INDEX

MECHANISM TO DEAL WITH INTERNAL EXAMINATIONS RELATED GRIEVANCES IS TRANSPARENT, TIME-BOUND AND EFFICIENT.

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(COMPUTER BASED TEST) - B.TECH ONE TIME CHANCE EXAMINATIONS NOV / DEC -2021, STUDENT WISE TIMETA					
14X31A0447	113AW	SIGNALS AND SYSTEMS	R13-2-1	23-DEC-21	04:30 PM TO 05:15 PM
14X31A0447	115AK	ANALOG COMMUNICATIONS	R13-3-1	08-DEC-21	02:30 PM TO 03:15 PM
14X31A0447	126AN	DIGITAL COMMUNICATIONS	R13-3-2	24-DEC-21	02:30 PM TO 03:15 PM
14X31A04D4	115DU	CONTROL SYSTEMS ENGINEERING	R13-3-1	24-NOV-21	09:30 AM TO 10:15 AM
14X31A04D4	126EN	VLSI DESIGN	R13-3-2	22-DEC-21	02:30 PM TO 03:15 PM
14X31A04D4	126EK	DIGITAL SIGNAL PROCESSING	R13-3-2	20-DEC-21	02:30 PM TO 03:15 PM
14X31A04D4	126EA	INTELLECTUAL PROPERTY RIGHTS	R13-3-2	30-NOV-21	02:30 PM TO 03:15 PM
14X31A04D4	126EJ	MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS	R13-3-2	23-DEC-21	02:30 PM TO 03:15 PM
14X31A04D4	126EM	MICROPROCESSORS AND MICROCONTROLLERS	R13-3-2	21-DEC-21	02:30 PM TO 03:15 PM
14X31A04D4	117EG	MANAGEMENT SCIENCE	R13-4-1	14-DEC-21	04:30 PM TO 05:15 PM
14X31A04D4	117BG	CELLULAR AND MOBILE COMMUNICATIONS	R13-4-1	06-DEC-21	04:30 PM TO 05:15 PM
14X31A04D4	117FE	MICROWAVE ENGINEERING	R13-4-1	21-DEC-21	04:30 PM TO 05:15 PM
14X31A04E8	111AB	MATHEMATICS - I	R13-1-1	23-DEC-21	09:30 AM TO 10:15 AM
14X31A0586	114CQ	DATABASE MANAGEMENT SYSTEMS	R13-2-2	16-DEC-21	11:45 AM TO 12:30 PM
14X31A0586	114AG	FORMAL LANGUAGES AND AUTOMATA THEORY	R13-2-2	04-DEC-21	11:45 AM TO 12:30 PM
14X31A0586	135AE	DATA COMMUNICATION AND COMPUTER NETWORKS	R16-3-1	04-DEC-21	02:30 PM TO 03:15 PM
14X31A0586	135AR	FUNDAMENTALS OF MANAGEMENT	R16-3-1	24-NOV-21	02:30 PM TO 03:15 PM
14X31A0586	135BM	SOFTWARE ENGINEERING	R16-3-1	27-NOV-21	02:30 PM TO 03:15 PM
14X31A0586	136FG	INTELLECTUAL PROPERTY RIGHTS	R16-3-2	30-NOV-21	02:30 PM TO 03:15 PM
14X31A0586	136AW	CRYPTOGRAPHY AND NETWORK SECURITY	R16-3-2	25-NOV-21	02:30 PM TO 03:15 PM
14X31A0586	136AQ	COMPILER DESIGN	R16-3-2	17-DEC-21	02:30 PM TO 03:15 PM
14X31A0586	136CX	MOBILE COMPUTING	R16-3-2	26-NOV-21	02:30 PM TO 03:15 PM
14X31A0586	137CA	DISTRIBUTED SYSTEMS	R16-4-1	26-NOV-21	04:30 PM TO 05:15 PM
14X31A0586	137BQ	DATA MINING	R16-4-1	25-NOV-21	04:30 PM TO 05:15 PM
14X31A0586	137GA	PRINCIPLES OF PROGRAMMING LANGUAGES	R16-4-1	06-DEC-21	04:30 PM TO 05:15 PM
15X31A04E7	133BQ	SIGNALS AND STOCHASTIC PROCESS	R16-2-1	26-NOV-21	11:45 AM TO 12:30 PM
15X31A04E7	134CC	PULSE AND DIGITAL CIRCUITS	R16-2-2	02-DEC-21	11:45 AM TO 12:30 PM
15X31A04E7	135CD	ELECTRONIC MEASUREMENT AND INSTRUMENTATION	R16-3-1	24-DEC-21	04:30 PM TO 05:15 PM
15X31A04E7	135AP	ELECTROMAGNETIC THEORY AND TRANSMISSION LINES	R16-3-1	30-NOV-21	09:30 AM TO 10:15 AM
15X31A04E7	136AF	ANTENNAS AND WAVE PROPAGATION	R16-3-2	25-NOV-21	02:30 PM TO 03:15 PM
15X31A04G5	135CD	ELECTRONIC MEASUREMENT AND INSTRUMENTATION	R16-3-1	24-DEC-21	04:30 PM TO 05:15 PM
15X31A04G5	136AF	ANTENNAS AND WAVE PROPAGATION	R16-3-2	25-NOV-21	02:30 PM TO 03:15 PM
15X31A05E2	133BC	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE	R16-2-1	14-DEC-21	11:45 AM TO 12:30 PM

