Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Tech**
PEEC5417

7th Semester Back Examination 2018-19
DIGITAL SWITCHING AND TELECOMMUNICATION NETWORKS
BRANCH : CSE, ECE, ETC, IT, ITE
Time : 3 Hours
Max Marks : 70
Q.CODE : E161

Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions :** **(2 x 10)**

a) What do you mean by connection oriented services and connection less services?

b) What is traffic intensity? What is the unit of traffic?

c) What are the services of ISDN?

d) Compare the features of single stage and multi stage networks.

e) Explain the synchronous duplex mode of operation in a dual processor configuration.

f) An exchange is designed to handle 2000 calls during busy hour. If the number of calls during busy hour is 2200, what is the GOS?

g) What is the significance of single tone in telephone conversation?

h) What are the various models in loss system?

i) In a CSMA/CD bus spans a distance of 1.5km.If the data rate is 5 Mbps, what is the minimum frame size?

j) For what purpose bit stuffing is used in ARQ protocol? Explain bit stuffing with example.

Q2 **a)** Explain with a neat diagram the building block of a digital switching system. **(5)**

b) Define the terms:(1)full availability (2)link systems (3)progressive grading **(5)**

Q3 **a)** Explain the operation of a time switch with a neat diagram. **(5)**

b) Explain the different types of switching. **(5)**

Q4 **a)** Explain the parallel-in/serial-out configuration of time multiplex time switching. **(5)**

b) A 1000 inlet and 1000 outlet digital switch is to be built using TSI.Determine the size of the control and data memories and the speed to be which the memories have to be accessed. **(5)**

Q5 **a)** Describe the end to end layers in telecom networks. **(5)**

b) A circuit switched connection involves 4 switching nodes. Each node takes 1 sec and 0.1 sec for establishing and releasing connections respectively. If the data transfer rate is 1600 bps, compute the data transfer time for a message that is 100 bytes long. **(5)**

Q6 **a)** A pure ALOHA system uses a 56 kb/s channel. On an average each terminal originates a 1024 bit packet in every 30 seconds. How many terminals can the system accommodate? How many terminals could the system accommodate using the slotted ALOHA protocol? **(5)**

b) Describe the user level signaling in ISDN. **(5)**

Q7 Explain with a neat figure the operation of a k × m size space switch. Give the equivalent representation using a space division network. **(10)**

Q8 **Write short answer on any TWO :** **(5 x 2)**

a) Time division space switching

b) Centralized SPC

c) Crossbar switching and its operation.

d) ALOHA