Question Paper Set of

F.Y.B.SC.IT. – Sem-II

Regular Exam

University of Mumbai

April, 2024

Question Paper Set of

F.Y.B.SC.IT. – Sem-II

Regular Exam

University of Mumbai

April, 2024

PRAHLADRAI DALMIA LIONS COLLEGE OF COMMERCE & ECONOMICS
REGULAR, MARCH 2024

DEPARTMENT: BSCIT		SEMESTER: II
CLASS: FYBSCIT		SUBJECT: NM
DURATION: 2:30 hrs		MARKS: 75

Note: Use of Scientific Calculator is allowed. Assume suitable data.

Q.1   **Attempt _any three_ of the following:**   [15]

(1a)   Find the Percentage error if $true\ value = 12.6$ and $approximate\ value = 13$

(1b)   Explain various types or Errors.

(1c)   An approximate root obtained by Bisection after three iteration was 2.7811 whereas the actual root was 2.78. Estimate percentage error in numerical calculation.

(1d)   Round off to total four significant digits:
   a)   952.026
   b)   63.52625

(1e)   Truncate given numbers to two decimal places:
   a)   2834.032
   b)   45.3768

(1f)   The length of one side of a square metal piece was 2.73 cm, whereas it was wrongly reported as 2.7 cm. Find percentage error in area calculation.

Q.2   **Attempt _any three_ of the following:**   [15]

(2a)   Find an approximate root of the equation $x^3 - x - 4 = 0$ using bisection method in $[1, 2]$.

(2b)   Find an approximate root of the equation $x^3 - x - 1 = 0$ using false position method in $[1, 2]$.

(2c)   Solve equation $x^3 - 4x - 9 = 0$, using Newton-Raphson method. $(x_0 = 2)$

(2d)   Construct forward and backward difference tables.

X	0	5	10	15	20
Y	7	11	14	18	24

(2e)   Find y at $x = 1.5$ using Newton's Forward Interpolation Formula (NFIF)

X	1	2	3	4	5
Y	2	4	8	16	32

(2f)   Construct Forward Difference table for $y = x^3$ in $x = 1(1)8$

Q.3   **Attempt _any three_ of the following:**   [15]

(3a)   Sole the given simultaneous equations using Gauss-Jordan method.
$a + b + c = 90$
$2a + 3b + 6c = 370$
$3a - 8b - 4c = -340$

(3b)   Sole the given simultaneous equations using Gauss-Siedel method.
$28a + 4b - c = 32$
$2a + 17b + 4c = 35$
$a + 3b + 10c = 24$

(3c)   Evaluate $\int_1^4 (x^2 + 3x)dx$ using Trapezoidal rule, take $h = 0.5$

(3d)   Evaluate $\int_2^8 (x^3)dx$ using Simpson's 1/3 rule, by taking $h = 1$

(3e)   Evaluate $\int_1^4 (4x - 1)dx$ using Simpson's 3/8 rule, take $h = 0.5$

(3f)   Evaluate $\int_0^{80} Y dX$ using Simpson's 1/3 rule using following table.

X	0	10	20	30	40	50	60	70	80
Y	0	4	7	8	12	15	14	8	3

Q.4   **Attempt _any three_ of the following:**   [15]

(4a)   Given, $\frac{dy}{dx} = 1 + xy$ and $y(0) = 1$. Obtain Taylor series. Hence find $y(0.1)$ with $h = 0.1$

(4b)   Fit a straight line and hence estimate Y for X=9

X	2	4	6	8	10
Y	12	18	16	23	27

(4c)   Find Regression equation using method of least squares.

X	0	1	2	3	4
Y	1	1.8	3.3	4.5	6.3

(4d)   Find Regression Coefficient of Y on X

X	3	7	12	20
Y	8	10	13	16

(4e)   Discuss application of Regression

(4f)   Find Regression equation of Y on X using method of least squares.

X	1	2	3	4	5
Y	2	5	3	8	7

Q.5   **Attempt _any three_ of the following:**   [15]

(5a)   Discuss applications of LPP

(5b)   Maximize $Z = 6x + 7y$

Subject to,

$2x + 3y \leq 12$

$2x + y \leq 8$

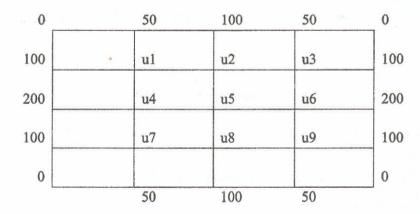$x, y \geq 0$. Solve Graphically.

