Hall Ticket Number :										

R-14 / R-15

Code: 5P2B21 / 4P2B21

M.C.A. II Semester Regular & Supplementary Examinations June 2016

Computer Organization

Max. Marks: 60 Time: 3 Hours

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

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UNIT-I

1. a) List and explain the combinational circuit. 6M

   b) Draw the schematic of a 4-bit left shift register with parallel load using D-type flip-flops. 6M

OR

2. Simplify the following expressions using Boolean algebra.
   a) A + AB
   b) AB + AB'
   c) A'BC + AC
   d) A'B+ ABC'+ABC 12M

UNIT-II

3. a) Make a comparison between the associative memory and cache memory. 8M

   b) How many lines must be decoded for chip select? Specify the size of the decoders. 4M

OR

4. a) Draw and explain the memory hierarchy in a computer system. 4M

   b) With the help of a neat diagram explain the match logic for one word of associative memory 8M

UNIT-III

5. a) Write an assembly language program for 8085 to determine the number of negative elements in a given dataset. 6M

   b) Convert the following numerical arithmetic expression into reverse polish notation and show the stack operations for evaluating the numerical result. (3+4)(10*(2+6)+8) 6M

OR

6. a) Define addressing mode. Explain various addressing modes with examples. 8M

   b) Give a brief note on stack organization 4M

UNIT-IV

7. Write an assembly language program to check whether the given string is palindrome or not. 12M

OR

8. a) Explain the conditional and unconditional transfer instructions with an example. 6M

   b) Discuss in detail about data transfer and manipulation instructions. 6M

UNIT-V

9. a) Explain the concept of Wide-Branch addressing in detail. 4M

   b) With a neat block diagram, explain in detail about micro programmed control unit and explain its operations. 8M

OR

10. Explain the following:
    a) Daisy Chaining
    b) DMA
    c) Control Memory
    d) IOP Communication. 12M

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Hall Ticket Number :										

R-15 / R-14

Code: 5P2B22 / 4P2B22

M.C.A. II Semester Regular & Supplementary Examinations June 2016

Business Data Processing

Max. Marks: 60 Time: 3 Hours

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

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UNIT–I

1. a) Explain about the structure of a COBOL program. 6M

   b) What are the sections and paragraphs of ENVIRONMENT DIVISION? 6M

OR

2. a) Describe the coding format of a COBOL program. 6M

   b) Sketch out the structure of IDENTIFICATION DIVISION. 6M

UNIT–II

3. a) Specify the syntax of the following statements:
   i. DISPLAY **ii**. ACCEPT **iii**. ALTER **iv**. EXIT
   v. Decision Making using IF and EVALUATE 6M

   b) What are the major sections of DATA DIVISION? Discuss the rules for Data Movement. 6M

OR

4. a) Explain in brief about Conditional Statements. 6M

   b) Bring out the usage of the following arithmetic verbs:
   i. ADD **ii**. SUBTRACT **iii**. MULTIPLY **iv**. DIVIDE **v**. COMPUTE 6M

UNIT–III

5. a) Explain in detail about different types of PERFORM statements with examples. 6M

   b) How to deal with tables in COBOL? Explain. 6M

OR

6. a) How to manipulate text with STRING and UNSTRING statement? Write a COBOL program to display a Welcome message using Screen Section features. 6M

   b) What is the role of the following clauses in COBOL:
   i. Usage **ii**. SYNCHRONIZED **iii**. JUSTIFIED **iv**. SIGN
   iv. REDEFINES **v**. RENAMES 6M

UNIT–IV

7. a) Explain in brief about Procedure Division statements of a relative file. 4M

   b) Write a program to create a sequential file with two fields: sno (student number) and sname (student name). Add a few records Modify the record with sno=1 as sno=10. Use sequential file I/O. 8M

OR

8. a) Write a COBOL program to sort a magnetic-tape file into the trans-code within the account-number order.

