

B.E. (Electrical Engineering (Electronics & Power) / Power Engineering)

Fourth Semester (C.B.S.)

Computer Programming

P. Pages : 2

Time : Three Hours



NRT/KS/19/3367/3394

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.

1. a) Explain the structure of a typical C program. Give an example and explain each section in detail. **6**
b) Write a program in C to find the reverse of a four digit number entered by the user. **7**
OR
2. a) Give the syntax of following C control statements with example. **6**
i) if – else ii) for loop
iii) while loop
b) Write a program in C to determine whether a entered number is a prime number or not. **7**
3. a) Define an array. Write syntax for initialising 1 – D and 2 – D array. Explain with example. **6**
b) Write a program in C to find the addition of a 3×3 matrix. **7**
OR
4. a) Explain different methods of searching an element in an array. Explain linear search technique. **6**
b) Write a program in C to arrange the elements of a array of size 10 in ascending order using selection sort. **7**
5. a) What is a structure? How does it differ from an array. Explain memory allocation for structure. Give one example. **6**
b) Write a program in C to print details of 10 books using array of structure. The structure should contain name, price and pages. **7**
OR
6. a) Write and explain the syntax of following functions : **6**
i) fopen () ii) fclose ()
iii) fseek ()
b) Define a Pointer. Explain 'Call by Value' and 'Call by Reference' with an example. **7**
7. a) What are the elements of object oriented programming? Explain objects and classes with example. **7**
b) What is the difference between object oriented programming and procedure oriented programming? **7**

OR

8. Write short notes on :
- i) Data Abstraction. 4
 - ii) Poly morphism. 4
 - iii) Data Hiding and Encapsulation. 3
 - iv) Inheritance and Multiple Inheritance. 3
9. a) Explain in brief about various files that can be created in MATLAB and importance of these files. 6
- b) Write a MATLAB program to find the largest of the given three numbers (10, 20, 30) using if – else if – else structure. 7

OR

10. a) Write syntax for following in MATLAB along with example. 6
- i) if – else ii) for loop
 - iii) while loop
- b) Write a program in MATLAB to find the factorial of a number. The number is entered by user. 7
11. a) Explain the following commands in MATLAB with example.
- i) linspace (x_1, x_2, n) . 2
 - ii) who 2
 - iii) sort (A) 2
 - iv) $X = A / B$ 1
- b) If $A = [1, 2, 3; 4, 5, 6; 7, 8, 9]$ write a MATLAB program to find 7
- i) transpose ii) inverse
 - iii) determinant iv) rank of matrix

OR

12. a) Write a MATLAB program to plot the curve given by equation $y = \sin(x)$, as x varies from 0 to 2π . Label the axes and provide a suitable title for plot. Show the Schematic for MATLAB output. 7
- b) Given matrix : 7
- $$[P] = \begin{bmatrix} 3 & 4 & 5 & 1 \\ 5 & 6 & 7 & 2 \\ 7 & 8 & 9 & 4 \end{bmatrix}$$
- i) Delete first row of matrix P.
 - ii) Reshape matrix as a (6×2) matrix.
 - iii) Replace the element $P(3, 2)$ by 10.
 - iv) Delete the second column of matrix P.
