Data Communication and Networking

2008 October

Science Computer Science

TYBSc

University Exam

University of Mumbai

March 08 238

on. 1347–08.

PC–5035

(3 Hours) [Total Marks : 100

Section I

1. **All questions are compulsory. Figures to the right indicate marks.**
2. **Answers to two sections must be written & submitted separately & mixing of subsections is not allowed.**
3. **Symbols have their usual meaning unless otherwise stated.**
4. **Illustrations, in-depth answers & diagrams will be appreciated.**

.1	a)	Explain front end of toy compiler.	(6)
	b)	Write a note on Hash function. Give example. Also state the characteristics of it.	(6)
	c)	What is top down parsing? Explain Continuation check with example. What is the disadvantage of continuation check?	(5)

OR

.1	p)	Write a note on (i) Program generation, (ii) Regular Grammar	(6)
	q)	Explain Extended Stack model along with the procedure to add and delete any record from it.	(6)
	r)	Explain bottom up parsing.	(5)
.2	a)	Write a note on listing and error reporting in Assemblers.	(5)
	b)	Explain the following about macros – (i) Expansion time variables, (ii) Expansion time loops	(6)
	c)	Explain – (i) Program Relocation, (ii) Overlay	(6)

OR

.2	p)	State and explain any 4 assembler directives with examples.	(6)
	q)	Explain various tables used in Macro Preprocessing activity.	(6)
	r)	State and explain various types of relocating programs.	(5)
.3	a)	List and explain various types of tables used in Compilation activity.	(5)
	b)	Explain the algorithm to eliminate common sub-expression.	(5)
	c)	Write a note on automatic, static and controlled storage classes.	(6)

OR

.3	p)	Write a note on the following – (i) Uniform symbol table, (ii) Optimization	(6)
	q)	Explain storage assignment phase of compilation activity.	(5)
	r)	What is an interpreter? Explain various components of interpreter.	(5)

Section II

Q.4	a)	Explain any three techniques of digital-to-analog modulation.	(6)
	b)	What is multiplexing? Explain the concept of FDM. Five channels each with a 100 KHz bandwidth are to be multiplexed together. What is the minimum bandwidth of the link if the guard bands are of 10 KHz?	(6)
	c)	Write a short note on fiber optic cable media.	(5)

OR

Q.4	p)	Write a note on – (i) Pulse Amplitude modulation, (ii) Parallel Transmission	(6)
	q)	Explain the following – (i) NRZ-I encoding, (ii) Manchester encoding. Also draw timing diagrams if following data to be transmitted– 10011101.	(6)
	r)	Explain Time division switch.	(5)
Q.5	a)	What is redundancy? Explain two-dimensional parity checking with example.	(6)
	b)	Explain the following with respect to HDLC – (i) Modes of transmission, (ii) Types of frames.	(5)
	c)	Explain different types of controlled access strategies.	(6)

OR

Q.5	p)	Explain Go-Back-N-ARQ.	(6)
	q)	State and explain different types of authentication protocols of PPP.	(5)
	r)	Write a note on following – (i) Loop problem in routing, (ii) Switch	(6)
Q.6	a)	Explain different types of packet switching techniques.	(6)
	b)	How IP packets are fragmented? Give example.	(5)
	c)	What is silly window syndrome? How does it occur? How it can be solved?	(5)

OR

Q.6	p)	Write a note on – (i) Network address translation, (ii) DHCP	(6)
	q)	What is BGP? Explain various types of BGP messages.	(5)
	r)	Explain File Transfer Protocol.	(5)