Code : 051405

B.Tech 4th Semester Exam., 2016

SYSTEM PROGRAMMING

Time : 3 hours   Full Marks : 70

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Instructions :

(i) The marks are indicated in the right-hand margin.

(ii) There are **NINE** questions in this paper.

(iii) Attempt **FIVE** questions in all.

(iv) Question No. **1** is compulsory.

1. Choose and write the correct option (any *seven*) : akubihar.com   2×7=14

    (a) Load address for the first word of the program is called

    (i) linker address origin

    (ii) load address origin

    (iii) phase library

    (iv) absolute library

(b) Symbolic names can be associated with

(i) information

(ii) data or instruction

(iii) operand

(iv) mnemonic operation

(c) An assembler is   akubihar.com

(i) programming language dependent

(ii) syntax dependant

(iii) machine dependant

(iv) data dependant

(d) Nested macro calls are expanded using the
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(i) FIFO (first in, first out) rule

(ii) LIFO (last in, first out) rule

(iii) FILO (first in, last out) rule

(iv) None of the above

(e) A linker program

(i) places the program in the memory for the purpose of execution

(ii) relocates the program to execute from the specific memory area

(iii) links the program with other programs needed for its execution

(iv) interfaces the program with the entities generating its input data

(f) Which of the following is language processors?
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(i) Assembler

(ii) Compiler

(iii) Interpreter

(iv) All of the above

(g) Assembler is a machine dependent, because of   akubihar.com

(i) macro definition table (MDT)

(ii) pseudo-operation table (POT)

(iii) argument list array (ALA)

(iv) mnemonics operation table (MOT)

(h) Macro processor is an inbuilt function of

  (i) loader

  (ii) editor

  (iii) linker

  (iv) assembler

(i) Forward reference table (FRT) is arranged like

  (i) stack

  (ii) queue

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  (iii) linked list

  (iv) doubly linked list

(j) An interpreter is

  (i) a program that places programs into memory and prepares them for execution   akubihar.com

  (ii) a program that automate the translation of assembly language into machine language

  (iii) a program that accepts a program written in high-level language and produces an object program

  (iv) a program that appears to execute a source program as if it were machine language

2. (a) What are the data structures required for a two-pass assembler? Explain the format of the data structures used by two-pass assembler.

operations or

  (b) What are assembler directives? Explain the purpose of the following pseudos :
                                    8+6=14

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   (i) USE

   (ii) BASE

   (iii) EXTRER

   (iv) ORG

   (v) LTORG

3. (a) Explain the concept of program relocation.

  (b) With syntax, explain the usage of different symbol-defining statements in an assembler.   6+8=14
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4. (a) Discuss in brief about different data structures used by a macro processor.

  (b) What is the need for concatenation of macro parameters? Explain how it is done.   6+8=14
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5. (a) Justify with reasons whether the following statements are True or False :

(i) Relocation is performed by linker.

(ii) Transfer vectors are used by direct linking loader.

(iii) In absolute loader, linking is done by programmer.

(iv) In compile and go loader, linking is performed by loader.

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(b) List the four important tasks to be accomplished by a text editor for an interactive user computer dialog. 8+6=14

6. (a) What is dynamic loading? What are its advantages and disadvantages? Explain with a neat diagram, loading and calling of subroutine using dynamic linking.

(b) Differentiate between literal and immediate operand with example. 10+4=14

7. (a) What is an overlay structure? What is its use? akubihar.com

(b) Give the comparison between absolute loader and compile-and-go loader.

(c) Explain the design of relocating loader.

3+3+8=14

8. (a) Explain different phases of a compiler, showing the output of each phase, using the example of the following statement :

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*i. position:=initial + rate * 60*

(b) Compare between compiler and interpreter. 10+4=14

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9. Write short notes on any *two* of the following : 7×2=14

(a) Interpreter

(b) Self-relocating program

(c) Recursive macro expression

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