

[4]

- Q.6 Attempt any two:
- i. Write a program to count number of lines, words and characters in a file. **5**
  - ii. Explain different types of C pre-processor directives. **5**
  - iii. Write a program to copy one file into another file, where file names are given as command line arguments. **5**

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Total No. of Questions: 6

Total No. of Printed Pages:4

Enrollment No.....



Faculty of Engineering  
End Sem (Odd) Examination Dec-2018  
CA5CO01 Problem Solving and Programming

Programme: MCA

Branch/Specialisation: Computer  
Application

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1 i. Which operator precedence is right: **1**  
(a) Unary, Binary, Ternary (b) Binary, Unary, Ternary  
(c) Ternary, Unary, Binary (d) None of these
- ii. How many storage classes are there in C language? **1**  
(a) 2 (b) 3 (c) 4 (d) 1
- iii. Point out the error in the program **1**
- ```
#include<stdio.h>
int f(int (a) {
    a > 20? return(10): return(20);
}
int main() {
    int f(int);
    int b;
    b = f(20);
    printf("%d\n", (b));
    return 0;
}
```
- (a) Error: Prototype declaration  
(b) No error  
(c) Error: return statement cannot be used with conditional operators  
(d) None of these

P.T.O.

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- iv. A string is an array of: **1**  
(a) Integers (b) Characters  
(c) Pointers (d) Floating point numbers
- v. Point out the compile time error in the program given below. **1**  
int main()  
{  
int \*x;  
\*x=100;  
return 0;  
}  
(a) Error: invalid assignment for x  
(b) Error: suspicious pointer conversion  
(c) No error  
(d) None of these
- vi. A pointer is **1**  
(a) A keyword used to create variables  
(b) A variable that stores address of an instruction  
(c) A variable that stores address of other variable  
(d) All of these
- vii. Size of array of structure variable is equal to: **1**  
(a) Size of one structure variable added to total number of elements of structure.  
(b) Size of one structure variable multiplied to total number of elements of structure.  
(c) Size of one element of array multiplied to total number of elements of array.  
(d) Size of one structure variable added to total number of elements of array.
- viii. If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable? **1**  
(a) . (b) & (c) \* (d) ->

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- ix. Which of the following syntax is correct for command-line arguments? **1**  
(a) int main(int var, char \*argv[])  
(b) int main(char \*arv[], int arg)  
(c) int main(char c,int v)  
(d) int main(int v,char c)
- x. In which header file is the NULL macro defined? **1**  
(a) stdio.h (b) stddef.h  
(c) stdio.h and stddef.h (c) math.h
- Q.2 i. Compare and contrast a variable and a constant. **2**  
ii. What is keyword? How many keywords are there in C language? Give examples also. **3**  
iii. What are different control structures supported in C language? Give their syntax also. **5**
- OR iv. Explain different types of formatted and unformatted Input / Output functions. **5**
- Q.3 i. What is an array? How to declare different types of array? **2**  
ii. Write a program to add all the elements of an array. **8**
- OR iii. What kinds of operations are supported on strings? Give examples also. **8**
- Q.4 i. What is a pointer? Give one example of different types of pointer declaration each. **3**  
ii. Write a program to demonstrate the use of pointers to functions and its uses. **7**
- OR iii. What is dynamic memory allocation? Write its pros and cons also. **7**
- Q.5 i. What is structure? Give an example of declaration and initialization of a structure variable. **4**  
ii. Write a program to copy a structure variable into another structure variable using a user defined function. **6**
- OR iii. Compare and contrast a Union and a Structure. **6**

P.T.O.

