

BANASTHALI VIDYAPITH

Second Periodical Test, December, 2023-May, 2024

Class: B. Tech (CS/IT) IV Sem.

Subject Computer Science

Paper (with code) CS 216 (Systems Programming)

Max Marks: 10

No. of Students: 315+132

Time Allowed: 1 hrs. 30 minutes

Examination Date: 19-March-2025

Note: Students are required to attempt three questions. Question No. 1 is compulsory.

Q 1. For the following program show:

1*4=4 Marks

- 1) The symbol table at the end of pass 1.
- 2) The literal table at the end of pass 1.
- 3) The changes in the base register table during pass 2.
- 4) The generated "machine" code from pass2.

TEST	START	0
BEGIN	BALR	BASE, 0
	USING	BEGIN+2, BASE
	SR	4, 4
	L	3, =F'10'
LOOP	L	2, DATA(4)
	A	2, FN
	LTORG	
	ST	2, DATA(4)
	A	4, =F'4'
	USING	6, 15
	BCT	3, LOOP
	BR	14
	LTORG	
FN	DC	F '49'
DATA	DC	F '1, 2, 3, 4, 5'
BASE	EQU	12
	END	

Q 2. What is the purpose of transfer vector and relocation bits in a relocating loader?
Explain with an example.

3 Marks

OR

Q 3. Explain the role of LTOrg in the creation of a literal table with an example.

Q 4. Describe various data structures for the designing of a 2-Pass Assembler

3 Marks

OR

Q 5. Write short notes on the following:

3 Marks

Assemble & Go loader, EQU pseudo-operation, Absolute loader