

[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 8406

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Roll No.....

Unique Paper Code : 222303

Name of the Paper : PHHP-308 – Microprocessor and Computer Programming (P)

Name of the Course : B.Sc. (Hons.) Physics, Part II

Semester : III

Duration : 1 Hour

Maximum Marks : 20

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **twenty** questions.
3. All questions carry equal marks.
4. Calculators are not allowed.

1. If  $x=6$  predict the values of  $x$  and  $y$  in the following :

$$y = (++x) + (++x);$$

2. If  $a=4$ ,  $b=3$  in a C++ program, what will be the value of  $a \&\& b$  ?

3. Predict the output of the following code segment :

```
int n=7;  
n*=2;  
cout<<n;
```

4. Write the corresponding C++ expression for the following mathematical expression :

$$2 - ye^{2y} + 4y$$

5. Write the syntax for switch statement.
6. What is the difference between break statement and continue statement ?
7. What do you mean by global and local variables ?
8. What will be the result of following expression if  $i = 10$  :  
 $20\%i$

9. What is an array? What are the types of an array ?

10. Write a block of C++ code that has the same effect as the statement :

```
n=100+m++
```

without using post-increment operator.

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11. Write a single C++ statement that decrements the variable *n* and then adds it to *total*.
12. What's wrong with these declarations `int first=22.0, last=99;`
13. Write an instruction to make all bits of accumulator zero.
14. Write a pair of instructions to divide `0C(H)` by `02(H)` using `RAR` instruction. Assume `CY` flag reset.
15. Write instructions to set zero the contents of memory locations `2005(H)` and `2006(H)` using `INX` instruction ?
16. What does the instruction `PUSH H` mean ? Give an example.
17. Let the accumulator contain `0A(H)` and register `C` contain `05(H)`. Which flag(s) will set/reset when `CMP C` is executed ?
18. What are the contents of address bus when microprocessor is reset ?
19. Describe with example the syntax and use of the instruction `XTHL` ?
20. In the following program segment find out the number of times the `JNZ` instructions at '1' and at '2' cause the control to be transferred to *loop* :
 

```

          MVI H, 02(H)
          MVIL, 06(H)
loop: DCR L
      1: JNZ loop
          DCR H
      2: JNZ loop
      
```
21. What are the address modes of the following instructions :
  - (a) `PUSH B`
  - (b) `ADC C`
22. Let the register pair `DE` contain `0008(H)` which itself contains `08(H)`, and register pair `BC` contain `0009(H)`. What does `LDAX D` and thereafter `STAX B` do ?
23. What is the bit pattern of the flag register when we add `3A(H)` with `60(H)` ?
24. Enumerate the similarities and dissimilarities between `CMP C` and `SUB C` instructions.
25. Establish what does the following program segment do ? Assume `0A2A(H)` contain `0A(H)` and `0A2B(H)` contain `0B(H)` :
 

```

          LXI H, 0A2A(H)
          LXI D, 0A2B(H)
          MOV A,M
          XCHG
          ADD M
      
```