Code No. E-10518

FACULTY OF SCIENCE

B.Sc. (CBCS) VI - Semester (Regular / Backlog) Examination, June / July 2023

Subject: Computer Science

Paper- VI : Web Technologies

Time: 3 Hours **Max. Marks: 80**

PART – A

Note: Answer any eight questions. **(8 x 4 = 32 Marks)**

1. Write about Hyperlinks in HTML?
2. What is an Embedded Style Sheet?
3. Difference between break and continue statements.
4. Short notes on functions
5. Write about onsubmit event?
6. Write about two date functions with meaning and example?
7. Write about XSL Transformations?
8. What is XMLHttpRequest object?
9. How to define a frame in HTML?
10. Write about Relational operators?
11. What is event bubbling in JavaScript?
12. Write about the history of AJAX?

PART – B

Note: Answer all the questions. **(4 x 12 = 48 Marks)**

13. (a) Define HTML List and explain in detail the types of Lists with a program?

(OR)

(b) Write the Text, Background and Font properties in CSS with a program?

14. (a) Write in detail about else if statements and while statements with examples?

(OR)

(b) Write in detail about functions and recursive functions in Javascript with programs?

15. (a) Write about onmouseover, onfocus, onload and onkeypress events with programs?

(OR)

(b) Write six String and six Math functions in Javascript with example programs?

16. (a) Explain about XML Schema with an example.

(OR)

(b) Describe a Simple Ajax Application?

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FACULTY OF SCIENCE

Code No: E-10521

B.A. / B.Sc. (CBCS) VI Semester (Regular & Backlog) Examination,
June / July 2023
Subject: Statistics
Paper – VI (B) : Analytical Statistics-II

Time: 3 Hours

Max. Marks: 80

PART – A

Note: Answer any eight questions. (8 x 4 = 32 Marks)

1. State the properties of multinomial distribution.
2. Explain the concept of least squares estimation.
3. Explain (i) Mean square error (ii) R^2
4. Define cluster analysis and state its applications.
5. What is factor analysis? Give an example.
6. Write the properties of principal component analysis.
7. Explain the uses of vital statistics.
8. Explain standardized death rates.
9. Explain crude rate of natural increase with Pearle's vital index.
10. Explain functions of CSO.
11. Limitations of Index Numbers.
12. Explain deflation of Index Numbers

PART – B

Note: Answer all the questions. (4 x 12 = 48 Marks)

13. (a) (i) Explain multivariate distribution with real life example.
(ii) State properties of multivariate distribution.

(OR)

(b) Estimate the parameters in logistic regression and also state properties of logistic regression.

14. (a) Explain Bayesian linear discriminant rule for image processing.

(OR)

(b) Explain multidimensional scaling technique to pattern recognition and also give its applications.

15. (a) Explain different types of fertility rates, give its merits and demerits.

(OR)

(b) (i) State assumptions of life table.
(ii) Explain description of life tables in detail.

16. (a) Define cost of living index numbers. Explain methods of its construction. Also give its uses.

(OR)

(b) Show that Fisher's index number is an Ideal number with suitable example.

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FACULTY OF SCIENCE **Code No. 18309**

B.Sc. VI Semester (CBCS) Examination, July/August 2021

Subject: Mathematics
(Numerical Analysis)
Paper: VII (DSC)

Time: 2 Hours **Max. Marks: 60**

PART – A

Note: Answer any four questions. **(4 x 5 = 20 Marks)**

1 Determine the fixed points of the function $f(x) = \frac{x-1}{x+1}$.

2 Explain Newton-Raphson method to find the roots of the equation.

3 Find the zeros of the Polynomial $f(x) = x^3 - 2x^2 - 5$ using Muller's method.

4 Determine the Linear Lagrange interpolating polynomial that passes through the points (2,4) and (5,1).

5 Explain briefly about Hermite Polynomials.

6 Construct a natural cublic spline that passes through the points (1,2) (2,3) and (3,5).

7 Use the forward difference formula to approximate the derivative of $f(x) = \log x$ at $x_0 = 1.8$ using $h = 0.01$ and determine bound for the approximation error.

