

Model question paper

FOURTH SEMESTER B.TECH DEGREE EXAMINATION

(2013 Scheme)

Computer Programming & Numerical Methods (U)

Time: 3 Hours

Max. Marks: 100

PART A

Answer all questions

(10X2=20MARKS)

- 1) What is the need of a *destructor* in CPP programming?
- 2) Describe the *for* loop using a flow-chart.
- 3) Find the relative error if the number 0.004997 is:
 - a) Truncated to 3 decimal digits
 - b) Rounded off to 3 decimal digits
- 4) What is a *header* file? How is it related to a *library* file?
- 5) Arrange in order of precedence(highest first) the following kind of operators – logical,unary,arithmetic,assignment,relational,conditional
- 6) Write down the output of the following code:

```
#include<iostream.h>
void main()
{
  int a = 10;
  cout<<a<<endl<<++a<<endl<<a<<endl<<a++<<endl<<"a="<<a<<endl;
}
```
- 7) What do you understand by the term *polymorphism* in C++?
- 8) Evaluate : $\Delta^2[(5x+12)/(x^2+5x+16)]$
- 9) Following code has some errors.Write down the corrected one:

```
Class smallobj
{
  private::
  int somdata;
  public:
  void setdata();
  { somdata=d;}
  Void showdata()
  { cout<<"data is"<<somdata<<\n;}
}
Void main()
{
  smallobj s;
  s_setdata(1066);
};
```
- 10) What is an *inline* function? What are the advantages of inlining?

PART B(80 MARKS)

Answer any one question from each module (4X20=80MARKS)

MODULE-1

11) What do you understand by OOP? What are the characteristics of this paradigm? Explain with suitable CPP codes.

OR

12) A) Write a note on the loop statements used in CPP.

B) Write a temperature conversion programme that gives the user the option of converting Fahrenheit to Celsius or vice-versa. Then carry out the conversion. Use floating point numbers.

MODULE-2

13) Write a CPP programme that asks the user for two lengths in feet and inches format, add them together by calling a function and then, displays the results using another function. Use structures.

OR

14) A) What are recursive functions? Explain with a suitable example.

B) Write a CPP programme for raising a number 'n' to a power 'p' by multiplying 'n' by itself 'p' times. The main() shall get values of 'n' and 'p' from the user. Another user-defined function shall carry out the operation and display the result.

MODULE-3

15) Write a CPP programme to multiply two matrices. The programme shall check at first whether the multiplication is possible or not.

OR

16) Create a class called TIME that has a separate integer member data for hours, minutes and seconds. One constructor shall initialise this data to 0 and another should initialise it to fixed values. A member function should display it in 11:59:59 format. The final member function shall add two objects of type TIME passed as arguments. A main() should create two initialised TIME objects and one that isn't initialised. Then it should add the two initialised values together leaving the result in the third variable of type TIME. Finally, it should display the value of the third variable.

MODULE-4

17) A) Fit a second degree parabola to the following data:

X: 1989	1990	1991	1992	1993	1994	1995	1996	1997
Y: 352	356	357	358	360	361	361	360	359

B) Following table gives velocity 'v' of a particle at time 't' :

t(s)	0	2	4	6	8	10	12
v(m/s)	4	6	16	34	60	94	136

Find the distance moved by the particle in 12s and also the acceleration at t=2 s

OR

18) A) Apply *Hermite's* formula to estimate the value of $\log(3.2)$ from the following data:

x	y=logx	y'=1/x
3	1.0986	0.3333
3.5	1.2528	0.2857
4	1.3863	0.2500

B) Use Lagrange's formula to find the form of f(x) given:

x:	0	2	3	6
f(x):	648	704	729	792