demerits of simulation **[4]**

OR

Q12) a) Given the following information of cancellation of taxis per day at a travel agency. **[6]**

Number of cancellation	Probability
0	0.35
1	0.22
2	0.18
3	0.10
4	0.15

Simulate Cancellation of taxis for the next 10 days using random numbers.

Random	20	43	58	85	62	75	84	45	55	92

b) What are random numbers? Why they are called Pseudo-random **[3]**

Total No. of Questions : 12]

SEAT No. :

P2363

[Total No. of Pages : 2

[5156] - 401
SYMCA (Engineering)
Advanced Web Technology
(2013 Pattern) (Semester-IV)

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 Common Language Runtime along with its component Diagram. **[4]**

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

OR

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

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

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

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

OR

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

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

i) for

ii) while

iii) do

iv) foreach

v) if else

P.T.O.

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

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

OR

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

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

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

OR

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

a) Validation Control(Any one)

b) Web Server Control(Any one)

Q9) Draw and Explain Architecture of Windows Communication Foundation (WCF) **[8]**

OR

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

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

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

OR

Q12) Explain with example how to access data using XML in Web Application. **[8]**

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

P2364 **[Total No. of Pages : 2**

[5156] - 402
SYMCA (Faculty of Engineering)
Banking Financial Accounting & Management
(Semester-IV) (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 3 types of accounts and their related rules used in Accountancy. **[6]**

b) Explain the concept of Subsidiary books. **[2]**

OR

Q2) a) Explain the types of Subsidiary books with their formats & purpose. **[6]**

b) Explain the difference between Regular & Analytical Cash Book. **[2]**

Q3) Enter following transactions in the Journal of Rajesh & Company — Stock as on 30th May 2016— Rs. 9500/-, Cash in hand Rs.7500/- and Rs.8500/- in Bank of India account. **[8]**

1st June 2016 Purchased Goods worth 5000/- with Rs. 2000/- in cash and rest on credit from P & G Distributors.

4 June 2016 Sold Goods worth Rs.2000/- in Cash to Rekha Enterprises.

6 June 2016 Sold Goods worth Rs. 3000/- on credit to Ratnam & Co.

8 June 2016 Deposited Rs. 1500/- in bank account & Paid rent Rs. 3000/-.

12 June 2016 Purchased Goods from Raheja Distributors Rs. 8000/- and gave Rs.5000/- with cheque.

15 June 2016 Paid Rs. 2000/- towards Family Floater Health Insurance of the owner.

17 June 2016 Sold Goods Rs.7000/- on 5% trade discount to M/S. Jaymala Enterprises.

Prepare the journal for above transactions and find out the closing cash, bank balance for the Rajesh & Company.

P.T.O.

OR

Q4) a) Explain different types of Ratio Groups and their use by lenders / investors. **[6]**

b) Explain the motives behind holding of Cash by business. **[2]**

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

b) Explain the concept of marginal Costing. **[3]**

OR

Q6) a) How the working capital can be calculated for a seasonal business like selling of Firecrackers / Sweets in Diwali? **[6]**

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

Q7) Explain the role of NABARD in Indian banking industry. **[8]**

OR

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

Q9) What is meant by NEFT & RTGS? How these products benefit bank customers? **[8]**

OR

Q10) Explain the concept of Automated Clearing House in India with example. **[8]**

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

OR

Q12) Explain how CBS banking is benefitting the Indian customers? **[9]**

Total No. of Questions : 12]

SEAT No. :

P2365

[Total No. of Pages : 2

[5156] - 403
SYMCA (Faculty of Engineering)
Computer Network & Information Security
(2013 Pattern) (Semester-IV)

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) Explain Time Division Multiplexing. Justify "Statical TDM is better than Synchronous TDM". **[8]**

OR

Q2) Explain transmission media. Explain about any two Guided & Unguided transmission media. **[8]**

Q3) Give details of the components mention **[8]**

a) NIC
b) Repeater
c) Router
d) Gateway

OR

Q4) Explain Collision Free protocols with neat diagram **[8]**

Q5) a) Explain ICMP Protocol in detail with diagram **[5]**

b) Write difference between TCP & UDP **[4]**

OR

Q6) a) Draw and explain IPv6 in detail **[5]**

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

Q7) a) Explain how MIME support Email protocol **[4]**

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

OR

P.T.O.

