Hall Ticket No		Question Paper Code: ACS001
	E OF AERONAUTICAL ENG (Autonomous)	INEERING
TON FOR VE	MODEL QUESTION PAPER – I	
Four Year 1	B.Tech I Semester End Examinations, Dece	mber - 2016
	Regulation: R16	
	COMPUTER PROGRAMMING	
	(Common to CSE, ECE, EEE and IT	")
Time: 3 Hours		Max Marks: 70
A	nswer any ONE question from each U	Init

All questions carry equal marks All parts of the question must be answered in one place only

Unit - I

- 1. (a) Identify the steps in creating and running a C program? [4M]
 - (b) State the properties of an algorithm? Write an algorithm for find the discriminant of a quadratic equation? [5M]
 - (c) The straight line method of computing the yearly depreciation of the value of an item is given by

Depreciation = (Purchase price – Salvage Value) / Year of service

Write a C program to determine the salvage value of an item when the purchase price, years of service and the annual depreciation are given [5M]

- 2. (a) Write the basic structure of a C program with an example?
 - (b) Identify the different symbols used in flowchart? Draw a flowchart for finding the sum of individual digits of a three digit number? [5M]
 - (c) For a certain electrical circuit with an inductance L and resistance R, the damped natural frequency is given by

$$Frequency = \sqrt{\frac{1}{LC} - \frac{R^2}{4C^2}}$$

Write a C program to calculate the frequency of the electrical circuit? [5M]

$\mathbf{Unit}-\mathbf{II}$

- 3. (a) Compare and Contrast while and do while loop with example? [4M]
 - (b) The following conditions are followed for a student to promote from I year I semester to I year II semester of B.Tech: [5M]
 - i. Marks in Engineering Physics >= 60
 - ii. Marks in Engineering Mathematics >= 50
 - iii. Marks in Computer Programming >= 40
 - iv. Total in all three subjects >= 200
 - v. Total in Engineering Physics and Mathematics >= 150

Given the marks in the three subjects, write a C program to check whether a student is promoted to I year II semester or not.

[4M]

- (c) Write a C program to check whether the given string is palindrome or not without using string functions. [5M]
- 4. (a) List out any 4 string handling functions with example?
 - (b) Write a C program to read two matrices and find the multiplication of two matrices [5M]

(c) Write a C program to print Armstrong numbers between 1 to n where n value is entered by the user. Armstrong number is defined as the sum of cubes of individual digits of a number. e.g. $371 = 3^3 + 7^3 + 1^3$ [5M]

Unit - III

5.	(a) List out the different types of storage classes with valid example?	[4M]
	(b) Explain different types of preprocessor directives?	[5M]
	(c) Write a C program that uses functions to convert decimal number to binary nu $(1\;1\;1\;1)_2$	mber? $(15)_{10} = [5M]$
6.	(a) Distinguish between the following:i. Actual and formal arguments	[4M]

- ii. Scope and visibility of variables
- (b) Write a C program to swap two numbers without using third variable by using parameter passing techniques [5M]
 - i. Call by value
 - ii. Call by reference
- (c) Write C programs that use recursive functions to find the N^{th} Fibonacci number. [5M]

$\mathbf{Unit}-\mathbf{IV}$

	7.	(a)	Explain about	dynamic memor	y allocation functions y	with suitable example?	[4M]]
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- (b) Write the usage of the following:
 - i. Unions
 - ii. Bit fields
 - iii. Enumerated types
- (c) Write a C program to maintain a book structure containing name, author and pages as structure members. Pass the address of structure variable to a user defined function and display the contents.

[5M]

[5M]

[4M]

8. (a) Compare and contrast structures and unions? [4M]

(b) IARE maintains salary details of every employee by storing their name, department, basic pay, da, hra and cca. Write a C program to store this information in a nested structure and display the salary of an employee [5M]

(c) Write a C program to read two complex numbers and perform the following: [5M]i. Addition of two complex numbers

ii. Subtraction of two complex numbers

 $\mathbf{Unit}-\mathbf{V}$

- 9. (a) Explain the following file I/O functions with example:
 - i. fopen()
 - ii. fclose()
 - iii. fread()
 - iv. fwrite()
 - (b) Write a C program to read name and marks of n number of students from user and store them in a file. If the file previously exists, then add the information of n students to the end of existing content. [7M]
- 10. (a) Explain the following functions with suitable example:
 - i. ftell()
 - ii. fseek()
 - iii. rewind()
 - (b) Write a C program to open a file names INVENTORY and store in it the following data [7M]

Item	Number	Price	Quantity
Printer	P100	7500	10
Scanner	S200	5500	5
Hard disk	H300	4500	8

Read the data from the INVENTORY file and display the inventory table with the value of each item.

[Hint: value = price * quantity and use fprintf() and fscanf() functions]

[7M]

[7M]