2E3207

Roll No. _____ Total No. of Pages: 4

2E3207

B. Tech. II - Sem. (Main / Back) Exam., - 2024

2FY3-06 Programming for Problem Solving

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 What is the stored-program concept and why is it important?

Q.2 What Input devices? Give four examples.

Q.3 Differentiate between assembly and low level languages.

Q.4 How do digital computers store numbers, letters and other characters?

Q.5 Convert the $(11001)_2$ binary numbers into equivalent decimal numbers.

Q.6 Convert the hexadecimal number $(2C4)_{16}$ to the decimal number system.

Q.7 Differentiate between the = symbol and == symbol.

Q.8 What are pre-processor directives?

Q.9 Differentiate between functions getch() and getche().

Q.10 What would be the output of the following programs?

```
main( )
{
        char c[2] = "A";
        printf ( "\n%c", c[0]);
        printf ("\n%s", c);
}
```

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Differentiate among Random, Direct and Sequential access methods to access storage.

Q.2 Make the flowchart for the problem of printing odd numbers less than a given number. It should also calculate their sum and count.

Q.3 What is the value of a radix-r number? Assume a radix-32 arbitrary number system with 0-9 and A-V as its basic digits. Express the mixed binary number $(110101.001)_2$ in this arbitrary number system.

Q.4 Perform the following operations using 2's complement method

(i) Subtract $(0111\ 0101)_2$ from $(0111\ 1100)_2$

(ii) Add $(1100\ 0001)_2 + (0110\ 1110)_2$

Q.5 Write a C program to obtain the sum of the first and last digit of a four-digit number.

Q.6 Write the output from the following program -

```
#include <stdio.h>
void main() {
    int a[] = {22, 19, 17, 36, 12, 15, 28, 35, 66, 43};
    int i, j, n = sizeof(a)/sizeof(int);

    for(i = 0; i <n; ++i)
        for(j = 0; j <i; ++j)
            if (a[i] > a[j]) {
                a[i] = a[i] + a[j];
                a[j] = a[i] – a[j];
                a[i] = a[i] – a[j];
            }
    for(i = 0; i <n; ++i)
            printf("%d", a[i]);
    printf("\n");
}
```

Q.7 Explain the following in the context of file handling -

(i) fprintf ( )

(ii) fscanf ( )

(iii) fread ( )

(iv) fwrite ( )

(v) sprintf ( )

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Define the term RAM and ROM with their merits, demerits and area of applications.

Q.2 What are the ASCII codes? Write binary coding for the word BOY in ASCII-7. How many bytes are required for this representation?

Q.3 What id bound checking of array in C programming? Explain with the example.

Q.4 Differentiate the following with the help of examples -

(a) break and continue statement

(b) while and do-while loop

Q.5 An automobile company has serial number for engine parts starting AA0 to FF9. The other characteristics of parts to be specified in a structure are- Year of manufacture, material and quantity manufactured.

(a) Specify a structure to store information corresponding to a part.

(b) Write a program to retrieve information on parts with serial numbers between BB1 and CC6.
