UG–CS–1168 BMSSA–11

U.G. DEGREE EXAMINATION — FEBRUARY 2023

Computer Science

First Semester

Allied – MATHEMATICS – I

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of five questions in 100 words.

All questions carry equal marks.

1. Find the Eigenvalues of $adj\ A$ if $A = \begin{bmatrix} 3 & 2 & 1 \\ 0 & 4 & 2 \\ 0 & 0 & 1 \end{bmatrix}$.

2. If $y = (\sin x)^x$, find $\frac{dy}{dx}$.

3. Form the partial differential equation by eliminating a and b from

$(x-a)^2+(y-b)^2+z^2=c^2$.

4. Define Dirichlet's conditions.

5. Old hen can be bought at Rs. 2 each and young ones at Rs. 5 each. The old hen lay 3 eggs per week and the young ones lay 5 eggs per week, each egg being worth 30 paise. A hen costs Rs. 1 per week to feed. A person has only Rs. 80 to spend for hens. How many of each kind should be buy to give a profit of more than Rs. 6 per week, assuming that he cannot house more than 20 hens. Formulate this as a L.P.P.

PART B — $(3 \times 7 = 21$ marks)

Answer any THREE questions out of five questions in 200 words.

All questions carry equal marks.

6. Using Cayley – Hamilton theorem find A^{-1} when $A=\begin{bmatrix}1 & 0 & 3\\ 2 & 1 & -1\\ 1 & -1 & 1\end{bmatrix}$.

7. Evaluate $\int \frac{dx}{(3+x)\sqrt{x}}$.

8. Find the singular solution of the equation $z = px + qy + \sqrt{p^2 + q^2 + 1}$.

9. Find the half – range Fourier sine series for $f(x) = x^2$ in $(0, \pi)$.

10. Solve the following L.P.P by the graphical method *Minimize* $Z = 3x_1 + 5x_2$ subject to $-3x_1 + 4x_2 \le 12$, $x_1 \le 4$, $2x_1 - x_2 \ge -2$, $x_2 \ge 2$, $2x_1 + 3x_2 \ge 12$ and $x_1, x_2 \ge 0$.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Find all the Eigenvalues and Eigenvectors of the matrix $\begin{bmatrix} 7 & -2 & 0 \\ -2 & 6 & -2 \\ 0 & -2 & 5 \end{bmatrix}$.

12. Find the nth differential coefficient of $\cos^5\theta \sin^7\theta$.

13. Find the general solution of $(3z - 4y)p + (4x - 2z)q = 2y - 3x$.

14. Find the Fourier series for the function $f(x)=|x|$, $-\pi < x < \pi$. Show that $\frac{1}{1^2}+\frac{1}{3^2}+\frac{1}{5^2}+\cdots=\frac{\pi^2}{8}$.

15. Use Simplex method to solve the LPP *Minimize* $Z = 8x_1 - 2x_2$ subject to $-4x_1 + 2x_2 \le 1$, $5x_1 - 4x_2 \le 3$, and $x_1, x_2 \ge 0$.

16. Solve $9\left(p^2 z + q^2\right)=4$.

17. Solve the Diagonalize of the matrix $\begin{bmatrix} 10 & -2 & -5 \\ -2 & 2 & 3 \\ -5 & 3 & 5 \end{bmatrix}$.

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UG–CS–1200 **BSCSS-11/ BCAS–11**

U.G. DEGREE EXAMINATION — FEBRUARY, 2023.

Computer Science

First Semester

PROBLEM SOLVING

Time : 3 hours Maximum marks : 70

PART A — (3 × 3 = 9 marks)

Answer any THREE questions out of Five question in 100 words.
All questions carry equal marks.

1. What is meant by Invariant?

2. Discuss about the LOGIC PUZZLES.

3. Define Induction.

4. List two main elements of the iterative solution to the problem.

5. Write note on Regular Sequences.

PART B — $(3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions
in 200 words.
All questions carry equal marks.

6. Explain the Chocolate Bars with suitable solutions.

7. Explicate about the matchstick game.

8. Describe in detail about the Hidden Treasures.

9. Discuss in detail about FAKE-COIN DETECTION.

10. Write detailed note on LOWER AND UPPER BOUNDS.

PART C — $(4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions
in 500 words.
All questions carry equal marks.