(5c)   Minimize $Z = x + 2y$

Subject to,

$3x + 10y \geq 150$

$4x + 5y \geq 150$

$x, y \geq 0$. Solve Graphically.

(5d)   Explain Linear Programming as a tool of Decision Making (Optimization) technique.

(5e)   Discuss various conditions used to classify second order partial differential equations.

(5f)   Solve the Laplace equation $u_{xx} + u_{yy} = 0$ using Liebmann's iteration process with boundary condition as given below:

	0	50	100	50	0
100		u1	u2	u3	100
200		u4	u5	u6	200
100		u7	u8	u9	100
0					0
		50	100	50	

X X X X X

PRAHLADRAI DALMIA LIONS COLLEGE OF COMMERCE & ECONOMICS

REGULAR , MARCH, 2024

DEPARTMENT: BSCIT	SEMESTER: II
CLASS: FYBSCIT	SUBJECT: Object Oriented Programming with C++
DURATION: 2:30	MARKS: 75

1   Attempt *any three* of the following: 15

    a. List the features of Object-Oriented programming.
    b. Write a note on the Scope Resolution operator.
    c. Explain the concept of Inheritance and message passing.
    d. Write a C++ program to find the greatest of three numbers.
    e. Explain manipulator with example.
    f. What is an identifier? What are the rules for defining an identifier?

2. Attempt *any three* of the following: 15

    a. What is inline function?
    b. How is a member function of class defined?
    c. What is an Array of the object?
    d. What is constructor? List some special characteristics of constructor.
    e. Explain the concept of operator overloading.
    f. Describe the importance of Destructor.

3. Attempt any three of the following: 15

    a. Describe C++ Stream classes?
    b. Explain the concept of this pointer with example?
    c. What is pure virtual function? Explain with help of program?
    d. What are the different forms of inheritance in C++?
    e. Explain multilevel inheritance with help of program.
    f. What is binding in C++?

4. Attempt any three of the following: 15

    a. Describe Exception handling mechanism?
    b. Explain the concept of template and its types with example?
    c. What is the difference between input Steam and output stream?
    d. Write short note on function templates with multiple parameters?
    e. Explain the read () and write () function.
    f. What type of communication done with the file?

5. Attempt any three of the following: 15

    a. Write a program to swap the contents of two string using swap()?
    b. How are string object created? Also give an example?
    c. Explain the components of STL?
    d. Explain new keyword and new header file in C++?
    e. Explain container in C++?
    f. What is function objects in standard template library?

PRAHLADRAI DALMIA LIONS COLLEGE OF COMMERCE & ECONOMICS
REGULAR , MARCH, 2024

DEPARTMENT: BSCIT	SEMESTER: II
CLASS: FYBSCIT	SUBJECT: GREEN IT
DURATION: 2:30	MARKS: 75

1. **Attempt _any three_ of the following:** 15
   a. What is the carbon footprint? What are the steps to measure carbon footprint?
   b. Write a short note on green IT.
   c. What is recycling? Explain in brief.
   d. Explain any 2 green IT based directives.
   e. What are the government sponsored green IT initiatives of any 5 countries?
   f. Draw a diagram to explain regulatory environment and IT manufacturers

2. **Attempt _any three_ of the following:** 15
   a. Explain any 5 ways to reduce power use in data centers.
   b. Explain RAID and MAID.
   c. Show the formulas to calculate your cooling needs of server rooms.
   d. Explain air side and water side economizers.
   e. Explain the ways to optimize the airflow in a server room aisle.
   f. What are the different ways to monitor power usage?

3. **Attempt _any three_ of the following:** 15
   a. What is green networking and communication?
   b. What are the different areas in terms of pollutants where you can be environmentally responsible?
      non-IT portions of your organization
   c. What are the benefits of going paperless?
   d. List the questions to evaluate your supplier to be green conscious.
   e. Write a short note on EDI.
   f. What is intranet? What are the components of intranet?

4. **Attempt _any three_ of the following:** 15
   a. Explain the system development lifecycle.
   b. What factors to consider when figuring out direct and indirect costs when evaluating your system's life cycle?
   c. What are the pros and cons of leasing equipment?
   d. What are thin clients? Explain its advantages.
   e. Explain the various methods to decommissioning hard drives
   f. List any 10 questions to ask when considering a recycler.

5. **Attempt _any three_ of the following:** 15
   a. What are the various metrics to use for greening organization?
   b. What is CRM? Explain the various groups of people in CRM?
   c. Write a short note on SaaS.
   d. Explain SMART goals
   e. Explain the various issues while collecting and tracking data.
   f. Explain qualitative and quantitative reviews.

