ROLL NO.

Code: DE62/DE113

Subject: TELECOMMUNICATION SWITCHING SYSTEMS

## **DiplETE – ET (Current & New Scheme)**

Time: 3 Hours

## DECEMBER 2018

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

## NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

a. Crossbar switching system is       (A) Electronic       (B) Electromechanical         (C) Both (A) and (B)       (D) None of these         b. During the busy hour, 1600 calls were offered to a group of trunks and 4 calls were lost. The grade of service is       (A) 4/1600         (A) 4/1600       (B) 1600/4         (C) 1600*4       (D) None of these         c. In Switching MDR stands for -       (A) Memory Device Resistance         (A) Memory Device Resistance       (B) Main Data Resistance         (C) Main Data Register       (D) Memory Data Register         d. The modes of time division time switch are       (A) Phased & slotted operation         (C) Slotted operation       (B) Phased operation         (C) Public Accounts Bank Exchange       (D) None of these         e. PABX Stands for       (A) Private Accounts Bank Exchange         (D) Public Account Branch Exchange       (D) Public Account Branch Exchange         (D) Public Account Branch Exchange       (D) PAM Signalling         (C) PCM Signalling       (B) Voice frequency signalling system         (C) PCM Signalling       (B) Reduced         (A) Increased       (B) Reduced         (C) Highlighted       (D) Both (B) & (C)         h. CDMA differs from TDMA because there is no       (A) Link         (A) Link       (B) Bandwidth	Q.1	Choose the correct or the best alternative in the following:				
<ul> <li>b. During the busy hour, 1600 calls were offered to a group of trunks and 4 calls were lost. The grade of service is <ul> <li>(A) 4/1600</li> <li>(B) 1600/4</li> <li>(C) 1600*4</li> <li>(D) None of these</li> </ul> </li> <li>c. In Switching MDR stands for - <ul> <li>(A) Memory Device Resistance</li> <li>(B) Main Data Resistance</li> <li>(C) Main Data Register</li> <li>(D) Memory Data Register</li> </ul> </li> <li>d. The modes of time division time switch are <ul> <li>(A) Phased &amp; slotted operation</li> <li>(D) None of these</li> </ul> </li> <li>e. PABX Stands for <ul> <li>(A) Private Accounts Bank Exchange</li> <li>(B) Private Automatic Branch Exchange</li> <li>(C) Public Automatic Branch Exchange</li> <li>(D) Public Account Branch Exchange</li> <li>(C) Public Automatic Branch Exchange</li> <li>(D) PAM Signalling</li> </ul> </li> <li>g. In CSMA (Carrier Sense Multiple Access), if station senses medium before trying to use it then chance of collision can be <ul> <li>(A) Inix</li> <li>(B) Reduced</li> <li>(C) Highlighted</li> <li>(D) Both (B) &amp; (C)</li> </ul> </li> </ul>		a. Crossbar switching system is (A) Electronic (C) Both (A) and (B)	( <b>B</b> ) Electromechanical			
<ul> <li>b. During the busy hour, 1600 calls were offered to a group of trunks and 4 calls were lost. The grade of service is <ul> <li>(A) 4/1600</li> <li>(B) 1600/4</li> <li>(C) 1600*4</li> <li>(D) None of these</li> </ul> </li> <li>c. In Switching MDR stands for - <ul> <li>(A) Memory Device Resistance</li> <li>(B) Main Data Register</li> <li>(D) Memory Data Register</li> </ul> </li> <li>d. The modes of time division time switch are <ul> <li>(A) Phased &amp; slotted operation</li> <li>(C) Slotted operation</li> <li>(D) None of these</li> </ul> </li> <li>e. PABX Stands for <ul> <li>(A) Private Accounts Bank Exchange</li> <li>(B) Private Automatic Branch Exchange</li> <li>(C) Public Automatic Branch Exchange</li> <li>(D) Public Account Branch Exchange</li> <li>(D) Public Account Branch Exchange</li> <li>(C) PCM Signalling is also called</li> <li>(A) Out band signalling</li> <li>(B) Voice frequency signalling system</li> <li>(C) PCM Signalling</li> <li>(B) Reduced</li> <li>(C) Highlighted</li> <li>(D) Both (B) &amp; (C)</li> </ul> </li> <li>h. CDMA differs from TDMA because there is no <ul> <li>(A) Link</li> <li>(B) Bandwidth</li> <li>(C) Carrier</li> <li>(D) Time sharing</li> </ul> </li> </ul>		$(\mathbf{C})$ Both $(\mathbf{A})$ and $(\mathbf{B})$	( <b>D</b> ) None of these			
<ul> <li>(A) 4/1600</li> <li>(B) 1600/4</li> <li>(C) 1600*4</li> <li>(D) None of these</li> <li>c. In Switching MDR stands for - <ul> <li>(A) Memory Device Resistance</li> <li>(B) Main Data Resistance</li> <li>(C) Main Data Register</li> <li>(D) Memory Data Register</li> </ul> </li> <li>d. The modes of time division time switch are <ul> <li>(A) Phased &amp; slotted operation</li> <li>(C) Slotted operation</li> <li>(D) None of these</li> </ul> </li> <li>e. PABX Stands for <ul> <li>(A) Private Accounts Bank Exchange</li> <li>(B) Private Actomatic Branch Exchange</li> <li>(C) Public Automatic Branch Exchange</li> <li>(D) Public Account Branch Exchange</li> <li>(D) Public Account Branch Exchange</li> <li>(D) Public Account Branch Exchange</li> <li>(C) PCM Signalling is also called</li> <li>(A) Increased</li> <li>(B) Reduced</li> <li>(C) Highlighted</li> <li>(D) Both (B) &amp; (C)</li> </ul> </li> <li>h. CDMA differs from TDMA because there is no <ul> <li>(A) Link</li> <li>(B) Bandwidth</li> <li>(C) Carrier</li> <li>(D) Time sharing</li> </ul> </li> </ul>		b. During the busy hour, 1600 calls were offered to a group of trunks and 4 calls were lost. The grade of service is				
(C) 1600*4(D) None of thesec. In Switching MDR stands for - (A) Memory Device Resistance (C) Main Data Register(B) Main Data Resistance (D) Memory Data Registerd. The modes of time division time switch are (A) Phased & slotted operation (C) Slotted operation (C) Slotted operation 		( <b>A</b> ) 4/1600	<b>(B)</b> 1600/4			
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<ul> <li>(A) Memory Device Resistance</li> <li>(B) Main Data Resistance</li> <li>(C) Main Data Register</li> <li>(D) Memory Data Register</li> <li>(A) Phased &amp; slotted operation</li> <li>(C) Slotted operation</li> <li>(D) None of these</li> <li>e. PABX Stands for</li> <li>(A) Private Accounts Bank Exchange</li> <li>(B) Private Automatic Branch Exchange</li> <li>(C) Public Automatic Branch Exchange</li> <li>(D) Public Account Branch Exchange</li> <li>(D) Public Account Branch Exchange</li> <li>(C) PCM Signalling is also called</li> <li>(A) Out band signalling</li> <li>(B) Voice frequency signalling system</li> <li>(C) PCM Signalling</li> <li>(D) PAM Signalling</li> <li>(B) Reduced</li> <li>(C) Highlighted</li> <li>(B) Reduced</li> <li>(C) Highlighted</li> <li>(B) Bandwidth</li> <li>(C) Carrier</li> <li>(D) Time sharing</li> </ul>		c. In Switching MDR stands for -				
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<ul> <li>g. In CSMA (Carrier Sense Multiple Access), if station senses medium before trying to use it then chance of collision can be</li> <li>(A) Increased (B) Reduced</li> <li>(C) Highlighted (D) Both (B) &amp; (C)</li> <li>h. CDMA differs from TDMA because there is no</li> <li>(A) Link (B) Bandwidth</li> <li>(C) Carrier (D) Time sharing</li> </ul>		(C) PCM Signalling	( <b>D</b> ) PAM Signalling			
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(C) Carrier (D) Bandwidth (C) Carrier (D) Time sharing		h. CDMA differs from TDMA because the	re is no ( <b>P</b> ) Pondwidth			
		(A) LIIK (C) Carrier	( <b>D</b> ) Time sharing			

