

Roll No. ....

41183

**B. Sc. (Pass Course) 4th Semester  
Examination – May, 2019**

**MATHEMATICS (PROGRAMMING IN C AND  
NUMERICAL METHODS)**

Paper : 12BSM-243

*Time : Three hours / Maximum Marks : 30*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Attempt *five* questions in all, selecting *one* question from each Section (I to IV). Question No. 9 (Section V) is *compulsory*.

**SECTION – I**

- 1. (a) What do you understand by programmer's model of a computer ? How does it help in problem solving and programming ? 3
- (b) What is an escape sequence ? What is its purpose.  $2\frac{1}{2}$

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- 2. (a) What do you mean by data types. What are various data types used in C language ? Illustrate their declaration and usage ? 3
- (b) Describe the six assignment operators. What is the purpose of each operator.  $2\frac{1}{2}$

**SECTION – II**

- 3. (a) Describe the purpose and syntax of various decision- making constructs in C language. 3
- (b) Differentiate between for and do-while loop. 2
- 4. (a) What are the rules for naming function ? 3
- (b) Differentiate between macros and functions. 2

**SECTION – III**

- 5. (a) What is the purpose of strcpy ( ) function. What function returns the length of a string.  $2\frac{1}{2}$
- (b) What is a structure in C ? How structure is defined and declared ?  $2\frac{1}{2}$
- 6. (a) Find the real root of the following equation by Regula Falsi method correct to three places of decimal  $x^3 - 4x - 9 = 0$ .  $2\frac{1}{2}$
- (b) Using Newton Raphson formula find the value of  $4\sqrt{32}$ .  $2\frac{1}{2}$

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**SECTION – IV**

7. (a) Solve the following equations by Gaussian elimination method :

$$4x + 3y + 2z = 8$$

$$x + y + 2z = 7$$

$$3x + 2y + 4z = 13$$

(b) Solve the following equations by LU decomposition method :

$$5x + 2y + z = 29$$

$$x + 4y + 2z = 4$$

$$2x - y + 10z = 44$$

8. (a) Solve the following equations by Crout's method : <https://www.haryanapapers.com>

$$2x + 4y + z = 5$$

$$4x + 4y + 3z = 8$$

$$4x + 8y + z = 9$$

(b) Apply Gauss-Seidal iteration method to solve the following equations :

$$20x + y = 2z = 17$$

$$3x + 20y - z = -18$$

$$2x - 3y + 20z = 25$$

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**SECTION – V**

9. (a) Draw a flow chart to find the area of a circle of given radius.  $1\frac{1}{2} \times 6 = 9$

(b) What are C-tokens ?

(c) What is syntax of comment statement in C - Language ?

(d) Compare different iterative methods on account of order of convergence.

(e) Define pointers.

(f) Define Descart's rule of signs.



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