PRAHLADRAI DALMIA LIONS COLLEGE OF COMMERCE & ECONOMICS
REGULAR , MARCH, 2024

DEPARTMENT: BSCIT	SEMESTER: II
CLASS: FYBSCIT	SUBJECT: FMPMC
DURATION: 2:30	MARKS: 75

1 Attempt _any three_ of the following: 15

a.   Define Computer Language and explain low level language and state its advantages and disadvantages

b.   Write a short note on I/O Section and Interrupt Circuitry.

c.   Write a short note on RAM.

d.   Explain Binary Decoder in detail.

e.   Write a short note on Flash memory.

f.   Draw a neat diagram of 8085 Architecture

2. Attempt _any three_ of the following: 15

a.   Explain 8085 interfacing pins in detail.

b.   Write a short not on Absolute Decoding.

c.   Explain 8085 Programming Model.

d.   Write a short note on :-
   a.) Register Addressing Mode
   b.) Direct Addressing Mode

e.   Explain any five Arithmetic Group Instructions.

f.   Write a description on RLC.

3. Attempt _any three_ of the following: 15

a.   Find One's complement of 16 bit number stored in memory location D000H i.e. LSB and D001 i.e. MSB. Store LSB of result in memory locations D002H and MSB i9n D003H.

b.   Write a short note on Call and return Instructions.

c.   Explain different types of 8085 Interrupt.

d.   Write a program to generate a delay using an nested loops.

e.   Addition of two 16 bit numbers stored in memory. After addition store result in memory. The result may be greater than 16 bit.

f.   Write a program to generate a delay of 1sec if the crystal frequency is 6 MHz.

4. Attempt _any three_ of the following: 15

a   Write a short note on Flash memory.

b   Explain the hardware of 8051 Microcontroller Hardware

c   WAP to toggle bits of P1 continuously forever with some time delay.

d   Distinguish between General Purpose System and Embedded System

e   Write a short note on I/O MAPPED I/O

f   Explain in detail External Peripherals.

5. Attempt _any three_ of the following: 15

a.   Explain the Structure of Embedded Program

b.   Describe the types of files generated on Cross-Compilation.

c.   What is EDLC and its objectives.

d.   Write a short note on Debugging

e.   Write a note on Integrated Development Environment.

f.   Explain Decompiler in detail.

PRAHLADRAI DALMIA LIONS COLLEGE OF COMMERCE & ECONOMICS
REGULAR EXAMINATION, March, 2024

DEPARTMENT: BSCIT	SEMESTER: II
CLASS: FYBSCIT	SUBJECT: Web Application Development
DURATION: 2:30	MARKS: 75

1. **Attempt _any three_ of the following: (15)** 15

a Describe FTP briefly.
b Discuss Ecommerce and Ebusiness concisely.
c Explain Internet address briefly.
d Differentiate between ordered and unordered lists in HTML.
e Provide HTML code for text formatting using CSS.
f Explain image maps in HTML briefly.

2. **Attempt _any three_ of the following:** 15

a Describe HTML form structure with an example.
b Analyze the functionalities of Submit and Reset buttons within an HTML form.
c Display the utilization of POST methods in HTML forms.
d Exemplify Internal CSS implementation in HTML.
e Discuss the significance of the ID attribute in HTML briefly.
f Explain HTML audio elements with the help of an example.

3. **Attempt _any three_ of the following:** 15

a Exhibit the application of document.write method in JavaScript.
b Illustrate the usage of a for loop in JavaScript.
c Provide a brief overview of JavaScript operators.
d Elucidate the JavaScript switch statement through an example.
e Clarify the JS ondblclick event using an example.
f Explain the JS onmouseout event with an example.

4. **Attempt _any three_ of the following:** 15

a Demonstrate PHP syntax through an example.
b Write a short note on PHP case sensitivity.
c Utilize a Switch statement in PHP to display student defaulter status based on college rules.
d Elaborate on math functions within PHP.
e Describe PHP operators briefly.
f Clarify PHP if...else...elseif statements with an example.

5. **Attempt _any three_ of the following:** 15

a Summarize PHP form handling.
b Implement PHP code for inter-page variable transfer via Session.
c Describe PHP function with one parameter.
d Demonstrate PHP code for cookie creation, retrieval, and deletion.
e Illustrate PHP and MySQL connectivity with code.
f Explain updating MySQL table data using PHP.