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System Programming

P. Pages : 2

Time : Three Hours

**NRJ/KW/17/4437**

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Due credit will be given to neatness and adequate dimensions.
 9. Assume suitable data whenever necessary.
 10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Define system programming. Explain the components involved in the foundation of system programming. **7**

b) Explain different instruction formats of IBM 360 / 370 machine. **7**

OR

2. a) Explain the formats of following tables used in assembler design. **6**

i) MOT - Machine - OP Table

ii) POT - Pseudo - OP Table

iii) ST - Symbol Table

b) With neat schematic explain PASS - I of a two pass assembler. **8**

3. a) Explain the formats of MNT, MDT and ALA with example. What is the difference between ALA prepared in Pass - 1 and Pass - 2 of microprocessor. **7**

b) Explain the stack organization for macro call within macros. What is the significance of storing old stack pointer. **6**

OR

4. Draw and explain the flowchart for macro defining macros. State the significance of READ flowchart. **13**

5. a) Assuming that the following program segment is stored at absolute address 1000. Show the assembled program PRG for a direct address machine and the complete memory map as loaded by BSS loader. Assume length of E1 = 120 bytes and E2 = 70 bytes 8

PRG	START	
EXTRN	E1, E2	
L	1, FIVE	
A	1, FOUR	
ST	1, TEMP	
BAL	14, E1	
C	1, TEMP	
BNE	E2	
BR	14	
FIVE	DC	F' 5'
FOUR	DC	F' 4'
TEMP	DS	1 F
	END	

- b) Describe in detail with neat diagram a complete and go loader. 5

OR

6. a) Explain the direct linking loader scheme. Also discuss about all the cards it uses. 9

- b) Write a note on dynamic loading and dynamic linking. 4

7. a) Explain in detail common object file format. 8

- b) What is symbolic debugger? Explain. 5

OR

8. a) Explain the structure of executable file. 5

- b) Explain different storage classes with example of each. 8

9. a) What is device driver? Explain the significance of device driver. 4

- b) Explain different UNIX device drivers in detail. 10

OR

10. a) Explain all the entry points for line printer device driver. 8

- b) Give and explain the steps of installation of UNIX device driver. 6

11. Explain various phases of compiler in detail. With database involved in each phase. 13

OR

12. a) Explain how LEX tool helps in the design of lexical analyzer. 6

- b) What is cross compiler? Explain how bootstrapping can be achieved. 7



~ Babe Ruth

