Hall Ticket Number :										

R-15

Code: 5P2B26

M.C.A. II Semester Supplementary Examinations January 2017

Data Structures

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

****

UNIT–I

1. a) Compute the time complexity for the following:

```
sum = 0;
for( i = 0; i < n; i++)
  sum++;
val = 1;
for( j = 0; j < n*n; j++)
   val = val * j;
```

6M

b) Give brief description about the classification of data structures. 6M

OR

2. a) Write and explain the steps in finding the efficiency of non-recursive algorithms. 6M

b) Given a list of n orderable items, rearrange them in non – decreasing order. 6M

UNIT–II

3. a) Describe the procedure to convert an infix expression into postfix form? Convert the following infix expression to postfix by using the stack ((A / (B^C)) + (D ∗ E) – (A ∗ C) 10M

b) Evaluate the following postfix expression: 3 4 5 * 6 / + by using stacks 2M

OR

4. a) Why we will be using closed hashing instead of open hashing? Explain any one technique to implement open hashing. 6M

b) With the help of suitable example explain the representation of polynomial by using linked list. 6M

UNIT–III

5. a) Both the selection sort and bubble sort exchanges elements. The insertion sort does not. Explain how the insertion sort rearranges the data without exchanges 6M

b) Write the procedure for partition exchange sorting. Explain the same with an example. 6M

OR

6. a) Why the elements in binary search must be in sorted order only? Explain. 6M

b) Sort the following set of elements by using radix sort : {A, I, T, S, E, X, A, M, S } 6M

UNIT–IV

7. a) With the help of suitable example, explain the storage representation of trees. 9M

b) Create a Binary Tree from the following order:

Inorder : D	B	H	E	A	I	F	J	C	G
Preorder: A	B	D	E	H	C	F	I	J	G

3M

OR

8. a) Prove that the maximum possible number of nodes present in a tree of height h is 2^h-1 6M

b) How can we say that hashing is more efficient than the normal searching mechanisms? 6M

UNIT–V

9. What is a red black tree? List and explain the properties of it. Create a Red Black tree from the following data: E, X, A, M , I , N , A, T, I, O, N 12M

OR

10. a) Write and explain the procedure to visit the nodes by using Breadth First Search Traversal mechanism. 6M

b) Discuss the insertion operation on B tree of order 5. 6M

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Hall Ticket Number :										

R-15

Code: 5P2C23

M.C.A. II Semester Supplementary Examinations January 2017

Numerical Methods

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

****

UNIT–I

1. a) Find a root of the equation $x^3 - 4x - 9=0$, using the Bisection method 6M

   b) Discuss the types of errors 6M

OR

2. a) Determine the root of $x e^x - 2 = 0$ by the method of false position method 6M

   b) Evaluate $\sqrt{28}$ to four decimal places by Newton's method 6M

UNIT–II

3. a) Solve the equations x + 4y – z = -5, x + y - 6z = -12, 3x – y – z = 4 by Gauss elimination method 6M

   b) Solve the equations 10x + y + z = 12, 2x + 10y + z=13, 2x + 2y +10z =14 by factorization method 6M

OR

4. a) Solve the equations 28x + 4y – z = 32, x + 3y +10z = 24,2x + 17y + 4z = 35 by Gauss-Seidel method 6M

   b) Find the largest eigen value of the matrix $\begin{bmatrix} 2 & \\ 1 & \\ 3 & 4 \end{bmatrix}$ by Power method 6M

UNIT–III

5. a) Fit a least square quadratic curve to the data

x	1	2	3	4	5	6	7
y	2.3	5.2	9.7	16.5	29.4	35.5	54.4

6M

   b) Fit an exponential curve of the form $y = a e^{bx}$ to the data

x	0	1	2	3	4	5	6	7	8
y	20	30	52	77	135	211	326	550	1052

6M

OR

6. Find the correlation coefficient of the data

x	50	60	70	90	100
y	65	51	40	26	8

12M

UNIT–IV

7. a) Using Newton's forward formula, find the value of f(0.6) if

x	0.1	0.3	0.5	0.7	0.9	1.1	1.3
f(x)	0.003	0.067	0.148	0.248	0.370	0.518	0.697

6M

b) The area A of a circle of diameter d is given for the following values

d	80	85	90	95	100
A	5026	5674	6362	7088	7854

Calculate the area of a circle of diameter 105 6M

OR

8. Using Stirling's formula compute f(1.22) from the data

x	1.0	1.1	1.2	1.3	1.4
f(x)	0.841	0.891	0.932	0.963	0.985

12M

UNIT–V

9. Calculate y(0.1),y(0.2),y(0.3) and y(0.4) using Taylor's series method given that $\frac{dy}{dx} = y^2 + x$ and y(0)=1 12M

OR

10. Find the solution of $\frac{dy}{dx} = x - y$ at x=0.4 subject to the condition y=1 at x=0 and h=0.1 using Milne's method. Use Euler's modified method to evaluate y(0.1),y(0.2) and y(0.3) 12M

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Hall Ticket Number :										

R-15

Code: 5P2A25

M.C.A. II Semester Supplementary Examinations January 2017

Organization Structure & Personnel Management

Max. Marks: 60 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)

****

UNIT–I

1. What are the functions and theories of management? Explain each theory with example.

OR

2. Explain different organization structures.

UNIT–II

3. What are the objectives and policies of personal management?

OR

4. What is the role of personnel manager as a line and staff manager?

UNIT–III

5. Briefly explain the objectives and policies of training and development.

OR

6. What is performance appraisal? Explain the objectives of performance appraisal.

UNIT–IV

7. What is meant by transactional analysis? Elaborate.

OR

8. Define attitude and explain how to develop attitudes and values.

UNIT–V

9. Define six sigma and elaborate six sigma model in detail.

OR

10 Explain in detail about BPO (Business Process Outsourcing)

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R-15

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M.C.A. II Semester Supplementary Examinations January 2017

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