Code No. D-3407/BC

FACULTY OF ENGINEERING

B.E. (Bridge Course) I Semester (Backlog) Examination, March / April 2022

Subject: Programming In 'C'

Time: 3 Hours **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1. Differentiate compiler and interpreter.
2. What is an algorithm? How is it important in programming?
3. What are the rules for specifying an identifier?
4. List out various types of constants in C.
5. What are various arithmetic operators in C language?
6. Discuss about *goto* statement with an example.
7. Define an array. Write its applications.
8. List the storage classes in C language.
9. What is a pointer? Explain how a pointer is declared and initialized.
10. Distinguish between structure and union.

PART – B

Note: Answer any five questions. **(5 x 10 = 50 Marks)**

11. Explain about the functions of various units of a digital computer with a neat sketch.
12. List and explain about different data types in C language.
13. (a) Distinguish while and do-while loops.
    (b) Write a C program to find sum and average of 1 to n integers using for loop.
14. (a) Differentiate call by value and call by return with an example.
    (b) Write a C program for addition of 2 matrices.
15. (a) Discuss about structures with an example.
    (b) Explain the file handling operations in C language.
16. (a) Draw a flow chart for checking whether an entered number is even or odd?
    (b) Differentiate getchar() and putChar() with an example.
17. (a) Write a C program to find greatest of 3 given numbers.
    (b) What arithmetic operations can be performed on pointers? Discuss.

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Code No. D-3502/CBCS

FACULTY OF ENGINEERING

B.E. I - Semester (CBCS) (Backlog) Examination, March / April 2022

Subject: Computer Programming and Problem Solving

Time: 3 Hours **Max. Marks: 70**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions. **(10 x 2 = 20 Marks)**

1. Differentiate Compiler and Interpreter.
2. Declare three variables and initialize any two of them.
3. Write short notes on Static Storage class.
4. List few pre-defined functions.
5. Declare and initialize a 3-Dimensional array.
6. Write the steps to search an element using Binary Search.
7. What is Lvalue and Rvalue?
8. Give an example of pointer to pointer.
9. How is Union different from Structure, which one of these take less memory and how?
10. Differentiate write and append mode in files.

PART – B

Note: Answer any five questions. **(5 x 10 = 50 Marks)**

11. Explain in detail with examples Arithmetic, Logical, Relational, Bitwise and Increment Operators.

12. (a) Write in details about three types of loops with syntax and examples.
    (b) Write a program to construct Fibonacci series.

13. (a) Sort the following numbers using Selection Sort. 32, 25, 45, 12, 90, 60, 78, 10
    (b) Write to program to perform Matrix Addition.

14. (a) Explain Pointer Arithmetic in detail.
    (b) Explain any four String manipulation functions.

15. (a) Explain Structure in detail with example program.
    (b) Write syntax and example for fopen() and fclose().

16. (a) Explain in detail preprocessor commands.
    (b) What is a recursive function? Demonstrate with a program.

17. Write short notes on
    (a) Type casting & Parameter Passing Techniques.
    (b) Convert the given Hexadecimal number $(A2B)_{16}$ to binary and Octal number.

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FACULTY OF ENGINEERING

B.E I Year (NON-CBCS) Examination, March / April 2022

Subject: Mathematics - II

Time: 3 Hours **Max. Marks: 75**

(Missing data, if any, may be suitably assumed)

PART – A

Note: Answer all questions. **(25 Marks)**

1 Define exact differential equation. Find the solution of $\left(3x^2+2e^y\right)dx+\left(2xe^y+3y^2\right)dy=0$.

2 Find the orthogonal trajectories of the hyperbolas $x^2-y^2=c$.

3 Show that the functions 1, $sinx$, $cosx$ are linearly independent.

4 Solve $y'''-9y'=0$.

5 Find the power series solution about the origin for the differential equation $y'+3y=0$.

6 Classify the singular points of the differential equation $x^2y''-5y'+3x^2y=0$.

7 Define Beta function, show that $\beta(m,n)=\beta(n,m)$.

8 Express the following Legendre polynomials in terms of powers of x. $6p_3(x)-2p_1(x)+p_0(x)$.

9 Find the Laplace transform of $e^{-3t}(2\cos 5t-3\sin 5t)$.

10 Find the inverse Laplace transform of $\log\left(\frac{s+1}{s-1}\right)$.

PART – B

Note: Answer any five questions. **(5 x 10 = 50 Marks)**

11 (a) Solve $xdy-ydx=x\sqrt{x^2-y^2}\,dx$.

(b) A body originally at 80°C cools down to 60°C is 20 minutes. The temperature of the air being 40°C. What will be the temperature of the body after 40min from the original?

12 (a) Solve $x^2\frac{d^2y}{dx^2}+x\frac{dy}{dx}+y=\log x\sin\left(\log x\right)$.

(b) If $y_1=e^x$ is one of the solution of $y''+3y'-4y=0$ then find the general solution, by reducing order of differential equation.

13 Find the series solution of the differential equation $2x^2y''+xy'-\left(x^2+1\right)y=0$ using Frobenious method.

14 (a) Show that $\frac{d}{dx}\left[x^{-n}J_n(x)\right]=-x^nJ_{n+1}(x)$.

(b) Evaluate $\int_0^1 x^5\left(1-x^3\right)^3dx$.

15 (a) Find the inverse Laplace transform of $\frac{1}{(s+1)(s^2+2s+2)}$.

(b) Solve $\frac{d^3y}{dx^3}+2\frac{d^2y}{dx^2}-\frac{dy}{dx}-2y=0,$ *where* $y=1,\ \frac{dy}{dx}=2,\ \frac{d^2y}{dx^2}=2$ at $x=0$ using Laplace transform.

16 (a) Show that the family of parabolas $x^2=4c(y+c)$ is self orthogonal.

(b) Express $f(x)=x^3-5x^2+6x+1$ in terms of Legendre polynomials.

17 (a) Find the inverse Laplace transform of $\frac{e^{-2s}}{s-3}$.

(b) Solve $y''+4y'+3y=x\sin 2x$.

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