POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2018
Programme: BE Full Marks: 100
Course: System Programming Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is system software? Explain its importance. 5
   b) Describe the architecture of SIC/XE machine. 5
   c) Differentiate RISC and CISC architectures. 5
2. a) How forward references are handled in one pass assembler? 5
   b) Consider the following assembly language program. 10

Line	Symbol	Opcode	Exp
10	Test	START	0
20	FIRST	LDA	#5
30		STX	THREE
40		LDX	=C'EOF'
50		+LDS	THREE
60		ADDR	A,X
70		+STA	RESULT,X
80	RESULT	RESW	1
90	THREE	RESW	1
100		END	FIRST

Mnemonic	Opcode
LDA	00
STX	10
LDX	04
LDS	6c
ADDR	90
STA	0C

   i. Fill column for location counter
   ii. Create object code column with object codes
   iii. Show all data structures
   iv. Create Object Program.
3. a) Write about program blocks and control sections. 5

   b) Consider the following assembly language program. 10

Line	Symbol	Opcode	Exp
10	SUM	START	5000
20	FIRST	LDX	ZERO
30		LDA	ZERO
40	LOOP	ADD	TABLE,X
50		TIX	COUNT
60		JLT	LOOP
70		STA	TOTAL
80		RSUB	
90	TABLE	RESW	2000
100	COUNT	RESW	1
110	ZERO	WORD	0
120	TOTAL	RESW	1
130		END	FIRST

Mnemonic	Opcode
LDA	00
ADD	18
LDX	04
STA	0C
JLT	38
TIX	2C
RSUB	4C

   i. Fill column for location counter
   ii. Create object code column with object codes
   iii. Create Object code file.
   iv. Load the program in memory
4. a) What is macro time variable? How macro processor manages value of macro time variable? 5
   b) Explain conditional macro expansion. 5
   c) Consider the macro definition given below and show macro expansion for the macro call statement "Print 54 F2". Show all data structures used by macro processor clearly. 5

Print	MACRO	&Ch, &Od
$Repeat	TD	&Od
	JEQ	$Repeat
	LDCH	#&Ch
	WD	&Od
	MEND	

5. a) Explain the Object diagram for assembler with diagram. 7

b) What is object oriented programming? Write about principles of object oriented programming. 8

6. a) Define two different development processes that Booch suggested. 8

b) What is Absolute Loader? Write its algorithm. 7

7. Write short notes on: (**Any two**) 2×5

a) Dynamic Linking

b) Recursive microprocessor

c) Simple Bootstrap Loader