Q8) a) Draw & explain Browser Architecture **[5]**

b) Write a difference between Static and Dynamic Pages **[4]**

Q9) Explain Diffie Hellman based key agreement protocol **[8]**

OR

Q10) Write a difference between Public Key Cryptography & Private Key Cryptography algorithm **[8]**

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

a) One Time Passwords

b) ARP Hazards

OR

Q12) Explain with neat diagram SSL operations **[8]**

Total No. of Questions : 12]

SEAT No. :

P2366

[Total No. of Pages : 2

[5156] - 404
SYMCA (Engineering)
Information Systems Audit
(2013 Pattern) (Semester-IV) (Elective I)

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

Instructions to the candidates:

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

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

OR

Q2) State the types of management controls and application controls. Explain use of one type of management controls and application controls with example. **[8]**

Q3) Explain briefly encryption techniques used in information system with example. **[8]**

OR

Q4) a) Briefly explain the risk areas and control used in Electronic Mail Systems. **[4]**

b) Explain DBMS vulnerabilities and their related controls. **[4]**

Q5) What is the Software Implementation Review? Explain why it is required? **[9]**

OR

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

a) Preliminary investigation and auditor's role

b) Problem Management

c) Auditor checking choice made between procurement & development.

P.T.O.

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) What is Business Continuity Plan? Explain the need of Business Continuity Plan. **[4]**

b) What is control? What are the 3 types of controls one can have in software? Explain why Preventive controls are not preferred over detective or corrective controls. **[4]**

Q9) a) Define the procedure for implementing IT security Policy. **[4]**

b) Differentiate between short term plans and long term plans. **[4]**

OR

Q10) a) Explain Security & Privacy Issues addressed in IT security policy. **[4]**

b) What is role of Steering Committee? Explain in brief. **[4]**

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

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

OR

Q12) Explain how a bank which has implemented Core Banking System can implement COBIT 5 framework. Prepare a sample RACI chart for key internal staff members like CFO, GM (IT) or ClO, CISO, GM (CBS), GM(Credit), GM (HRD). **[9]**

Total No. of Questions : 12]

SEAT No. :

P2367

[Total No. of Pages : 2

[5156] - 405
S.Y.MCA (Engineering)
Cyber Law (Semester - II)
(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) a) Write a note on Data security. **[4]**

b) Explain Regulability of Cyber space. **[4]**

OR

Q2) a) Explain UNCITRAL model. **[4]**

b) What is cyberspace? Explain its architecture. **[4]**

Q3) a) What is E-governance? Explain types of interactions in e-governance. **[4]**

b) Write a note on conventions and protocols concerning cyberspace. **[4]**

OR

Q4) a) Enlist issues related to democracy. **[3]**

b) Explain laws related to cyberspace. **[3]**

c) Write a note on National sovereignty **[2]**

Q5) a) Write a note on Cyber stalking. **[2]**

b) Define cybercrime? Enlist the crimes and torts through computers. **[3]**

c) Which are the crimes related to IPR? Explain? **[3]**

OR

Q6) a) Write note cyber pornography? **[4]**

b) What is computer vandalism? Explain in detail? **[4]**

P.T.O.

Q7) a) Explain payment mechanism in cyberspace? **[4]**

b) What is E-commerce? Explain evolution of is E-commerce? **[4]**

OR

Q8) a) Explain issues emerging from Online Contracting? **[4]**

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

Q9) a) Explain intellectual Property in cyberspace? **[4]**

b) Write note on Linking, In lining and Framing? **[4]**

OR

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

b) Explain Search Engines and their abuse? **[4]**

Q11) a) Explain concept of security in cyberspace? **[5]**

b) Explain privacy related wrongs and remedies? **[5]**

OR

Q12) a) Which are the emerging issues in data protection and privacy in India? **[5]**

b) Write note on security audit(VA/PT)? **[5]**

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Total No. of Questions : 12]

SEAT No. :

P2368

[Total No. of Pages : 2

[5156] - 406
S.YMCA (Under Engineering Faculty)
IT Governance
(2013 Course) (Semester-II) (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) a) Define IT Governance & explain Governance Roles & their responsibilities & accountability **[6]**

b) Explain the executive view of IT Governance **[3]**

OR

Q2) a) Explain Assessment Maturity Model in brief **[6]**

b) Explain future state of IT Governance **[3]**

Q3) a) Explain the results of Ineffective IT governance **[6]**

b) What are keys IT resources & functions is used? **[3]**

OR

Q4) a) Why organizations need an IT governance policy & its use. **[6]**

b) What are the steps in making IT Governance Real? **[3]**

Q5) a) Explain process improvement model in IT governance. **[4]**

b) Explain standards of IT Governance. **[3]**

OR

Q6) Explain the IT governance best practice reference models & frameworks. **[7]**

P.T.O.