8 State Trapezoidal and Simpson's rules and mention their degrees of precision.

PART – B

Note: Answer any two questions. **(2 x 20 = 40 Marks)**

9 Use the Bisection method to solve the equation $e^x - x^2 + 3x - 2 = 0$ for $0 \le x \le 1$ within 10^{-5} accuracy.

10 Use Newton's method to solve the equation $4x^2 - e^x - e^{-x} = 0$ within 10^{-5} accuracy. Use $P_0 = 1$.

11 Determine the second Lagrange Polynomial for $f(x) = \frac{1}{x}$ on [2,4] using the numbers $x_0 = 2$, $x_1 = 2.75$ and $x_2 = 4$. Also determine the maximum error when the polynomial is used to approximate $f(x)$ for $x \in [2,4]$.

12 Complete the divided difference table and construct the interpolating polynomial for the following data.

x	1.0	1.3	1.6	1.9
$f(x)$	0.7651977	0.6200860	0.4554022	0.1103623

13 Approximate $\int_0^2 \frac{2\,dx}{x^2+4}$ with n=6 using composite simpson's rule.

14 Using Romberg integration compute $R_{3,3}$ for the integral $\int_0^{\pi} (\cos x)^2 dx$.

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Code No. 18321

FACULTY OF SCIENCE
B.Sc. VI Semester (CBCS) Examination, August 2021

Subject: Computer Science (Web Technologies)
Paper: VIII(B) DSE(E-2)

Time: 2 Hours **Max. Marks: 60**

PART – A

Note: Answer any four questions. **(4 x 5 = 20 Marks)**

1 Explain about <title> tag and its purpose with an example.
2 Explain about nested lists in HTML with an example.
3 Explain how to span rows and columns of tables.
4 Briefly explain the Box model.
5 Explain about CSS id selector with an example.
6 What are the advantages of CSS?
7 Explain how to define and call a function in Java Script.
8 Explain about arithmetic operators in JavaScript.

PART – B

Note: Answer any two questions. **(2 x 20 = 40 Marks)**

9 Explain the Presentational elements and Phrase elements of HTML in detail.

10 Explain the various types of form controls.

11 Explain the different types of Cascading Style Sheets with examples.

12 Discuss how lists can be styled using CSS.

13 Explain about the control statements in JavaScript.

14 Explain about the events in JavaScript. Write a program for onsubmit event.

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FACULTY OF SCIENCE

Code No. 8321

B.Sc. VI-Semester (CBCS) Examination, October 2020

Subject : Computer Science (Web Technologies)

Time : 2 Hours **Paper – VIII-B DSE (E-2)**

Max. Marks: 60

Note: Answer any four questions. **(4x5=20 Marks)**

1 Explain the structure of an HTML document with an example.
2 What is a Hyperlink? How to insert a hyperlink in a web page?
3 What is CSS? Explain about Inline styles.
4 Write a short note on Typography.
5 Define Scripting. Explain how to include a script in a web page?
6 Write a short note on variables in JavaScript.
7 Differentiate between HTML and XHTML.
8 Discuss about Tokens in JavaScript.

Note: Answer any two questions. **(2x20=40 Marks)**

9 Discuss briefly about frames in HTML with an example.

10 Create a webpage to display your class time table.

11 Discuss briefly about internal and external style sheet techniques with an example.

12 Explain the concept of BOX Model in CSS.

13 Discuss briefly about looping statements available in JavaScript.

14 Explain the concepts of putting your site on the web.

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Code No. 8314

FACULTY OF SCIENCE

B.Sc. VI-Semester (CBCS) Examination, September / October 2020

Subject : Statistics (Design of Experiments, Vital Statistics, Official Statistics and Business Forecasting)

Paper – VII DSC

Time : 2 Hours **Max. Marks : 60**

PART – A

Note: Answer any four questions. **(4x5=20 Marks)**

1 Define Birth rate and Age specific birth rate.
2 Explain the advantages of Randomised blocked design (RBD).
3 State Cochran's theorem. Give its applications.
4 Write the formulae for one missing observation in Latin square design (LSD) and explain them.
5 Explain the assumptions in life Table.
6 Explain the steps in Forecasting.
7 Explain about Agricultural statistics in brief.
8 Define standardized death rates. Why do we need them?