15X31A05E2	133AJ	DIGITAL LOGIC DESIGN	R16-2-1	23-DEC-21	04:30 PM TO 05:15 PM
15X31A05E2	134AP	DATABASE MANAGEMENT SYSTEMS	R16-2-2	16-DEC-21	11:45 AM TO 12:30 PM
15X31A05E2	135AE	DATA COMMUNICATION AND COMPUTER NETWORKS	R16-3-1	04-DEC-21	02:30 PM TO 03:15 PM
15X31A05E2	135DA	SCRIPTING LANGUAGES	R16-3-1	24-NOV-21	02:30 PM TO 03:15 PM
15X31A05E2	136AQ	COMPILER DESIGN	R16-3-2	17-DEC-21	02:30 PM TO 03:15 PM
15X31A05E2	137GD	PYTHON PROGRAMMING	R16-4-1	04-DEC-21	04:30 PM TO 05:15 PM
15X31A05E2	137CA	DISTRIBUTED SYSTEMS	R16-4-1	26-NOV-21	04:30 PM TO 05:15 PM
15X31A05E2	137BQ	DATA MINING	R16-4-1	25-NOV-21	04:30 PM TO 05:15 PM
16X31A0146	136BZ	GROUND WATER DEVELOPMENT AND MANAGEMENT	R16-3-2	25-NOV-21	02:30 PM TO 03:15 PM
16X31A0146	136BB	DESIGN OF STEEL STRUCTURES	R16-3-2	26-NOV-21	02:30 PM TO 03:15 PM
16X31A0314	136CA	HEAT TRANSFER	R16-3-2	15-DEC-21	02:30 PM TO 03:15 PM
16X31A0314	137AC	ADDITIVE MANUFACTURING TECHNOLOGY	R16-4-1	04-DEC-21	04:30 PM TO 05:15 PM
16X31A0368	135AG	DESIGN OF MACHINE MEMBERS I	R16-3-1	14-DEC-21	02:30 PM TO 03:15 PM
16X31A0368	136CA	HEAT TRANSFER	R16-3-2	15-DEC-21	02:30 PM TO 03:15 PM
16X31A0403	134AM	CONTROL SYSTEMS	R16-2-2	20-DEC-21	11:45 AM TO 12:30 PM
16X31A0403	13537	PROFESSIONAL ETHICS	R16-3-1	24-NOV-21	02:30 PM TO 03:15 PM
16X31A0424	135AY	LINEAR AND DIGITAL IC APPLICATIONS	R16-3-1	24-NOV-21	02:30 PM TO 03:15 PM
16X31A0424	135AP	ELECTROMAGNETIC THEORY AND TRANSMISSION LINES	R16-3-1	30-NOV-21	09:30 AM TO 10:15 AM
16X31A0452	135AP	ELECTROMAGNETIC THEORY AND TRANSMISSION LINES	R16-3-1	30-NOV-21	09:30 AM TO 10:15 AM
16X31A0479	134CC	PULSE AND DIGITAL CIRCUITS	R16-2-2	02-DEC-21	11:45 AM TO 12:30 PM
16X31A0479	135AY	LINEAR AND DIGITAL IC APPLICATIONS	R16-3-1	24-NOV-21	02:30 PM TO 03:15 PM
16X31A04C0	135AY	LINEAR AND DIGITAL IC APPLICATIONS	R16-3-1	24-NOV-21	02:30 PM TO 03:15 PM
16X31A04C9	133BQ	SIGNALS AND STOCHASTIC PROCESS	R16-2-1	26-NOV-21	11:45 AM TO 12:30 PM
16X31A04C9	133BD	MATHEMATICS - IV	R16-2-1	29-NOV-21	11:45 AM TO 12:30 PM
16X31A04C9	133BJ	NETWORK ANALYSIS	R16-2-1	25-NOV-21	11:45 AM TO 12:30 PM
16X31A0571	136AQ	COMPILER DESIGN	R16-3-2	17-DEC-21	02:30 PM TO 03:15 PM
16X31A0571	138FW	DISASTER MANAGEMENT	R16-4-2	25-NOV-21	04:30 PM TO 05:15 PM
16X31A05D5	137CA	DISTRIBUTED SYSTEMS	R16-4-1	26-NOV-21	04:30 PM TO 05:15 PM
16X31A05D5	137GD	PYTHON PROGRAMMING	R16-4-1	04-DEC-21	04:30 PM TO 05:15 PM
16X31A05D5	138FH	WEB SERVICES AND SERVICE ORIENTED ARCHITECTURE	R16-4-2	27-NOV-21	04:30 PM TO 05:15 PM
16X31A05D5	138FW	DISASTER MANAGEMENT	R16-4-2	25-NOV-21	04:30 PM TO 05:15 PM
16X31A05D5	138EK	REAL TIME SYSTEMS	R16-4-2	29-NOV-21	04:30 PM TO 05:15 PM
16X31A05D7	137BQ	DATA MINING	R16-4-1	25-NOV-21	04:30 PM TO 05:15 PM
16X31A05D7	137CA	DISTRIBUTED SYSTEMS	R16-4-1	26-NOV-21	04:30 PM TO 05:15 PM

