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INSTITUTE OF AERONAUTICAL ENGINEERING (Autonomous)

B.Tech I Semester End Examinations (Regular) - December, 2017

Regulation: IARE – R16

COMPUTER PROGRAMMING
Common for (CSE | IT | ECE | EEE)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1. (a) Write an algorithm to read the radius and calculate the area of a circle. Also draw the flow chart for the same. State which approach do you prefer to use and why? [7M]
- (b) Find the result of evaluation for the following expressions. [7M]
 - i. $5 * 3 / 4 - 2$
 - ii. $4 - 5 \&\& !2$
 - iii. $5 != 10 \&\& 2 | 3 \& 5$
 - iv. $+2.25 + -3.85$
 - v. $2 ? 2 ^ 2 : 2 | 5$
2. (a) Define flowchart. List the symbols used in flowchart. Draw a flowchart to check the given number is a perfect number or not. [7M]
- (b) Which symbols are used for pre increment and post increment operations? What is the output for the following C program? Justify your answer. [7M]

```
void main()
{
int a=10;
printf("%d %d %d",a++,a++,a++);
}
```

UNIT – II

3. (a) What are entry controlled and exit controlled looping structures in 'C'? Explain with the help of flow chart. [7M]
- (b) The grade of an examination is decided based on the rules as shown in Table 1.

Table 1

Marks	0-39	40-59	60-69	70-79	80-89	90-100
Grade	F	D	C	B	A	S

Write a C program to read the name and marks of a student and display the grade using switch statement. [7M]

4. (a) Elaborate on various decision making constructs in C. Give a simple example in each case. [7M]
(b) Develop a C program which takes a number, reverse its digits and add the reverse to the original. If the sum is not a palindrome, repeat the procedure with the sum until the result is palindrome. [7M]

UNIT – III

5. (a) What is recursion? What are the advantages and disadvantages of recursion over iteration? Justify the above to find the Factorial of a given number 'n'. [7M]
(b) Develop a C program to find the sum of the elements in an one dimensional array using pointers. [7M]
6. (a) How to return multiple values from one function to another using return statement? Illustrate with an example C program. [7M]
(b) Write a C program to compare two strings using pointers. [7M]

UNIT – IV

7. (a) Discuss how structures and unions are declared, initialized and its members are accessed. [7M]
(b) How enumerated data types are useful to the user? Write a C program to display number of days in each month using enumerated data type. [7M]
8. (a) How the memory space can be utilized efficiently using bit fields? Justify your answer. [7M]
(b) Develop a C program which does the following [7M]
Define a structure 'student' with details like student name, marks for 3 subjects and total marks.
Read marks for 3 subjects of 'n' students.
Calculate the total mark of each student and store them.
Display the details of the student who scored the highest marks.

UNIT – V

9. (a) Demonstrate the file functions fopen(), fclose(), getc(), and putc() to copy one file to another. [7M]
(b) Write a C program that merges lines alternately from two files and writes the results to destination file. If one file has less lines than the other, the remaining lines from the larger file should simply be copied to destination file. [7M]
10. (a) Discuss the primary advantages of using a data file. Describe various file operations. Demonstrate various file accessing modes. [7M]
(b) A file named DATA contains a series of integer numbers. Code a 'C' program to read these numbers and then write all 'odd' numbers to a file to be called ODD and all 'even' numbers to a file to be called EVEN. [7M]

