Computer Science 1

2007 March

Science Computer Science

TYBSc

University of Mumbai

T.Y.B.Sc. Examination
Computer science : Paper I

Con/819-07.

LC-4655

23rd March 2007

(3 Hours) [Total Marks : 100

N.B.
(1) Answers to the two sections must be written and submitted separately.
(2) All questions are compulsory and Mixing of sub-sections is not allowed.
(3) Figures to the right indicate full marks.
(4) Symbols have their usual meaning unless otherwise stated.
(5) Use additional data if required but state it clearly.
(6) Illustrations and in-depth answers will be appreciated.

Section I

Q.1 a) Explain the actions of Front End of Toy Compiler on the following two statements. (6)
i) int a,b,c,d ii) d = a + b*c
b) Explain Hash Table Organization and any two types of hashing functions. (6)
c) What are Simple precedence relations? (5)
Define the terms Simple Precedence Grammar, Simple Phrase and Handle.

OR

Q.1 p) Explain the followings in brief. (6)
(i) LPDT (ii) Attribute binding
q) Explain Binary Search Organization. Also state its advantages and disadvantages. (6)
r) What is Top Down Parsing with backtracking? State its disadvantages. (5)
How backtracking can be eliminated?

Q.2 a) State and explain any four types of Assembler directives giving examples. (6)
b) Which data structures created during macro expansion are stored in handling nested macro calls? Justify. (6)
c) Write a note on the role of user interfaces for writing programs. (5)

OR

Q.2 p) Explain various ways of parameter passing in macros giving examples. (6)
q) Write a note on Re-locatable programs. (6)
r) What is an Object Module? Explain the components of object module. (5)

Q.3 a) Explain Intermediate representation for Arithmetic, Non-arithmetic and non-executable statements with the help of examples. (6)
b) State and explain various types of machine-independent optimization techniques. (6)
c) Explain any two types of storage classes. (4)

OR

Q.3 p) What is interpreter? Explain various types of interpreters. (5)
q) Explain with example the algorithm to eliminate common sub-expression. (7)
r) How compiler handles recursive function calls? (4)

Section II

Q.4	a)	Define any three properties of an analog signal.	06
	b)	Illustrate with a suitable example, the polar NRZ and differential Manchester encoding of a digital signal.	05
	c)	Comment in detail on transmission modes.	06
		OR	
Q.4	p)	Define any three properties of a digital signal.	06
	q)	What is the purpose of multiplexing? Explain the frequency division multiplexing.	05
	r)	Differentiate between the guided and unguided media.	06
Q.5)	a)	What is meant by error detection? Explain the cyclic redundancy check method with a suitable example.	05
	b)	Explain the term flow control. Illustrate the Go-back-N automatic repeat request protocol for noisy channels.	05
	c)	Enlist the devices used for connecting two LANs. Explain in brief any two of them.	06
		OR	
Q.5	p)	Describe the configurations and frames used in HDLC protocol.	05
	q)	Explain the terms random and controlled access with reference to a protocol used for each of it.	05
	r)	What is Ethernet? Mention various parameters of gegabit Ethernet.	06
Q.6	a)	Differentiate between unicast and multicast routing on the basis of protocols used, metric and routing table management.	06
	b)	Illustrate the classful addressing. How is it improved with classless addressing?	05
	c)	Mention various features of UDP as a transport layer protocol.	06
		OR	
Q.6	p)	Mention various features of IPv4. Also brief on measures taken for transition from IPv4 to IPv6.	06
	q)	Giving examples, describe the DNS and its distribution.	05
	r)	Describe HTTP as a combination of FTP and SMTP.	06
