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Roll No. of candidate [| | | | | | . | |]

2021

B.Tech. 1st Semester End-Term Examination

PROBLEM SOLVING THROUGH PROGRAMMING USING C

New Regulation (W.e.f 2017-18)

New Syllabus (Group-A) (W.e.f 2018-19)

Full Marks – 70   Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and any *four* from the rest.

1. Answer the following (MCQ/ Fill in the blanks) :   (10 × 1 = 10)

    (i)   The memory used by the CPU to store instructions and data that are repeatedly required to execute programs to improve overall system performances is

    (a) Primary memory   (b) Auxiliary memory

    (c) Cache memory   (d) Flash memory

    (ii) Which operator cannot be used with float operands?

    (a) +   (b) —

    (c) %   (d) *

    (iii) When the ——————— statement is encountered then the rest of the statements in the loop are slipped.

    (a) break   (b) continue

    (c) default   (d) case

    (iv) S1 = "HI", S2 = "HELLO", S3 = "BYE". How can we concatenate them through strings?

    (a) strcat (S1,S2,S3)   (b) strcat (S 1 (strcat(S2,S3)))

    (c) strcpy (S1 (strcat(S2,S3))) (d) strcpy (S1,S2,S3)

[Turn over

(v) *(&num) is equivalent to

(a) & num   (b) *num

(c) num   (d) none of these

(vi) Memory for a structure is allocated at the time of

(a) structure definition

(b) structure variable declaration

(c) structure declaration

(d) function declaration

(vii) —————————— is used to convert assembly level program into machine language.

(viii) main( ) is called by the ——————————

(ix) Variable declared inside a function is known as

(x) Declaring an array means specifying ——————————, —————————— and ——————————.

2. (a) Write a program that would sort the input strings in an ascending alphabetical order and would display the same. (7)

(b) Explain the importance of #define preprocessor directive. Give the rules for using macros. (8)

3. (a) How is a structure name different from a structure variable? Write a program using structure to find the largest of three numbers. (3 + 6 = 9)

(b) Write a program to find smallest number using pointer. (6)

4. (a) Why are arrays needed? How are multi-dimensional arrays useful? (3 + 3 = 6)

(b) Write a program to delete a number from a given position in an array. (9)

5. (a) Why function declaration statement is placed prior to function definition. What is recursion? Define return statement. (3 + 2 + 2 = 7)

(b) Write a program to convert a decimal number to binary number using function. (8)

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6. (a) (i) What are decision control statements?

(ii) Write a program, using do-while loop to display the square and cube of first n natural numbers. (2 + 6 = 8)

(b) (i) Explain the usefulness of statement in switch case statement.

(ii) Write a program to sum the series

$1+1/2+1/3+ \dots +1/n.$ (2 + 5 = 7)

7. (a) How is a flowchart different from an algorithm? What do you mean by identifiers and keywords? Differentiate between syntax and semantic errors. (3 + 3 + 2 = 8)

(b) Write a program to check whether an entered number is Armstrong number or not. (7)