Subject Code: R13205/R13 **Set No - 1**

I B. Tech II Semester Regular/Supply Examinations July/Aug. - 2015

COMPUTER PROGRAMMING

(Common to ECE, EEE, EIE, Bio-Tech, E Com. E, Agri. E)

Time: 3 hours **Max. Marks: 70**

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory,
Three Questions should be answered from **Part-B**

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PART-A

1.(a) Which of the following expressions are valid? Give reasons.
(i) +a +b (ii) a++ - - b (iii) a % 10 / - b (iv) a++ + ++b

(b) What are the values of control variables and number of the iterations in the following for loops?
(i) for(x=1.0 ; x>=0.5; x - = 0.1) (ii) for(ch= 'A' ; ch != 'F' ; ++ch)

(c) Define function for determining the median of three given numbers.

(d) Write a swap function along with a loop to reverse a vector.

(e) Is it possible to declare two structures with the same name? Justify your answer.

(f) State the functions for direct file I/O.

[4+4+4+3+4+3]

PART- B

2.(a) Give the flowchart to count positive and negative numbers in a given list terminated with zero.

(b) Write a program to calculate the area and circumference of a circle with radius 10.

[8+8]

3.(a) Write a for loop to calculate the sum of squares of differences of consecutive numbers entered from the keyboard, e.g., for numbers 1, 4, 5 and 3, the program should calculate $(4 – 1)^2 + (5 – 4)^2 + (3 – 5)^2$

(b) Describe the basic operations on arrays. Explain how they can be implemented using loops.

[8+8]

4.(a) Describe the concept of functions and the mechanism of a function call. Discuss the advantages of functions.

(b) How is *const* parameter used? Explain.

[10+6]

5. What functions are provided in *stdlib.h* header file for providing dynamic memory management? Explain each function with an example.

[16]

6. How do you define a structure, structure variables, access their elements and perform operations on them? Explain with examples.

[16]

7.(a) What is meant by formatted I/O?

(b) Write a program to generate prime numbers in a given range and append them to primes.dat file and display the file.

[6+10]

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Subject Code: R13205/R13 **Set No - 2**

I B. Tech II Semester Regular/Supply Examinations July/Aug. - 2015

COMPUTER PROGRAMMING

(Common to ECE, EEE, EIE, Bio-Tech, E Com. E, Agri. E)

Time: 3 hours **Max. Marks: 70**

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory,
Three Questions should be answered from **Part-B**

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PART-A

1.(a) Evaluate the expressions given below if a=10, b=20:
(i) ++a+b-- /2.5 (ii) a/b + (a /(2 * b)) (iii) a % 6 / b%3

(b) Write the equivalent while loop for the following for loop:
for(ch = 'a'; ch<= 'z'; ++ch)
putchar(ch);

(c) Define a recursive function to determine the sum of non-negative integer number n.

(d) Write the code for accepting an array of integers and return a pointer to its largest element.

(e) What is the basic difference between an array and a structure?

(f) What functions are used for character I/O?

[4+4+4+4+3+3]

PART- B

2.(a) Write a program to determine the real roots of a quadratic equation $ax^2+bx+c=0$

(b) What is a conditional expression operator? Use conditional expression operator to determine the number of days in February.

[8+8]

3.(a) Explain how arrays are used as function parameters with examples.

(b) Compare switch and if-else-if statements.

[8+8]

4.(a) What is register storage class and static storage class? Explain with examples.

(b) Write a recursive function to obtain the solution for the Tower of Hanoi problem.

[8+8]

5.(a) What are the limitations of arrays? Explain how dynamic arrays overcome these limitations.

(b) How are increment and decrement operations implemented with pointers?

[8+8]

6. How do you declare, initialize and access a structure containing arrays? Explain with examples.

[16]

7.(a) Write the syntax of functions *fclose*, *fprintf*. and explain their purposes.

