UNIVERSITY OF ENGINEERING AND MANAGEMENT, KOLKATA

Degree: B.Tech **Stream: CSE**

Year: 3rd

Even Semester Term II Examination, April – 2024

Subject Code: HSMC(CS)602

Subject Name: Essential Studies for Professionals - VI

Full Marks: 30 **Duration: 1 Hour**

Date:01.04.2024 **Time: 2.30 PM – 3.30 PM**

Part - A

Attempt 5 questions

Each question carries 2 marks (2 × 5)

1. Solve and write the output 2

```
void main ()
    {
int const * p=5; printf ("%d", ++(*p));
    }
```

or

Solve and write the output. 2

```
main()
{
        char s[ ]="man"; int i;
        for(i=0;s[ i ];i++)
        printf(" %c%c%c%c",s[ i ],*(s+i),*(i+s),i[s]);
}
```

2. Reduce the following expressions using Boolean algebra:(A+B+C) (A+B'+C) (A+B+C') 2

or

Reduce the following expressions using Boolean algebra: XY+XZ+YZ' 2

3. Subtract using 1's complement subtraction: 13_{10} - 11_{10} 2

or

Subtract using 2's complement subtraction: 12_{10} - 3_{10} 2

4. Define addressing mode. 2

or

Differentiate RISC and CISC architecture. 2

5. Consider the languages L1 = ∅ and L2 = {a}. What can represents L1L2* U L1*? 2

or

Which of the following are regular? 2
Language L1 is defined by the grammar: S1 –> aS1b|∈
Language L2 is defined by the grammar: S2 –> abS2|∈

Part - B

Attempt 2 questions

Each question carries 5 marks (5 × 2)

6. Explain the basic operations performed on stack 5

or

Evaluate the following infix to postfix expression (a*b*c^2+d)+(c/d+c) 5

7. Highlight the differences between Shared and exclusive locks 5

or

Discuss how a precedence graph can be used to detect deadlock? 5

Part - C

Attempt 1 question

Each question carries 10 marks (10 × 1)

8. Consider three data items D1, D2 and D3 and the Following execution schedule of transactions T1, T2 and T3. In the diagram, R(D) and W(D) denote the actions reading and writing the data item D respectively. Find the serializability for T1, T2 and T3. 10

or

Consider a relation scheme R = (A, B, C, D, E, H) on which the following functional dependencies hold: {A–>B, BC–>D, E–>C, D–>A}. What are the candidate keys of R? 10

--End--