UG-474   **BCM-01**

B.Sc. DEGREE EXAMINATION – DECEMBER 2018.

First Year

Computer Science

MATHEMATICS

Time : 3 hours   Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Find the value of K if $3 + 2i$ is a root of the equation $x^2 - 6x + K = 0$.

2. Solve $x^3 - 8x^2 + 9x + 18 = 0$, given one of its root is twice another.

3. Solve $x^3 = 2x + 5$ for the positive root by interaction method.

4. Solve the system of equations by Gauss-Elimination method.

   $x + 2y + z = 3$; $2x + 3y + 3z = 10$ and
   $3x - y + 2z = 13$.

5. Let $N = \{1, 2, 3, ...\}$ and R be the relation on N defined by $x + 2y = 8$. Write R as a set of ordered pairs and find R^{-1}.

6. Prove that the mapping $f : R \to R$, defined by $f(x) = ax + b$ where $a, b, x \in R$; $a \neq 0$ is invertible.

7. Define:
   (a) finite automaton
   (b) a non-deterministic finite automaton.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Solve: $6x^4 + 5x^3 - 38x^2 + 5x + 6 = 0$.

9. Diminish the roots of the equation $x^4 - 4x^3 - 7x^2 + 22x + 24 = 0$ by 1 and hence solve the equation.

10. Find the positive root of $2x^3 - 3x - 6 = 0$ by Newton – Raphson method correct to three decimal places.

11. Solve the system of equations by Gauss-Seidel method.

$9x + 2y + 4z = 20$; $x + 10y + 4z = 6$ and $2x - 4y + 10z = -15$.

12. If R and S are equivalence relations in X, prove that $R \cap S$ is an equivalence relation in X.

13. If $f(x) = x + 2$, $g(x) = x - 2$ and $h(x) = 3x^2$ for $x \in R$, find $f \circ h \circ g$.

14. If L be accepted by a non-deterministic finite-state acceptor, then prove that there exists an equivalent deterministic finite state acceptor that accepts L.

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UG–475	BSCS–04

B.Sc. DEGREE EXAMINATION – DECEMBER, 2018.

First Year

INTRODUCTION TO COMPUTER ORGANISATION

Time : 3 hours   Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1.   Discuss about Full Adder with circuit diagram.

2.   Explain about the Digital Logic Circuits.

3.   Explain about the various memory devices.

4.   Discuss about various addressing modes.

5.   List out different types of instruction.

6.   Explain data transfer instructions.

7.   Discuss about Interface to high level program.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8.   Discuss about different generation of computers.

9.   What is decoder? Explain 3-to-8 Decoder.

10. What is ALU? Explain one stage of ALU.

11. Discuss about Control Unit Organization.

12. Explain hardware implementation of shift operation.

13. Discuss about Assembly language fundamentals.

14. Write an assembly language program to add two numbers.

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UG-476   **BSCS–05**

B.Sc. DEGREE EXAMINATION – DECEMBER, 2018.

First Year

C PROGRAMMING AND DATA STRUCTURE

Time : 3 hours   Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Describe the features of C language.

2. Explain the do-while statement with an example.

3. Explain the general format for defines a function

4. Write a note on pointer to function.

5. Write an algorithm for the push operation in a Queues.

6. Explain the operation on single linked list.

7. Write an algorithm for Bubble sort.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Describe the various types of Expressions in C.

9. Explain the following
   (a) Switch case
   (b) if –else.

10. Describe the various data I/O functions in C.

11. Write a program to sort the given set of n names in alphabetical order.

12. Write an algorithm to traverse binary tree through in order and post order.

13. Explain Infix to Postfix conversion.

14. Discuss about the Sorting with disk and tape.

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| **UG-477** | **BSCS–06** |

B.Sc. DEGREE EXAMINATION – DECEMBER, 2018.

First Year

Computer Science

VISUAL BASIC PROGRAMMING

Time : 3 hours   Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1.   Explain in detail about the Graphical User Interface.

2.   Discuss about the Visual Basic IDE.

3.   Write about the Tool Box controls.

4.   Describe about the VB object oriented programming.

5.   Explain about the FOR loops with syntax.

6. Mention about the different types of Arrays. Explain them.

7. Illustrate detail about the OLE.

PART B — (5 × 10 = 50 marks)

Answer FIVE questions.

8. Explain about the Even Driven Programming with example.

9. Write detail about the Tool box controls and mouse events.

10. Explain in detail about the Screen and Printer.

11. Discuss about the control Structures with suitable examples.

12. Describe about the Graphics handling and MDI application.

13. Briefly explain about the creating a database in VB with suitable example.

14. Write a VB program to create an ActiveX control project.

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