POKHARA UNIVERSITY

Level: Bachelor Semester: Spring 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 architectures of SIC and SIC/XE machines. 10
2. a) What is the advantage of relative addressing mode over absolute addressing mode? 5
   b) Consider the following assembly language program. 10

Line	Symbol	Opcode	Exp
10	Test	START	0
20		EXTDEF	Odev
30		EXTREF	Ch, Phash
40	Begin	LDA	=C'#'
50		+STA	Ch
60		+JSUB	Phash
70		LTORG	
80	Odev	BYTE	X'06'
90	Phash	CSECT	
100		EXTDEF	Ch
110		EXTREF	Odev
120	Loop	+TD	Odev
130		JEQ	Loop
140		LDCH	Ch
150		+WD	Odev
160		RSUB	
170	Ch	RESB	1
180		END	Begin

Mnemonic	Opcode
JEQ	30
JSUB	48
LDA	00
LDCH	50
STA	0C
TD	E0
WD	DC
RSUB	4C

   i. Fill column for location counter
   ii. Create object code column with object codes
   iii. Show all data structures
   iv. Create Object code file.
3. a) What is loader? Differentiate linking loader from linkage editors. 2+5
   b) What is relocation? How relocation is carried out in a loader? 8
4. a) What is macro time variable? How macro processor manages value of macro time variable? 5
   b) Write about concatenation of macro parameters with example. 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. 8
   b) What is object oriented programming? Write about principles of object oriented programming. 7
6. a) Define Booch's Micro and Macro process activities. 5
   b) Explain load and go assembler 5
   c) What is Literal? Explain its handling during pass 1 and pass 2. 5
7. Write short notes on: **(Any two)** 2×5
   a) Absolute Loader and its algorithm
   b) Conditional Macro Expansion
   c) Dynamic Linking