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ROLL NO.

			)			
Code: DE62/DE113 Subject: TELECOMMUNICATION SWITCHING SYSTEMS						
	i.	. In a cellular network a country is divided into a large number of sma	ll areas,			
		known as (A) Unit (B) Cells				
		(C) Data (D) (A) & (B) both				
	i.	. Point to point telephone connection is demonstrated by				
	5	(A) Graham Bell (B) Erlang				
		(C) Strowger (D) (A) & (B) both				
Answer any FIVE Questions out of EIGHT Questions. Each question carries 16 marks.						
Q.2	a.	Describe Cross Bar exchange organisation.	(8)			
C	h	Define following terms-				
	υ.	(i). Switching Matrix				
		(ii). Symmetric Network				
		(iii) Transit Exchange (iv) Blocking Network	(2*4=8)			
0.2			(= )			
Q.3	a.	A subscriber makes three phone calls of three minutes, four minutes minutes duration in a one hour period. Calculate the subscriber traff	es and two			
		Erlangs, CCS and CM.	(3+3+2=8)			
	b.	Describe Markov Chain.	(8)			
Q.4	a.	What are the applications of grading.	(8)			
	b.	Describe two stage network with the help of a neat diagram.	(8)			
Q.5	a.	Explain basic Time Multiplexed Space Switching with the help of diagram	a neat (5+3=8)			
	b.	Give the difference between phased operation and slotted operation Division Time Switch.	n of Time ( <b>8</b> )			
Q.6	a.	Explain stored program control (SPC) processor architecture with t	he help of			
		neat diagram.	(10+2=12)			
	b.	Given that $MTBF = 2000$ hours and $MTTR = 4$ hours calculate the and unequilability of a signal processor system	availability (4)			
		and unavariability of a signal processer system.	(4)			
<b>Q.7</b>		Write short note on :-				
		(b) Inter Register Signalling	(2*8=16)			
0.8	a.	Describe asynchronous transfer mode.	(8)			
<b>C</b>	b.	Define packet switching and discuss its relative merits.	(3+5=8)			
00	2.	Write short note on :				
<b>X</b> •2		(i) Cellular Networks				
		(ii) Integrated Digital Network (IDN)	(2*8=16)			

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