

Visvesvaraya Technological University, Belagavi
MODEL QUESTION PAPER – Set II
6th Semester, B.E (CBCS) EC/TC
Course: 15EC654– Digital Switching Systems

Time: 3 Hours**Max Marks: 80**

Note: (i) Answer Five full questions selecting any one full question from each Module.
(ii) Question on a topic of a Module may appear in either its 1st or 2nd question.

Module 1

1	(a)	Explain different network structure used in communication.	8
	(b)	Explain with neat diagram four wire circuit.	8

OR

2	(a)	With a block schematic, explain the national telecommunication network.	8
	(b)	Explain the following power levels in dbm and dbW: (i) 1 mW (ii) 1W (iii) 2 mW (iii) 100 mW	4
	(c)	With suitable diagram explain the principle of frequency division multiplexing.	4

Module 2

3	(a)	Explain Message switching.	8
	(b)	Mention the functions of a switching systems	4
	(c)	Define (i) CCR (ii) BHCA (iii) Busy hour	4

OR

4	(a)	Explain the significance of distribution frames, with the help of neat diagram.	8
	(b)	With a neat diagram, explain basic call process of incoming and outgoing calls through digital switching systems.	8

Module 3

5	(a)	Derive the equation for finite queue capacity.	6
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	(b)	During the busy hour a group of trunks is offered 100 calls having an average duration of 3 minutes, one of calls fails to find a disengaged trunk. Find the traffic offered to the group and the traffic carried by the group.	6
	(c)	Obtain the relationship between first Erlang and second Erlang formula	4
OR			
6	(a)	Design a grading for connecting 20 trunks to switches having 10 outlets.	8
	(b)	Explain grading, Explain with a neat diagram, skipped and homogenous grading	8
Module 4			
7	(a)	With neat sketch, explain space switch and time switch.	6
	(b)	Write a note on synchronization networks.	4
	(c)	Explain with a diagram classification of digital switching software	6
OR			
8	(a)	Explain in brief basic software architecture used in digital switching system.	8
	(b)	With a neat sketch, explain the operation of a $k \times m$ space switch.	8
Module 5			
9	(a)	Explain briefly with neat diagram of organizational interfaces of a typical digital switching systems central office.	8
	(b)	Explain in brief generic switch hardware architecture.	8
OR			
10	(a)	Explain system outage and its impact on digital switching system reliability.	6
	(b)	Write note on recovery strategy	4
	(c)	Draw a typical problem reporting system and explain function of each block	6