## Marking Scheme

### CA5CO01 Problem Solving and Programming

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|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Q.1 | <p>i. Which operator precedence is right: <span style="float: right;"><b>1</b></span><br/>                     (a) Unary, Binary, Ternary</p> <p>ii. How many storage classes are there in C language? <span style="float: right;"><b>1</b></span><br/>                     (c) 4</p> <p>iii. Point out the error in the program <span style="float: right;"><b>1</b></span></p> <pre style="margin-left: 20px;">                     #include&lt;stdio.h&gt;                     int f(int (a) {                     a &gt; 20? return(10): return(20);                     }                     int main() {                     int f(int);                     int b;                     b = f(20);                     printf("%d\n", (b);                     return 0;                     }                     </pre> <p>(c) Error: return statement cannot be used with conditional operators</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|     | <p>iv. A string is an array of: <span style="float: right;"><b>1</b></span><br/>                     (b) Characters</p> <p>v. Point out the compile time error in the program given below. <span style="float: right;"><b>1</b></span></p> <pre style="margin-left: 20px;">                     int main()                     {                     int *x;                     *x=100;                     return 0;                     }                     </pre> <p>(c) No error</p>                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|     | <p>vi. A pointer is <span style="float: right;"><b>1</b></span><br/>                     (c) A variable that stores address of other variable</p> <p>vii. Size of array of structure variable is equal to: <span style="float: right;"><b>1</b></span><br/>                     (d) Size of one structure variable added to total number of elements of array.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>viii. If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable? <span style="float: right;"><b>1</b></span><br/>                     (d) -&gt;</p> <p>ix. Which of the following syntax is correct for command-line arguments? <span style="float: right;"><b>1</b></span><br/>                     (a) int main(int var, char *argv[])</p> <p>x. In which header file is the NULL macro defined? <span style="float: right;"><b>1</b></span><br/>                     (c) stdio.h and stddef.h</p> |
|     | Q.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>i. One comparison 1 mark. <span style="float: right;"><b>(1 mark * 2)</b></span> <span style="float: right;"><b>2</b></span></p> <p>ii. Definition <span style="float: right;"><b>1.5 marks</b></span> <span style="float: right;"><b>3</b></span><br/>                     Keyword counts with example. <span style="float: right;"><b>1.5 marks</b></span></p> <p>iii. Sequence control <span style="float: right;"><b>1 mark</b></span> <span style="float: right;"><b>5</b></span><br/>                     Decision control <span style="float: right;"><b>2 marks</b></span><br/>                     Loop control structures <span style="float: right;"><b>2 marks</b></span></p> <p>OR iv. Formatted functions minimum 3 with syntax <span style="float: right;"><b>2.5 marks</b></span> <span style="float: right;"><b>5</b></span><br/>                     Unformatted functions minimum 3 with syntax. <span style="float: right;"><b>2.5 marks</b></span></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|     | Q.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>i. Definition <span style="float: right;"><b>1 mark</b></span> <span style="float: right;"><b>2</b></span><br/>                     How it is declared <span style="float: right;"><b>1 mark.</b></span></p> <p>ii. Program. (if logic and syntax both correct-8 marks) <span style="float: right;"><b>8</b></span></p> <p>OR iii. String operations minimum four <span style="float: right;"><b>(2 marks * 4)</b></span> <span style="float: right;"><b>8</b></span><br/>                     2 marks for each. Syntax and explanation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|     | Q.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>i. Definition <span style="float: right;"><b>1 Mark</b></span> <span style="float: right;"><b>3</b></span><br/>                     Examples of different types of pointer declaration. <span style="float: right;"><b>2 marks</b></span></p> <p>ii. Program to pointer to functions and its usage. <span style="float: right;"><b>7</b></span><br/>                     Program <span style="float: right;"><b>5 marks</b></span><br/>                     Its usage <span style="float: right;"><b>2 marks.</b></span></p> <p>OR iii. Explanation of Dynamic memory allocation with proper syntaxes <span style="float: right;"><b>5 marks.</b></span> <span style="float: right;"><b>7</b></span><br/>                     Its pros and cons <span style="float: right;"><b>2 marks.</b></span></p>                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|     |      |                                                                    |                      |          |
|-----|------|--------------------------------------------------------------------|----------------------|----------|
| Q.5 | i.   | Structure definition,                                              | <b>1 mark</b>        | <b>4</b> |
|     |      | Declaration of structure with proper syntax                        | <b>1 mark</b>        |          |
|     |      | Initialization of structure                                        | <b>2 marks</b>       |          |
|     | ii.  | Definition of a function copying data of one variable in to other. | <b>6</b>             |          |
|     |      | Function definition                                                | <b>4 marks</b>       |          |
|     |      | Using it                                                           | <b>2 marks</b>       |          |
| OR  | iii. | 3 minimum differences with example, 2 for each.                    | <b>(2 marks * 3)</b> | <b>6</b> |

|     |      |                                                                   |          |
|-----|------|-------------------------------------------------------------------|----------|
| Q.6 | i.   | Program to count number of lines, words and characters in a file. | <b>5</b> |
|     | ii.  | Different types of c pre-processor directives.                    | <b>5</b> |
|     | iii. | File copy program using filename through command line arguments.  | <b>5</b> |

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