Positions	**Fields**
1-8	Account-number (alphanumeric)
9-15	Not used
16-17	Trans-code (numeric integer)
18-60	Not used

8M

   b) Discuss the usage of MERGE verb. 4M

UNIT–V

9. a) Provide an outline of the Report Section in Data Division. 4M

   b) Describe various PROCEDURE DIVISION statements. 8M

OR

10. a) Give the structure of a COBOL subroutine. What are the advantages and disadvantages of COBOL subroutines? 8M

    b) Write short notes on COPY and CALL statements. 4M

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Hall Ticket Number :										

R-15 / R-14

Code: 5P2B26 / 4P2B26

M.C.A. II Semester Regular & Supplementary Examinations June 2016

Data Structures

Max. Marks: 60 Time: 3 Hours

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

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UNIT–I

1. a) Define time and space complexity? With the help of suitable example explain the various asymptotic notations. 8M

   b) Compute the time complexity for the following: 4M

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

OR

2. a) Explain, how to find the number of basic operations depends on the size of input. 6M

   b) Write the procedure to formulate the algorithm by using recursive mechanism. Explain with example. 6M

UNIT–II

3. a) What is a queue? In how many ways a queue can be stored in memory? Explain them 6M

   b) List the disadvantages of various open hashing techniques. 6M

OR

4. a) What is meant by hashing? With the help of suitable example explain any two hashing techniques. 6M

   b) In how many positions a node can be inserted into a single linked list. Explain. 6M

UNIT–III

5. a) Write the procedure to search for an element by using binary search. Explain with example. 6M

   b) Explain with example the procedure for sorting the elements by using the tree of calls. 6M

OR

6. a) In what way a Fibonacci search differs from linear search. Explain. 6M

   b) Write the procedure to sort the elements by using insertion sort. Sort the following set of elements by using insertion sort: { Y, S, R, D, I, S, T, R, I, C, T} 6M

UNIT–IV

7. a) Discuss about the threaded binary trees. 9M

   b) What are drawbacks with static representation of trees? 3M

OR

8. a) What is collision? Explain with an example. 4M

   b) What is a binary tree? In what way a binary tree differs from a tree? Write and explain any two tree traversal techniques. 8M

UNIT–V

9. When can we say that the tree is height balanced? When a tree becomes unbalanced how will you make it as balanced? Explain it in detail. 12M

OR

10. a) With the help of an example explain the deletion operation for binary search trees. 6M

    b) Explain with example the Boolean matrix representation and linked list representation of a graph. 6M

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Hall Ticket Number :										

R-15 / R-14

Code: 5P2C23 / 4P2C23

M.C.A. II Semester Regular & Supplementary Examinations June 2016

Numerical Methods

Max. Marks: 60 Time: 3 Hours

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

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UNIT–I

1. a) Estimate the error in evaluating $f(x,y)=x^2 + y^2$ for x=3 and y=4 6M

   b) Find a root of the equation [illegible] $= 0$, using the Bisection method 6M

OR

2. a) Find a positive root of [illegible] by Newton-Raphson method 6M

   b) Determine the root of [illegible] $0.2 =$ [illegible] 0.2 [illegible] $.2 = 0$, by Regular false position method 6M

UNIT–II

3. Solve the equations 5x+2y+z=12; x+4y+2z=15;x+2y+5z=20 by **i**) Jacobi's method **ii**) Gauss-Seidal method 12M

OR

4. a) Solve the equations 10x-2y-3z=205; -2x+10y-2z=154; -2x-y+10z=120 by Relaxation method 6M

   b) Find the largest eigen value of the matrix [illegible] Power method 6M

UNIT–III

5. a) Find a least squares straight line for the data

X	1	2	3	4	5	6
Y	6	4	3	5	4	2

6M

   b) Fit a power function of the form $y=a.x^b$ to the data

Price x	20	16	10	11	14
Demand y	22	41	120	89	56

6M

OR

6. Calculate Correlation Coefficient for the data

x	25	18	32	27	21	35	28	30
y	16	11	20	17	15	26	32	20

12M

UNIT–IV

7. a) Given sin 45^0=0.7071, sin 50^0=0.7660, sin 55^0=0.8192, sin 60^0=0.8660; find sin 52^0 using Newton's forward formula 6M

b) The table gives the distances in nautical miles of the visible horizon for the given heights in feet above the earth's surface

height x	100	150	200	250	300	350	400
Distance y	10.63	13.03	15.04	16.81	18.42	19.90	21.27

