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T.Y. B.Sc. (III Sem.) EXAMINATION, 2016

COMPUTER SCIENCE

Paper I

CS-331 : Systems Programming

(2013 PATTERN)

Time : Two Hours

Maximum Marks : 40

- N.B. :—**
- (i) All questions are compulsory.
 - (ii) All questions carry equal marks.
 - (iii) Figures to the right indicate full marks.
 - (iv) Neat diagrams must be drawn wherever necessary.

1. Attempt all of the following : [10×1=10]
- (a) Draw the schematic of pure and impure interpreter.
 - (b) “Debuggers are used for executing program.” Justify T/F.
 - (c) List any two system calls supported for communication.
 - (d) State use of Table of Incomplete Instruction (TII). Write fields of TII.
 - (e) List the different types of editors.
 - (f) What are different ways to implement constants in an assembly language ?
 - (g) List two advantages of distributed operating system.
 - (h) Write the purpose of BC statement. Give its syntax.
 - (i) What do you mean by macro expansion ?
 - (j) Name the different steps involved in program execution.

P.T.O.

2. Attempt any two of the following : [2×5=10]
- (a) Explain in brief debugging function capabilities.
 - (b) Define the terms :
 - (i) Loader
 - (ii) Operating system
 - (iii) Command interpreter
 - (iv) System programming
 - (v) Linking.
 - (c) Consider the following assembly language program :

START 100
A DS 1
L1 READ A
READ B
MOVER AREG, A
SUB AREG, B
MOVEM AREG, C
PRINT C
STOP
B DS 2
C DS 1
END

- (i) Show the contents of symbol table and opcode table.
- (ii) Construct intermediate code forms using Var-I and Var-II.

3. Attempt any two of the following : [2×5=10]

- (a) Compare single pass and multipass translation with the help of various factors.
- (b) Define binding. Differentiate between static and dynamic binding.
- (c) Consider the following macro :

	MACRO	
	DECR	&X, ®, =AREG, &N
	LCL	&M
&M	SET	O
	MOVER	®, ='O'
MORE	MOVEM	®, &X+&M
&M	SET	&M+1
	AIF	(&MNEN). More
	MEND	

Show the contents of the following data structures :

- (i) MNT
- (ii) MDT
- (iii) PNTAB
- (iv) KPdTab
- (v) EVNtab.

4. Attempt either (A) or (B) :

(A) (a) What is role of assembler directives in assembly program ? Explain origin and EQU. [4]

(b) Define macro. Explain expansion time statements. [4]

(c) Explain word processor as an editor. [2]

Or

(B) (a) Explain client-server computing. [4]

(b) Write advantages and disadvantages of p-code compiler. [4]

(c) Define device drivers. Give examples. [2]



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