

C

(Printed Pages 8)

Roll No. _____

18/2672

P.G.D.C.A./M.C.A. Second Semester

Examination, 2018

First Paper

(Programming in C)

Time : Three Hours

Maximum Marks : 100

Note: Answer **five** questions in all. Short answer type question **No.1** carrying 40 marks is **compulsory**. Answer **one** question carrying **15** marks from each unit.

Note : The answers to short questions should not exceed 200 words and the answers to long question should not exceed 500 words.

1. Give short answers of the following : $4 \times 10 = 40$
 - (a) What are the principles of top-down modular design? Explain.
 - (b) What is role of syntax and semantics in programming?

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- (c) Define data type. Write about various data types available in C language with example.
- (d) Differentiate between break and continue statement. Explain by using suitable example.
- (e) What is the difference between user defined function and library functions. Give example of each of them.
- (f) Write any four characteristics of either object oriented language or functional language.
- (g) What is the difference between Structure and Union. Explain by giving example.
- (h) What is a macro? For what purpose #undef is used. Give example of macro.
- (i) Differentiate between do-while and while loop.
- (j) How can we pass an array as a parameter in a function? Explain by giving example.

Unit-I

2. (a) What are the characteristics of an algorithm? Write an algorithm for finding the

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factorial of a given number. 4+4=8

- (b) Explain how functional abstraction is achieved in structured programming. 7

OR

- 3. (a) Draw flowchart that computes/finds largest among any N numbers. 7
- (b) What are the advantages of modularization? 4
- (c) What are the syntactic elements of a language? 4

Unit-II

- 4. (a) Write a short note on the operators available in C language. 8
- (b) Find the output of the following code segments :
 - (i) #include <stdio, h>
 - int main ()
 - { int a = 2, b=3, c=4;
 - a=b=*c;
 - printf ("\n a = % d", a);
 - return 0;
 - }

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- (ii) int main ()
- { int x=10, y=20, res;
- res= y++ + x++;
- res+= ++y + ++x;
- printf ("\n x= %d y=%d
- RESULT=%d,"x, y, res);
- return 0;
- }

- (c) What is goto statement? As a programmer would you prefer to use this statement? Justify your answer.

OR

- 5. (a) What are decision control statements? Explain in detail. Also compare the use of if-else construct with that of conditional operator. 4+3=7
- (b) Find the output of the following code segments :
 - (i) #include <stdio,h>
 - int main ()
 - { int num=10;
 - for (; - - num;)
 - printf ("%d", num);
 - return 0;
 - }

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(ii) # include <stdio, h>

```

int main ( )
{ int i=0;
  char c='0';
  while (i<10)
  { printf "(%c", c+i);
    i++;
  }
  return 0;
}

```

(c) What is scope of static and extern storage class?

Unit-III

6. (a) Differentiate between formal parameters and actual parameters in a function call. Also write the difference between iterative and recursive functions. Which are will you prefer to use and in what circumstances?

(b) Find the output of the following codes :

```

(i) #include <stdio,h>
void func (int);
auto int a;
int main ( )
{ int a=10;
  print f ("%d", a );
  func (a);
  return 0;
}
void func (int a)
{ a++;
  printf ("%d", a);
}

```

```

(ii) # include <stdio.h>
int a;
static int func ( )
{ return a++;
}

```

```

int main ( )
{ a=10;
  printf ("%d", func ( ));
  a* = 10;
  printf ("%d", func ( ));
  return 0;
}

```

(c) How is an array represented in memory? Consider a 10x10 two-dimensional ar-

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ray A which has base address = 1000 and the number of memory locations per element of the array = 2. Compute the address of the element A[8][5] assuming that the elements are stored in row major order.

OR

7. (a) Differentiate between a character and a string. Also write a program in 'C' language that compares first n characters of the first string with first n characters of the second string. Use user-defined functions only.

(b) What is the output of following code segment :

```

int main ( )
{ int A [ ] = { 1, 2, 3, 4};
  int * ptr, i;
  ptr = & arr [2];
  *ptr = -1;
  *(ptr+1)=0;
  *(ptr-1) =1;
  printf ("\n Array is : ");
  for (i=0; i<4; i++)
    printf ("%d", *(arr+i));
  return 0;
}

```

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(c) What do you understand by null pointer? Also differentiate between ptr++ and *ptr++. What will *p++=*q++ do? 5

Unit-IV

8. (a) What is the difference between structure and array? Explain by giving suitable example. Also explain the utility of typedef keyword in structures. 5+2=7
(b) What do you understand by the term preprocessor directive? Compare an if statement with the # if directive.

4+4=8

OR

9. (a) Differentiate between gets () and fgets (). 2

(b) Write in short about following :4+4=8

- (i) . Parallel Languages
- (ii) Imperative Language

(c) Write about any five C-Library functions and its use. 5

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