Q7) a) How the business is more successful with the help of IT governance **[6]**

b) What are the five stages of IT? Explain in brief **[3]**

OR

Q8) Explain Portfolio management triangle with the e.g. **[9]**

Q9) Explain the Principle for Achieving Excellence in Project Management. **[9]**

OR

Q10) a) Explain the PM key metrics in detail. **[5]**

b) Difference between Fast track and Complex PM initiatives. **[4]**

Q11) a) What do you mean by Contract Negotiations & Management? **[4]**

b) Current trends in organization all process is outsourcing that decision is correct? Why **[3]**

OR

Q12) a) Explain vendor selection process flow **[4]**

b) Explain the IT balancing Dilemma in brief **[3]**

✦✦✦✦

Total No. of Questions : 12]

SEAT No. :

P2369

[Total No. of Pages : 2

[5156] - 407
S.Y.MCA (Engineering) (Semester-IV)
IT Service Management
(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) ***Use of calculator is allowed.***
4) ***Assume suitable data if necessary.***

Q1) Explain the service management Meaning? What is service leadership? **[8]**

OR

Q2) a) What is service management Flowcharting and Internal marketing? **[4]**

b) Explain the current status & future prospects of service management with suitable example **[4]**

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

b) Explain developing strategy for specific services **[4]**

OR

Q4) Explain Why service design? Explain service design package. **[8]**

Q5) a) Explain roles of service transitions. **[4]**

b) Explain purpose & objectives of service operation. **[5]**

OR

Q6) a) Explain key principles of continual service improvement. **[4]**

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

P.T.O.

Q7) Write in brief about service continuity management? Explain relationship with other service management. **[8]**

OR

Q8) Explain scope, purpose and objectives of IT service continuity management.**[8]**

Q9) Explain information security management. Explain scope & purpose of it. **[8]**

OR

Q10) a) Explain the control of physical access in facilities management. **[4]**

b) Explain access management with example **[4]**

Q11) What is IT operation management? Explain its relationship with other service management functions **[9]**

OR

Q12) What is Technical Management ?Explain key activities of technical management **[9]**

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

P2370 **[Total No. of Pages : 2**

[5156] - 408
S.Y.M.C.A. (Under Engineering Faculty)
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) Explain the basic steps in query processing with suitable diagram. **[5]**

OR

Q2) a) Explain block nested loop join algorithm with its cost estimation. **[5]**

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

Q3) Explain pipelined parallelism and independent parallelism in detail with suitable example. **[8]**

OR

Q4) Explain the terms: **[8]**

a) Speedup

b) Scaleup

c) Degree of Parallelism

d) Data server

Q5) a) What do you mean by distributed database systems? Explain its advantages & limitations. **[4]**

b) Explain fragmentation and replication in distributed systems. **[4]**

OR

Q6) Explain two phase commit protocol in detail with suitable diagram. **[8]**

P.T.O.

Q7) A college maintains a database for students and teachers. A database schema is as given below. **[8]**

name: f_name, m_init, 1_name

address: street_no, city, state, zipcode

person: name, address, date_of_birth

employee: person, department, designation, date_of_joining, qualification, salary

manager: employee, number_of_employees, skills

Construct an SQL: 1999 schema definition for this database. Use inheritance where appropriate.

OR

Q8) a) Explain type inheritance with suitable example. **[4]**

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

Q9) a) Write note on XML Schema. **[3]**

b) Write xml DTD code to display the bank details. **[6]**

The elements are bank, customer, and account.

The attributes are account_number, branch-name, balance, customer_Id. customer_name, address. city, state. Assume suitable data.

OR

Q10) a) Write XQuery code using FLWOR expressions to display the employee detail **[6]**

i) Who have joined before 1st June 2006 and working in the Marketing dept.

ii) With salary less than Rs. 25000

iii) With designation as a programmer

Assume suitable data.

b) Differentiate between HTML and XML. **[3]**

Q11) Describe Data model & Graph Database model in detail. **[8]**

OR

Q12) a) Differentiate between RDBMS & NOSQL. **[4]**

b) Write note on CAP theorem. **[4]**

Total No. of Questions : 12]

SEAT No. :

P2371

[Total No. of Pages : 2

[5156] - 501
TYMCA ENGG
Recent Technologies in IT
(2013 Course) (Semester-V) (510901)

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

Instructions to the candidates:

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

Q1) a) Explain in short LAMP stack. **[4]**

b) What are different PHP configuration files. **[4]**

OR

Q2) a) What is server side scripting? What is client side scripting? **[4]**

b) Explain with example structure and syntax of PHP script. **[4]**

Q3) a) Explain following functions with syntax and example **[4]**
(1) mysql_connect() (2) mysql_error()

b) Write PHP code to insert firstname, lastname, email and store all the submitted data in database table **[4]**

OR

Q4) a) Write a php script to validate a form data. **[4]**

b) What is form processing? What is the difference between get and post.**[4]**

Q5) a) Explain numeric and associative array with example. **[5]**

b) Explain following functions with example
(1) substr() (2) intval() (3) array_merge() (4) rand() **[4]**

OR

Q6) a) Write a PHP script to create an associative array using the countries as keys, the cities as values and transform it into 2-dimensional array and display the data as a table. **[5]**

b) Explain with example these two date function: checkdate, getdate. **[4]**

P.T.O.