16X31A05E4	133BD	MATHEMATICS - IV	R16-2-1	29-NOV-21	11:45 AM TO 12:30 PM
16X31A05E4	134AK	COMPUTER ORGANIZATION	R16-2-2	20-DEC-21	11:45 AM TO 12:30 PM
16X31A05E4	136FG	INTELLECTUAL PROPERTY RIGHTS	R16-3-2	30-NOV-21	02:30 PM TO 03:15 PM
16X31A05E4	136AQ	COMPILER DESIGN	R16-3-2	17-DEC-21	02:30 PM TO 03:15 PM
16X31A05E4	136AW	CRYPTOGRAPHY AND NETWORK SECURITY	R16-3-2	25-NOV-21	02:30 PM TO 03:15 PM
16X31A05F8	137CA	DISTRIBUTED SYSTEMS	R16-4-1	26-NOV-21	04:30 PM TO 05:15 PM
16X31A05F8	137BQ	DATA MINING	R16-4-1	25-NOV-21	04:30 PM TO 05:15 PM
16X31A05G3	137BQ	DATA MINING	R16-4-1	25-NOV-21	04:30 PM TO 05:15 PM
16X31A05G3	137CA	DISTRIBUTED SYSTEMS	R16-4-1	26-NOV-21	04:30 PM TO 05:15 PM
16X31A05G3	137GA	PRINCIPLES OF PROGRAMMING LANGUAGES	R16-4-1	06-DEC-21	04:30 PM TO 05:15 PM
17X35A0326	136EB	THERMAL ENGINEERING - II	R16-3-2	26-NOV-21	02:30 PM TO 03:15 PM

