Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
(Autonomous)
End Semester Examination: OCT / NOV 2024
Faculty: Science and Technology

Program: B.Sc. Code (Gen03)　　　　　　　**Semester: V**　　　　　**SET: A**
Program (Specific): General B.Sc.　　　　　　　　**Course Type: Core course**
Class: T.Y.BSc (Gen)　　　　　　　　　　　　　　　**Max.Marks: 35**
Name of the Course: Computational Physics
Course Code: 24-PHY-355　　　　　　　　　　　　　**Time: 2Hr**
Paper: V

Instructions to the candidate:

1) *There are four sections in the question paper. Write each section on separate page.*
2) *All Sections are compulsory.*
3) *Figures to the right indicate full marks.*
4) *Draw a neat, labelled diagram wherever necessary.*

SECTION: A

Q1) Answer the following:　　　　　　　　　　　　　　　　　　　**5**

　　i)　　Define Keywords.

　　ii)　　What is pixel.

　　iii)　　State basic data types used in C'.

　　iv)　　State the formula for trapezoidal rule of integration

　　v)　　Define 'Operator'?

Q2) Answer the following (Any four):　　　　　　　　　　　　　　　**4**

　　i)　　What are expressions?

　　ii)　　What is library function?

　　iii)　　What is an array.

　　iv)　　What is recursion?

　　v)　　What do you mean by flowchart?

　　vi)　　Write the names of any two storage classes.

SECTION: B

Q3) Answer the following (Any four):　　　　　　　　　　　　　　　**8**

　　i)　　Explain any two types of operator used in 'C'.

　　ii)　　Distinguish between scanf ( ) and printf ( ) function.

　　iii)　　Write a graphics program to draw the rectangle.

　　iv)　　Find the real root of the equation $f(x) = x^3 - 2x - 5 = 0$ using bisection method.

v)   What will be the output of following program?

```
# include <stdio.h>
int main( )
{
int a [4], i = 0;
while (i < 4)
{ a{i}= i++;
}
for (i = 0; I < 4; i++)
printf ("%d", a[i]);
}
```

vi)   Write the output of the program

```
# include <stdio.h>

int main ( )

{

int pst [ ] = { 10,20,30,40,50};

printf ("%u, %u\n", pst, &pst);

return 0;

}
```

SECTION: C

Q4) Answer the following (Any two):   **8**

i)   Write a 'C' program to find the largest number of the three given numbers.

ii)   Evaluate $\int_0^1 x^2 dx$ using Trapezoidal rule, take step size h = 0.1.

iii)   Find the roots of equation x^4 -x – 10 = 0 using Newton's Rapson method

iv)   What is meant by looping? Describe two forms of looping.

SECTION: D

Q5) Answer the following (Any two):   **10**

i)   Write a C- program to convert temperature in Farhenhite to centigrade.

ii)   What is algorithm? Explain with example.

iii)   Solve using bisection method

$x^3 – 1.8x^2$ -10x + 17 = 0.

iv)   Draw a flowchart to find square & cube of numbers from 1 to 15.

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