Q7) a) Explain with example user defined function in PHP. Also explain concept of default and variable length arguments **[4]**

b) What is inheritance? Explain with example how it is implemented in php. **[4]**

OR

Q8) a) How method overloading is implemented in php? **[4]**

b) What is the difference between abstract class and interface in php? **[4]**

Q9) a) Explain following function with syntax and use.

i) fseek()

ii) fwrite() **[4]**

b) Write a program that creates a file and writes contents to it and display it. Then append some data to it. **[4]**

OR

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

b) Explain with example file_put_contents() function for writing a file. **[4]**

Q11) a) Explain following methods used for passing variables between pages (1) Using form collection 2) Using cookies **[5]**

b) Explain concept of sessions in PHP with example **[4]**

OR

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

b) What is a superglobal variables? List out these variables. **[4]**

Total No. of Questions : 12]

SEAT No. :

P2372

[Total No. of Pages : 2

[5156] - 502

TYMCA (Under Engineering Faculty)

Software Testing and Quality Assurance

(2013 Course) (Semester-V)

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

Instructions to the candidates:

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

Q1) a) Explain process maturity? Explain any process maturity measurement technique. **[4]**

b) What is SQA? What are the building blocks of SQA? **[4]**

OR

Q2) a) Write a short note on six sigma principles and software quality assurance. **[4]**

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

Q3) a) Explain the V-model in detail give the advantages & disadvantages of it. **[4]**

b) Define the term Test-Case document and explain the content of test case document. **[5]**

OR

Q4) a) What is Software Test Plan? How to prepare and manage the test plan? **[4]**

b) What is software testing? Explain the testing life cycle in detail. **[5]**

P.T.O.

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

i) Mutation Testing

ii) Code walk through

b) What are the differences between white box testing and black box testing (at least 8 points) **[4]**

OR

Q6) a) Write a C code to check whether the given is prime or not. Draw the control flow graph for it, and find cyclomatic complexity number from it. **[5]**

b) Explain equivalence portioning and boundary value analysis with suitable example. **[3]**

Q7) a) What is integration testing? Explain its types. **[5]**

b) Explain scenario testing. **[3]**

OR

Q8) a) Explain GUI testing. **[5]**

b) Explain specification based testing. **[3]**

Q9) a) Explain developer/Tester support for defect repository. What is performance testing? Which are the different factors. **[4]**

b) Considered in performance testing? **[4]**

OR

Q10) a) What is defect? Explain origins of defect. **[4]**

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

Q11) a) What is selenium? What are the different selenium components? **[5]**

b) What is automation testing. Explain **[4]**

OR

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

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

P2373 **[Total No. of Pages : 2**

[5156] - 503
TYMCA (Engineering)
Software Engineering
(2013 Course) (Semester-V)

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

Instructions to the candidates:

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

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. :

P2374

[Total No. of Pages : 2

[5156] - 504
T.Y.M.C.A. (Engg.)
Data Warehousing, Data Mining, Business Intelligence
(2013 Pattern) (Semester-I)

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) Why data need to be preprocessed? Illustrate with an example. **[4]**

b) Explain star schema with suitable diagram. **[4]**

OR

Q2) a) What is data warehouse? Explain applications of data warehouse. **[4]**

b) Explain any two OLAP operations with suitable diagram and example. **[4]**

Q3) a) Explain difference between descriptive & predictive data mining. **[4]**

b) What are major issues with data mining? Describe in brief. **[4]**

OR

Q4) a) What is data mining? Explain any two applications of data mining. **[4]**

b) Explain KDD process with suitable diagram. **[4]**

Q5) a) A database has five transactions. Let min_sup=2 and min_conf=60%. Find all frequently occurred items using Apriori algorithm. Find best rules from support and confidence values. **[6]**

TID	ITEM
1	shampoo, toothpaste, bread, butter
2	bread, milk, butter
3	soap, milk, toothpaste
4	shampoo, soap
5	bread, milk butter

b) Write note on outlier. **[3]**

OR

P.T.O.