Find the value of y when x=410 ft 6M

OR

8. Use Bessel's formula to find the value of F at x=1.95 given

x	1.7	1.8	1.9	2.0	2.1	2.2	2.3
F	2.979	3.144	3.283	3.391	3.463	3.997	4.491

12M

UNIT–V

9. Using modified Euler's method, find an approximate value of y(0.2) and y(0.4), given $\frac{dy}{dx} = y + e^x$, y(0)=0 12M

OR

10. Use Milne's method to find y(0.8) and y(1.0) from $\frac{dy}{dx} = 1 + x^2 + y$, y(0)=0. Find the initial values y(0.2),y(0.4) and y(0.6) from the Runge - Kutta method 12M

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Hall Ticket Number :										

R-15 / R-14

Code: 5P2C24 / 4P2C24

M.C.A. II Semester Regular & Supplementary Examinations June 2016

Operations Research

Max. Marks: 60 Time: 3 Hours

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

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UNIT–I

1. What is Operations Research? Explain characteristics and the applications of Operations Research in management decision making.

OR

2. What are the different Models in Operations Research? Explain.

UNIT–II

3. Solve the following linear programming problem using Simplex method $Max\ z = 20x_1 + 30x_2$ Subject to the constraints

$$5x_1 + 3x_2 \le 36$$
$$5x_1 + 2x_2 \le 50$$
$$2x_1 + 6x_2 \le 60$$
$$x_1, x_2 \ge 0$$

OR

4. a) Write a short note on Big-M method.

   b) Use the graphical method to solve the following LP Problem. $Min\ z = 20x_1 + 10x_2$ Subject to the constraints

$$x_1 + 2x_2 \le 40$$
$$3x_1 + x_2 \ge 30$$
$$4x_1 + 3x_2 \ge 60$$
$$x_1, x_2 \ge 0$$

UNIT–III

5. Explain the methods for obtaining Initial Basic Feasible solution of a Transportation problem.

OR

6. Solve the following Assignment problem using Hungarian method. The matrix entries represents the processing time in hours.

	Operators					
		1	**2**	**3**	**4**	**5**
Jobs	**1**	10	12	15	12	8
	2	7	16	14	14	11
	3	13	14	7	9	9
	4	12	10	11	13	10
	5	8	13	15	11	15

UNIT–IV

7. Define the following terms related to Game theory.

a) Pure strategy
b) Mixed strategy
c) Saddle point
d) Two- Persons Zero –Sum game
e) Dominance Principle.

OR

8. Solve the following Game by reducing to 2x2 Game using Graphical method. Also find optimal strategies for both the players.

Player B					
Player A		I	II	III	IV
	I	4	2	4	1
	II	3	4	3	4

UNIT–V

9. Write the differences between PERT and CPM.

OR

10. The following table gives the activities in a construction project and other related information.

Activity	**1-2**	**1-3**	**2-3**	**2-4**	**3-4**	**4-5**
Optimistic time (days)	20	9	3	2	1	12
Most likely time (days)	30	12	5	3	2	18
Pessimistic time (days)	46	21	7	4	3	24

a) Draw a Network diagram.
b) Find the critical path and calculate total project duration.
c) Find the probability that the project will be completed in 50 days.

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Hall Ticket Number :										

R-15 / R-14

Code: 5P2A25 / 4P2A25

M.C.A. II Semester Regular & Supplementary Examinations June 2016

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)

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UNIT–I

1. Define management. Explain the concepts of management and organization in detail.

OR

2. Explain the social responsibilities of management in a business organization.

UNIT–II

3. What are the dynamics of decision? Explain in detail the dynamics of decision making.

OR

4. Define HRM and Differentiate personal management with HRM.

UNIT–III

5. Explain in detail need strategy and its limitation in man power planning.

OR

6. List out training techniques and explain each technique.

UNIT–IV

7 What is the importance of communication? What are the barriers of communication? Explain with examples.

OR

8. Define perception and explain perceptional process.

UNIT–V

9. What is quality? Explain TQM.

OR

10 Elucidate in detail about PCMM (People Capability Maturity Model) levels.

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