

Total No. of Questions : 12]

SEAT No. :

P1146

[Total No. of Pages : 3

[4659] - 506

B.E. (Semester - II)

ELECTRONICS AND TELECOMMUNICATION
System Programming and Operating System (Elective - II)
(2003 Pattern)

Time : 3 Hours]

[Maximum Marks : 100

Instructions to the candidates:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 from Section - I and Solve Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12 from Section - II.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Figures to the right indicate full marks.*
- 4) *Neat diagrams must be drawn wherever necessary.*
- 5) *Assume suitable data, if necessary.*

SECTION - I

- Q1)** a) Enlist and explain all phases of compiler with neat and labeled diagram. [6]
b) Explain the term back patching. [2]
c) Define the following terms : [8]
i) Compiler
ii) Loader
iii) Interpreter
iv) Macro processor

OR

- Q2)** a) Explain the role of Lexical Analyzer in compiler design. List the types of errors reported during lexical analysis phase of compiler. [6]
b) What are different language processing activities? [6]
c) Explain in brief software development tools : [4]
i) LEX
ii) YACC

- Q3)** a) How one pass assembler can handle forward references? [4]
b) Write an algorithm for second pass of a two pass assembler. Which searching technique improves the performance of algorithm and how? [10]
c) What are the features provided by the MACRO facility? [4]

OR

P.T.O.

Q4) For the following assembly language code, show the contents of macro name table, macro definition table. Finally write down the code after macro expansion. **[18]**

```
MACRO
EVAL & X, &Y, &Z
AIF (&Y EQ & Z). ONLY
LOAD & X
SUB & Y
ADD & Z
AGO.OVER
.OONLY LOAD & Z
.OOVER MEND
MACRO
MAJOR & W1, & W2, & W3, & W4, &W5, & W6
EVAL & W1, & W2, & W3
STORE & W6
EVAL & W4, &W5, & W6
MEND
START
MAJOR A, B, C, D, E, F
END
```

Q5) a) Compare following : **[4]**

- i) Dynamic loading Vs dynamic linking.
- ii) Compile and go loader Vs absolute loader.

b) Give the flow chart for pass I of direct linking loader. **[12]**

OR

Q6) a) What is a loader? What are its basic functions? **[6]**

b) Explain following terms : **[6]**

- i) Overlays.
- ii) Dynamic Linking

c) Write true or false : **[4]**

- i) In absolute loader scheme allocation is done by loader.
- ii) In absolute loader scheme linking is done by programmer.
- iii) In BSS loader scheme relocation is done by loader.
- iv) In BSS loader scheme linking is done by programmer.

SECTION - II

- Q7)** a) What is the meaning of the term busy waiting? What other kinds of waiting are there in an operating system? Can busy waiting be avoided altogether? [8]
- b) State any one classical problem of synchronization and give the remedial technique to overcome it. [8]

OR

- Q8)** a) What is the role of process control block? Explain the function of each attribute in PCB. [8]
- b) State and explain different operating system services in detail? [8]

- Q9)** a) Explain the following terms : [6]
- i) Compaction
- ii) Thrashing
- b) Compare and explain paging and segmentation. [6]
- c) Differentiate the contiguous and non - contiguous memory allocation. [6]

OR

- Q10)** a) Write a short note on virtual memory management. [6]
- b) Explain in detail variable partitioning memory management. [6]
- c) Explain key features of windows file system. [6]
- Q11)** a) Explain mechanism and policies in file system and IOCS layers. Explain steps involved in I/O operations. [8]
- b) Based on what criterion I/O devices are classified? How I/O time of record is calculated? Explain Magnetic Tape and Magnetic Disk in short. [8]

OR

- Q12)** a) What is the purpose of physical IOCS? Explain data structure of physical IOCS with diagram. Explain Organization of physical IOCS. [8]
- b) What is device driver? Explain device driver for USB and parallel port. [8]

