

Mahatma Education Society's
Pillai Institute of Information Technology, Engineering, Media Studies & Research, Navi Mumbai - 410206
Department of Computer Engineering

Class Test: #1 Subject: S.P.A. Class: FE - D, H Duration: 1Hr Date: 24/02/15 Max. [20]

Note: Assume suitable data wherever necessary.

[1] Attempt Any Five out of Six

- (a) What do you mean by algorithm? Write an algorithm to find average of first 'n' natural numbers [02]
- (b) Design a flowchart to check whether a user entered year is Leap year or not. [02]
- (c) Explain the primitive data types in C. [02]
- (d) Write a program to find the greatest number among three integers using ternary operator. [02]
- (e) Explain Type casting and conversions. [02]

Determine the output for the following code:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i = -1, j = -1, k = 0, l = 2, m;
    clrscr();
    m = i++ && j++ && k++ || l++;
    printf(" %d %d %d %d %d", i, j, k, l, m);
    getch();
}
```

Handwritten calculations:
 $1998 \div 2 = 999$
 $1996 \div 4 = 499$
 $182 \div 2 = 91$
 $183 \div 3 = 61$

[2] Attempt Any One

- (a) Explain bitwise operators. Write a C program to demonstrate the same. [05]
- (b) Write a C program to input number of week's day(1-7) and translate to its equivalent name of the day of the week. Assume day 1 as Sunday. [05]

[3] Attempt Any One

- (a) Explain the time and space complexity of an algorithm. [05]

An electric power distribution company charges its customer as follows :

Consumption Units	Rate of Charge
0 - 200	0.50 per unit
201 - 400	Rs.100 plus 0.65 per unit excess of 200
401 - 600	Rs.230 plus 0.85 per unit excess of 400
601 - above	Rs.390 plus 1.00 per unit excess of 600

- (b) Write a program to read the no. of units consumed and calculate the total bill. [05]