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**Shree Damodar College of Commerce & Economics, Margao-Goa**  
**F.Y.B.C.A, SEM I, End Semester Examination, October 2018**

**PROBLEM SOLVING & PROGRAMMING CONCEPTS (BCA-101)**

**Duration: 2 Hours**

**Total Marks: 50**

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**Instructions:** 1) All Questions are Compulsory.  
2) Figures to the right indicate Full Marks.  
3) Start each new question on a fresh page

**Q.1 A) Explain the following terms: (5 Marks)**

- i) Pointer variable
- ii) 2D array
- iii) Top-down design
- iv) Syntax Errors
- v) Application software.

**Q1 B) State True/False and justify your answers. (5 Marks)**

- 1) A function cannot be defined in another function.
- 2) strcmp(string1,string2); returns 0 if string1==string2.
- 3) If we use an *if* statement then it is compulsory to use an *else* statement.
- 4) The array int num[22]; will store 21 elements.
- 5) Keyword can be used as a variable name.

**Q2) Answer the following:**

- 1) Explain Conditional operator with the help of an example. (2 Marks)
- 2) Give the characteristics of Algorithm. Write an Algorithm to find the factorial value of any number entered through the keyboard. (3 Marks)
- 3) Differentiate between Call by Value and Call by Reference Methods of Function using suitable examples for each. (5 Marks)

**Q3) Answer the following: (2 Marks)**

i) Find the errors for the code given below:

```
main()
{ float a=1.5;
switch(a)
{ case 0.5: printf("I stay in Margao"); break;
case 1.5: printf("I stay in Vasco"); break; }
```

- 2) Explain Recursive Function with the help of an example. (3 Marks)
- 3) What is a Flowchart? Draw a flowchart to find the product of even numbers read from the user. (5 Marks)

**Q4) Answer the following:**

- 1) What is a Storage class? Explain any two storage classes with examples for each. (2 Marks)
- 2) Find the output for the following code: (3 Marks)  
Assume the address of x to be 65512 and address of y to be 81234  

```
main()
{ int arr[2]={10}; int x=2, *y; y=&x;
printf("%d\n%d\n%d\n%d\n",0[arr],*y,*(&x),y);
y++;
printf("%d\n%d",y,&x); }
```
- 3) What is a Structure? Create a Structure on C Language to specify data on Student with structure element Name, Rollno, Fees. (5 Marks)  
Declare one structure variable to read data and print data.

**Q5) Answer the following:**

- 1) Explain the steps involved in programming. (2 Marks)
- 2) What are Unary and Binary operators? Explain with examples. (3 Marks)
- 3) Give the differences between: (5 Marks)
  - i) Break and Continue
  - ii) while loop and do-while loop
  - iii) local variable and global variable
  - iv) Library functions and User-defined functions