Q6) a) Explain k-means algorithm. **[6]**

b) Write a note on decision tree. **[3]**

Q7) a) What is business intelligence? Explain any two applications. **[4]**

b) Explain ETL process in detail with suitable diagram. **[5]**

OR

Q8) a) Explain various data warehouse components in brief. **[4]**

b) "There are challenges to successfully implement business intelligence" Illustrate. **[5]**

Q9) a) What factors need to be considered before designing data architecture? Explain in brief. **[4]**

b) Explain data architecture model. Illustrate in brief. **[4]**

OR

Q10) a) Explain ROLAP, MOLAP in brief. **[4]**

b) What is data mart? Differentiate between data mart and data warehouse. **[4]**

Q11) a) How do you evaluate business intelligence reporting tools? Give your views. **[4]**

b) "Business Intelligence Reporting Tools play key role in Decision Support System". Comment on the statement. **[4]**

OR

Q12) a) What is need of Business Intelligence Reporting Tools? Illustrate with example. **[4]**

b) What are different Business Intelligence Reporting Tools? Explain any two in brief. **[4]**

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Total No. of Questions : 12]

SEAT No. :

P2375

[Total No. of Pages : 2

[5156] - 505
TYMCA (Engg Animation & Gaming)
Animation & Gaming (Elective - II)
(2013 Pattern) (Semester-I)

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

Instructions to the candidates:

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

Q1) a) Write short note on pixel and frame buffer **[4]**

b) Explain DDA algorithm of line drawing. **[4]**

OR

Q2) a) Explain Shadow mask technique in color CRT monitors. **[6]**

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

Q3) a) What is meant by keyframing and tweening? **[4]**

b) What is meant by onion skinning technique of animation? **[4]**

OR

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

b) Explain Uses of Animation? What are the principal of animation **[4]**

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

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

OR

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

b) Explain various steps in developing three dimensional drawing of character? **[5]**

P.T.O.

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

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

c) What is game programming **[2]**

OR

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

b) Explain the game programming: graphics, animation. **[4]**

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

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

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

OR

Q10) a) Explain basic JDK tools in Java. **[4]**

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

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

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

OR

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

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

Total No. of Questions : 12]

SEAT No. :

P2376

[Total No. of Pages : 2

[5156] - 506
T.Y.MCA (Faculty of Engineering)
MOBILE COMPUTING
(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 indicate full marks.*
3) *Assume suitable data if necessary.*

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

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

OR

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

b) Define the term "channel allocation in cellular system". **[3]**

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

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

OR

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

b) Explain the term "Bluetooth". **[3]**

Q5) a) What are the different data management issues in Mobile Computing? **[5]**

b) Define the term "Data Replication for mobile computers". **[4]**

OR

Q6) a) Explain the scenario of disconnected operation in Mobile Computing. **[5]**

b) Write a short term on "adaptive clustering for mobile wireless networks". **[4]**

P.T.O.

Q7) Explain the following terms: **[8]**

a) Palm OS

b) Embedded Linux

OR

Q8) Explain the architecture of Android in details. **[8]**

Q9) a) Explain in brief about file system of Android. **[5]**

b) Describe the concept of Adapter. **[3]**

OR

Q10) a) What is the concept behind location based services application? **[5]**

b) Describe the concept of Intent. **[3]**

Q11) Write a program for sending and receiving data message on Android. **[9]**

OR

Q12) Explain how binding and making connections with database in Android. **[9]**

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

P2377 **[Total No. of Pages : 2**

[5156] - 507
TYMCA (Engineering)
High Performance Computer Networks (Elective - II)
(2013 Pattern) (Semester-V)

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.***

SECTION - I

Q1) a) Explain switching with example. **[4]**

b) Define BISDN & ATM **[4]**

OR

Q2) a) Explain the term multiplexing. **[4]**

b) Explain OSI model **[4]**

Q3) a) What is RTSP? Give example of that. **[4]**

b) Explain the limitation of best effect services. **[4]**

OR

Q4) Explain the streaming stored multimedia. **[8]**

Q5) Explain mpls operation in details **[9]**

OR

Q6) a) Explain overlay networks-p2p connection. **[5]**

b) Explain the securities in VPN **[4]**

P.T.O.

SECTION - II

Q7) Explain network performance evaluation & Techniques **[8]**

OR

Q8) a) Explain Non poisson modeling. **[4]**

b) Comment "Why we need network modeling". **[4]**

Q9) Explain the principle of cryptography? **[8]**

OR

Q10) How to set access control of the internet with firewall. **[8]**

Q11) Explain the network infrastructure management. **[9]**

OR

Q12) Explain the internet standard management framework. **[9]**