(b) What functions are used for file positioning? State the SEEK_ Constants used in *fseek* function and explain the meaning.

[8+8]

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Subject Code: R13205/R13 **Set No - 3**

I B. Tech II Semester Regular/Supply Examinations July/Aug. - 2015

COMPUTER PROGRAMMING

(Common to ECE, EEE, EIE, Bio-Tech, E Com. E, Agri. E)

Time: 3 hours **Max. Marks: 70**

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory,
Three Questions should be answered from **Part-B**

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PART-A

1.(a) What is a preprocessor directive?
(b) Write assignment statement for the following:
Assign a value of 1 to divisor if digit is a divisor if digit is a divisor of num; otherwise, assign a value of 0.
(c) What is a extern storage class? Explain.
(d) What is an address operator and dereference operator?
(e) What is the similarity between structure, union and enumeration?
(f) Describe *fgetc* function and *getc* macro.

[3+4+3+4+4+4]

PART-B

2.(a) Illustrate how you read data values into a program and to display results with examples.
(b) What is a format string? How do you write format strings for data entry and display?

[8+8]

3.(a) Write a program that asks user an arithmetic operator('+', '-', '*' or '/') and two operands and perform the corresponding calculation on the operands. Use a switch statement.
(b) Write a C program to check whether a number entered by user is even or odd. Use a if else statement.

[8+8]

4.(a) Give a recursive function for computing the n^{th} Fibonacci function.
(b) Explain what would happen if the terminating condition for function Fibonacci were just (n==1).

[8+8]

5.(a) What is a pointer? What are the advantages of pointers?
(b) Write a program to read an array from the keyboard, access elements of an array and copy array into another array using pointers.

[6+10]

6.(a) What are the two types of operators used for accessing members of a structure? Explain with examples.
(b) How are structures nested in structures? Write a nested structure to represent a rectangle.

[8+8]

7.(a) What is a stream? Why is it necessary to use buffering in streams?
(b) Write a C program to write all the members of an array of structures to a file using fwrite(). Read the array from the file and display on the screen.

[8+8]

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Subject Code: R13205/R13 **Set No - 4**

I B. Tech II Semester Regular/Supply Examinations July/Aug. - 2015

COMPUTER PROGRAMMING

(Common to ECE, EEE, EIE, Bio-Tech, E Com. E, Agri. E)

Time: 3 hours **Max. Marks: 70**

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory,
Three Questions should be answered from **Part-B**

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PART-A

1.(a) What data types would you use to represent the following items: number of children at school, a letter grade on an exam, the average number of school days a child absent each year?
(b) Evaluate the expression: **1 && (30 % 10>= 0) && (30 % 10<=3)**
(c) Which is generally more efficient, recursion or iteration?
(d) Explain the functionality of *realloc* function.
(e) What is a self referential structure?
(f) Define *fputc* function and *putc* macro.

[4+4+3+4+3+4]

PART-B

2.(a) Explain with examples how C evaluates arithmetic expressions and how are they written in C?
(b) Name three high level languages and describe their original usage.

[8+8]

3.(a) Write a C program to find average of maximum of n positive numbers entered by user. But, if the input is negative, display the average(excluding the average of negative input) and end the program.
(b) How does for loop work in C? Illustrate with examples.

[10+6]

4.(a) Write a recursive C function that counts the number of vowels in a string.
(b) How are 2D arrays passed to functions? Explain.

[8+8]

5.(a) What is call by reference? Write a program to swap numbers in cyclic order using call by reference.
(b) How is a dynamic two dimensional arrays implemented using a pointer to pointer?

[8+8]

6.(a) Describe the two ways of accessing a structure member through a pointer. Give an example.
(b) Give an example to use structure's member through pointer using malloc() function.

[8+8]

7.(a) What is a binary file? Explain why a binary file containing numeric data will require less space compared to a text file containing same data.
(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 exits, add the information of n students.

[8+8]

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