Code No: 128EW **R15**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, July - 2019
TELECOMMUNICATION SWITCHING SYSTEMS AND NETWORKS
(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) Classify switching systems. [2]
b) Define traffic intensity, erlang and holding time. [3]
c) What is grading principle? [2]
d) Define the following terms:
i. Connectivity ii. Call packing iii. Strict-sense nonblocking network [3]
e) What is mean by compelled signaling? [2]
f) List the advantages of common-channel signalling. [3]
g) What is mean by polling? [2]
h) Give the main differences between frame relay and X25 packet switching. [3]
i) What is the meaning of Bearer service? [2]
j) Brief out the basic concepts of public data networks. [3]

PART - B

(50 Marks)

2. Illustrate a general trunking diagram for a telephone exchange switching system. [10]

OR

3.a) 10 E of traffic is offered to switches that hunt sequentially over a group of trunks. Estimate the traffic carried by each of the first three trunks.
b) On average, one call arrives every 5 seconds. During a period of 10 seconds, what is the probability that:
i) No calls arrives?
ii) One calls arrives?
iii) two calls arrive?
iv) More than two calls arrive? [5+5]

4. Draw a simplified state transition diagram, using the SDL symbols, for a local telephone call. [10]

OR

5. With the necessary diagrams and equations, explain the following:
a) Two-stage networks b) Three-stage networks. [5+5]

6. Draw and explain the block schematic diagram of CCITT no. 7 signalling system. [10]

OR

7. Describe in detail an outband signalling system and Inband signalling system. [10]

8.a) A pure ALOHA system uses a 56 Kbits/s channel. On average, each terminal originates a 1024-bit package every 30 seconds. How many terminals can the system accommodate?

b) Give the relative advantages and disadvantages of bus and ring networks. [4+6]

OR

9. Define the following modified forms of packet switching for broadband services:
a) FPS b) ATD c) ATM.
Also, list and explain the features of ATM. [10]

10. Describe the basic principles of operation and component networks of an Integrated Digital Networks. [10]

OR

11.a) What is the Intelligent network? What is the necessity of it?

b) Draw and explain the architecture of intelligent network. [5+5]

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