

B.E.(Information Technology) Semester Fifth (C.B.S.) -  
**System Programming**

P. Pages : 3

Time : Three Hours



**KNT/KW/16/7354**

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. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Differentiate between machine language and assembly language. **5**
- b) Write and explain the major components of a system programming. **9**

**OR**

2. a) With suitable diagram explain data formats used by IBM 360/370 machine. **7**
- b) Explain the instruction formats used by IBM 360/370 machine. **7**
3. a) Explain the following pseudo-ops and machine instructions:- **5**
- i) USING
  - ii) BALR
  - iii) START
  - iv) END
  - v) BR 14
- b) Show the results of each pass for the following lists using: **8**
- i) Interchange sort
  - ii) Shell sort
  - iii) Radix sort
- 81, 52, 57, 22, 95, 04, 83,  
96, 42, 32, 48, 78, 82, 65, 16,  
66, 14, 77, 87, 67

**OR**

4. For the given source deck construct the symbol table, literal table, base table and generated machine code. 13

TEST	START
BEGIN	BALR 15, 0
	USING BEGIN + 2, 15
	SR 4, 4
	L 3, = F '10'
Loop	L 2, DATA (4)
	A 2, = F '49'
	ST 2, DATA (4)
	A 4, = F '4'
	BCT 3, * - 16
	BR 14
DATA	LTORG
	DC F '1, 3, 3, 3, 3, 4, 5, 9, 0'
	END

5. a) What are four basic tasks that performed by the macro processor? 4
- b) Explain MDT and MNT with format. 5
- c) Explain macro call within macro with suitable example. 5

**OR**

6. For the following program show: 14
- i) The expanded assembly language program.
- ii) The MDT table after macro processing.
- iii) The MNT table after processing.

	MACRO	
	XYZ	& A
	ST	1, & A
	MEND	
	MACRO	
	MIT	& Z
	MACRO	
	& Z	& W
	AR	4, & W
	XYZ	ALL
	MEND	
	ST	& Z, ALL
	MEND	
PROG	START	
	USING	*, 15
	MIT	HELLO
	ST	2, 3
	HELLO	YALE
YALE	EQU	5
ALL	DC	F '3'
	END	

7. a) Describe the function of each of the following cards. **5**  
RLD, ESD, TXT and END cards.
- b) Enlist different types of loader schemes and explain any two with suitable diagram. **8**

**OR**

8. a) What is the purpose of the ID number on the ESD cards? Why it is not needed for locally defined symbols? **4**
- b) Write the concept of Binder, Dynamic loading and Dynamic linking. **9**
9. a) What do you mean by cross compiler and boot strapping? **4**
- b) Explain different Phases of compiler with suitable diagram and example. **9**

**OR**

10. Write short note on:- **13**
- i) LEX
- ii) YAAC
- iii) Databases used in compilation process.

11. What are the steps involved in installing a device driver in UNIX system? Explain each step in detail. **13**

**OR**

12. a) What are the major design issues in the study of device driver? **4**
- b) Differentiate between block device driver and character device driver with diagram. **4**
- c) What is the role of terminal & stream driver explain with example? **5**

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