

B.SC. FIFTH SEMESTER (PROGRAMME) EXAMINATIONS, 2021

Subject: Mathematics

Course ID: 52110

Course Code: SP/MTH/504/SEC-3

Course Title: Programming using C

Full Marks: 40

Time: 2 hours

The figures in the margin indicate full marks

Notations and symbols have their usual meaning

1. Answer *any five* of the following questions: 2 × 5 = 10

a) What do you mean by source program and object program?

b) What is interpreter?

c) State the output of the following program segment:

```
int s=0, i;  
for (i=1; i<=5; i++)  
    s=s+i;  
printf(“%d,%d”,s, i);
```

d) Write down the general structure of *else-if* statement.

e) State the difference between the statements *abs()* and *fabs()*.

f) Given the statements:

```
int a=10, b=20;
```

Find the values of i) $b+5/2*2/5$ and b) $a+6/8*8/3$.

g) State the output of the following program segment:

```
for(i=5; i<25; i+=4)  
    printf(“%d\n”, i);
```

h) Find the output

```
int x=10,y=20;  
if(x==y)  
    Printf(“%d%d\n”,x,y);
```

2. Answer *any four* of the following questions: 5 × 4 = 20

a) Write a C-program to find the sum of the following series:

$$1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \dots + \frac{1}{1001}$$

b) Write a C-program to find the H.C.F and L.C.M. of two positive integers.

- c) Write a C-program to find the roots of the quadratic equation with real co-efficients $ax^2 + bx + c = 0$.
- d) Write a C-program to find the sum of all the digits of a given positive integer.
- e) Write a program to find the area of the circle.
- f) i) Find the output

```
int a=5,b=-7,c=0,d;
d=++a&&++b|++c;
printf("\n%d%d%d%d",a,b,c,d);
```

ii) int x=0;

```
if(x==0)
```

```
printf("true,");
```

```
else if(x=10)
```

```
printf("false,");
```

```
printf("%d\n",x);
```

3. Answer any one of the following questions:

10 × 1 = 10

- a) i) Write the differences between *while* loop and *do-while* loop with example.

ii) State the output of the following program segment:

```
int k=5, x=32, j=0, i;
```

```
for (i=2; i<=x; i++)
```

```
if (x%i==0)
```

```
{ j=j+1;
```

```
if (j= k)
```

```
printf("%d",i); }
```

6+4

- b) i) Explain the working procedure of a *for* loop with example.

ii) Write the general structure of a function definition in C. Write a C-program to find the value of n_{Cr} using function. 3+(2+5)