PART – B

Note: Answer any two questions. **(2x20=40 Marks)**

9 Explain analysis of ANOVA for two way classification and stating the assumptions.

10 Write in detail about principles of Experimentation.

11 Write a detailed notes on central statistical organization (CSO).

12 Estimate the missing value in a Randomized Blocked design (RBD) and state the differences in its analysis when compared to complete BRD.

13 Write a detailed notes on population growth and how it can be measured? Explain.

14 Define various fertility rates and give suitable examples.

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Code No. 8309

FACULTY OF SCIENCE

B.Sc. VI-Semester (CBCS) Examination, Sept. / Oct. 2020

Subject : Mathematics (Numerical Analysis)

Paper – VII (DSC)

Time : 2 Hours **Max. Marks : 60**

PART – A

Note: Answer any four questions. **(4x5=20 Marks)**

1 Show that $f(x) = x^3 + 4x^2 - 10 = 0$ has a root in [1, 3] and use the Bisection method to determine on approximation to the root that is accurate to at least within 10^{-4}.

2 Use Horner's method to evaluate
$P(x) = 2x^4 - 3x^2 + 3x - 4$ at $x_0 = -2$

3 Determine the linear Lagrange interpolating polynomials that passes through the points (2, 4) and (5, 1)

4 Find approximate f(0.05) using the following data and the Newton forward-difference formula.

x	0.0	0.2	0.4	0.6	0.8
$f(x)$	1.00000	1.22140	1.49182	1.82212	2.22554

5 Compute the actual error for the function
$f(x) = 2\cos 2x$ for the following data / table

x	$f(x)$	$f'(x)$
1.0	1.000	
1.2	1.2625	
1.4	1.6595	

6 Using Trapezoidal rule, evaluate $\int_0^{0.5} \frac{2}{x-4}\,dx$.

7 Write Algorithm for Newton's – divided – difference formula.

8 Use the method of False position, approximate the root for the function
$f(x) = x^2 - 6$ with $P_0 = 3$ and $P_1 = 2$ find P_3.

PART – B

Note: Answer any two questions. **(2x20=40 Marks)**

9 Using Newton's method. Find the solution accurate 10^{-4} for the function
$x - \cos x = 0$ which lies in $[0, \pi/2]$

10 Use a fixed point iteration method to determine a solution accurate to within
10^{-4} for $x = \tan x$ for x in [4, 5].

11 Use appropriate Lagrange's interpolating polynomials of degrees one, two and three to find approximate value of
f(0.43) if f(0) =1, f(0.25) = 1.64872,
f(0.5) = 2.71828 , f(0.75) = 4.48169

12 Using Hermite polynomials, evaluate f(8.4) from the following data :

x	f(n)	f'(n)
8.3	17.56492	3.116256
8.6	18.50515	3.151762

..2

13 Use the most accurate the three-point formulate to determine each missing entry in the following table:

x	$f(x)$	$f'(x)$
1.1	9.025013	
1.2	11.02318	
1.3	13.46374	
1.4	16.44465	

14 Approximate $\int_{0}^{\pi/4} e^{2x} \sin 2x \, dx$ upto 3 iterations adaptive quadrature method.

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Code No. 3330

FACULTY OF SCIENCE

B.Sc. VI-Semester (CBCS) Examination, May / June 2019

Subject : Computer Science

Paper – VIII (B) (DSE E-2) : Web Technologies

Time : 3 Hours **Max. Marks: 60**

PART – A (5 x 3 = 15 Marks)
(Short Answer Type)
Note : Answer any FIVE of the following questions.