11. Explain the EMPTY BOX PROBLEM in detail.

12. Illustrate the WINNING STRATEGIES with suitable example.

13. Elucidate the BLACK AND WHITE COLOURING with example problems.

14. Explain the TOWER OF HANOI PROBLEM with diagrams.

15. Discuss about KNIGHT'S CIRCUIT in detail.

16. Explain BRIDGE PROBLEM with example.

17. Discuss in detail about the INDUCTIVE SOLUTION.

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UG–CS–1208 BCAS–12

U.G. DEGREE EXAMINATION, FEBRUARY 2023

Computer Applications

First Semester

INFORMATION TECHNOLOGY ESSENTIAL

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Define Computer System.

2. What is Operating System?

3. What is meant by the term Software?

4. What are the roles of Client and Server in Network?

5. Define Internet.

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions
in 200 words
All questions carry equal marks.

6. Write short note on Computer System History?

7. What are the functions of Operating System? Explain?

8. List out the benefits of Network.

9. Bring out the issues of Internet. Explain?

10. Write short note on Central Processing Unit (CPU).

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven
questions in 500 words.
All questions carry equal marks.

11. Discuss about Memory Unit in Computer.

12. Explain in detail about System Software.

13. Write in detail about Software Development Life Cycle.

14. Discuss about Bridges in Computer Network.

15. Explain in detail about World Wide Web(WWW).

16. Explain Input/output Unit in detail.

17. Explain about Topologies Standard in detail

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UG-CS-1202 **BSCSS–21/ BCAS–21**

U.G. DEGREE EXAMINATION – FEBRUARY, 2023.

Computer Science/Computer Application

Second Semester

'C' PROGRAMMING/PROGRAMMING IN 'C'

Time : 3 hours Maximum marks : 70

PART A — (3 × 3 = 9 marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Define Variable.
2. Write the structure of C Program.
3. Write the syntax of Function in 'C' Programming language.
4. What is the purpose of Array?
5. What is pointer?

PART B — (3 × 7 = 21 marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Write short note on different types of Expressions in 'C' Programming language.

7. Explain control Statement with diagram.

8. What are the types of Arguments passing in 'C' Programming language?

9. Write short note on Union with example.

10. What are the operation available in Pointers?

PART C — (4 × 10 = 40 marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Explain 'C' Operators with example.

12. Discuss Input and Output function in 'C' Programming language.

13. Explain Recursion concept in 'C'.

14. Explain different types of file operations in 'C'.

15. Compare Relational operators and Logical Operators.

16. Write a 'C' program to perform result of 10 students.

17. Discuss about Bit wise operators in 'C' Programming language.

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UG–CS-1209 **BCAS–22**

U.G. DEGREE EXAMINATION — FEBRUARY, 2023.

Computer Applications

Second Semester

OPEN SOURCE TECHNOLOGY

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Write short notes on free software.

2. Explain the copyright in brief.

3. Discuss on open source hardware.

4. What is server? Explain it.

5. Explain in brief about shared software.

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Distinguish between open source and free software.

7. Explain about open source history, principle and methodologies.

8. Describe the importance of communities in open source movement.

9. Explain the WAMP server in detail.

10. Discuss about open source technology.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Explain the Free Software Foundation and the GNU Project.

12. Describe the concept of patents economics of FOSS.

13. Explain the starting and maintaining an open source project.

14. Discuss the Apache – MySQL as development platform.

15. Explain about open source government in detail.

16. Explain the FOSS does not mean no cost.

17. Explain the philosophy of open source in detail.

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UG-CS–1210 **BCAS-23**

U.G. DEGREE EXAMINATION — FEBRUARY 2023.

Computer Applications

Second Semester

DIGITAL LOGIC

Time : 3 hours Maximum marks : 70

PART A — (3 × 3 = 9 marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Calculate 2's complement of the binary number 101100 and 11001011.

2. Explain about prime methods.

3. What is priority encoder?

4. Explain the sequence logic.

5. Write about the Modcounters.

PART B — $(3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. What are the logic gates? Explain it.

7. Implement the function given below using SOP.

   F = AB+CD+EF+GH

8. Explain about the parity checkers.

9. Describe the master slave flip-flop.

10. Explain the types of ROM in detail.

PART C — $(4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Write about decimal and octal number system and convert $(43)_{10}$ and $(30)_8$ into all equivalents.

12. Explain the boolean algebra in detail.

13. Describe the multiplexer in detail.

14. Explain the types of shift registers.

15. Difference between aynchronous and synchronous counters.

16. Explain about the binary subtraction.

17. Discuss about the programmable array logic (PAL).

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