1 Explain <IMG> tag in HTML.
2 Define with syntax <FONT> tag.
3 Write about Style rule / syntax.
4 What are the different properties associated with list?
5 Write the structure of Java Script program.
6 Write a Short note on Meta tags.
7 What is a frame in HTML ? Give an example.
8 Write a Short note on <LINK> element.

PART – B (3 x 15 = 45 Marks)
(Essay Answer Type)
Note: Answer ALL from the questions.

9 (a) Discuss various tags of HTML.

OR

(b) Define a frame. Explain the attributes supported by the <FRAME> tag briefly.

10 (a) How Style sheets are specified in HTML?

OR

(b) Explain how the links can be styled. Give an example.

11 (a) Explain about variables in JavaScript.

OR

(b) Explain about events in JavaScript.

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FACULTY OF SCIENCE

Code No. 3316/E

B.Sc. VI-Semester (CBCS) Examination, May / June 2019

Subject : Mathematics

Paper – VII (DSC) : Numerical Analysis

Time : 3 Hours

Max. Marks: 60

PART – A (5 x 3 = 15 Marks)
(Short Answer Type)
Note : Answer any FIVE of the following questions.

1 Explain Bisection Technique to find the root of given equation $f(x) = 0$.

2 Determine the number of iterations necessary to solve $f(x) = x^3 + 4x^2 - 10 = 0$ with accuracy using $a_1 = 1$ and $b_1 = 2$.

3 Construct the divided difference table for the following data.

x	1	1.3	1.6	1.9	2.2
f(x)	0.7651977	0.6200860	0.4554022	0.2818186	0.1103623

4 Write Algorithm for Neville's method.

5 Use the forward difference formula to approximate the derivative of $f(x) = \log x$ at $x_0 = 1.8$ using $h = 0.1$ and $h = 0.01$ determine bounds for the approximation errors.

6 Derive Simpson's $1/3^{rd}$ rule.

7 Explain the secant method and its geometrical interpretation.

8 Let $P_3(x)$ be the interpolating polynomial for the data (0, 0), (0.5, y), (1,3) and (2, 2). The coefficient of x^3 in $p_3(x)$ is 6, find 'y'.

PART – B (3 x 15 = 45 Marks)
(Essay Answer Type)
Note: Answer ALL from the questions.

9 (a) (i) Explain about Newton's method and its geometrical interpolation.
(ii) Find the approximation to within 10^{-4} to all the real zeros of the polynomials $f(x) = x^3 - 2x^2 - 5$ using Newton's method.

OR

(b) Explain False position method and use it to find a solution to $x = \cos x$ with $p_o = 0.5$ and $p_1 = \pi/4$.

..2

10 (a) (i) Use the nodes $x_o=2$; $x_1 = 2.75$ and $x_2 = 4$ to find the second Lagrange interpolating polynomial for $f(x) = \frac{1}{x}$. Use the polynomial to approximate $f\left(-\frac{1}{3}\right)$.

(ii) Use Newton forward difference formula to construct interpolating polynomials of degree one, two and three for the following data and find the value of $f\left(-\frac{1}{3}\right)$

f (-0.75) = -0.07181250 ; f(-0.5)=-0.02475000
f (-0.25) = 0.33493750 ; f(0) = 1.1010000

OR

(b) Obtain Hermite interpolation polynomials and using it find an approximation of f(1.5) for the given data f(1.3)=0.6200860 ; f(1.6) = 0.4554022 ; f(1.9) = 0.2818186 and f'(1.3) = -0.5220232 f'(1.6) = -0.5698959 ; f'(1.9)=-0.5811571

11 (a) Use the most accurate three point formulae to determine each missing entry in the following table:

x	f(x)	f'(x)
8.1	16.94410	-
8.3	17.56492	-
8.5	18.19256	-
8.7	18.82091	-

OR

(b) Explain Romberg integration. Use Romberg integration to compute $R_{3,3}$ for the integral $\int_0^1 x^2 e^{-x} dx$.

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