PRINCIPAL
Sri Indu Institute of Engineering & Tech.
Sheriguda(V), Ibrahimpatnam(M),
R.R Dist. Telangana -501 510.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
KUKATPALLY, HYDERABAD-500 085

III Year B.Tech-Special CBT I Semester(R09) ELECTRONICS AND COMMUNICATION ENGINEERING

HALLTICKET
Original
ECE

Exam Centre: Sridevi Women's Engg. College - 02

H.T.No: 12X31A04A0

1.	Name of the Student	:	P RAVIKUMAR
2.	Father's Name	:	P YADAGIRI
3.	Gender	:	M
4.	Month and Year of Examination	:	Nov/Dec-2021

List of Theory Subjects Registered

Sl No.	Date of Exam	Subject Code	Subject Name	Session
1	21.12.2021	55009	IC APPLICATIONS	1
2	22.12.2021	55012	CONTROL SYSTEMS	3

SessionTimings: 1) 09:30am - 10:15am / 2) 11:45am - 12:30pm / 3) 02:30pm - 03:15pm / 4) 04:30pm - 05:15pm

P Ravi

Student Signature

Principal Signature

PRINCIPAL
Sri Indu Institute of Engineering & Tech
Sheriguda (V), Ibrahimpatnam (M)
R.R. Dist. Telangana -501 510

K. Venkateswarlu

Controller of Examinations

INSTRUCTIONS TO THE STUDENT(S)

1. All the students must be present in the examination premises before the commencement of the examination and students who come after the commencement of examination will not be allowed.
2. Students should not carry any other material except Hall Ticket/Identity card.
3. Programmable calculators,palm computers,mobile phones and pagers are not permitted into examination halls.They should show Hall Ticket and Identity card to the Invigilator/Observer/Chief Superintendent whenever they are asked.
4. The University reserves the right to cancel the admission of the student at any stage when it is detected that his/her admission to the examinations or the college is against rules.

NOTE: If there is any discrepancy in student photo or any other details, it should be brought to notice of the Controller of Examinations immediately.

COVID-19 Guidelines:

1) All the students must wear masks while they are on the campus.
2) Students must maintain social distancing as per Government guidelines in current scenario of COVID-19 to ensure health and safety of the Students.
3) Students must carry their own water bottles and hand sanitizers. Sharing of pens or any other stationary items among the students is strictly prohibited in the exam hall.
4) On completion of the exam, the students shall be permitted to move out in an orderly manner one candidate at a time. The students should not getup from their seats until advised by the invigilator.
5) Student must maintain silence while going to their alloted exam hall as well as inside the exam hall.
6) This hall-ticket should be kept in open state beside your answer booklet whenever the room invigilator come to your place.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

KUKATPALLY, HYDERABAD-500 085

IV Year B.Tech-Special CBT I Semester(R13)-ELECTRONICS AND COMMUNICATION ENGINEERING

HALLTICKET

Original

ECE

Exam Centre: Sridevi Women's Engg. College - 02

H.T.No: 14X31A04D4

1.	Name of the Student	:	SHIGA MANISHA
2.	Father's Name	:	SHIGA VEKATESH GOUD
3.	Gender	:	F
4.	Month and Year of Examination	:	Nov/Dec-2021

List of Theory Subjects Registered

Sl No	Date of Exam	Subject Code	Subject Name	Session
1	06.12.2021	117BG	CELLULAR AND MOBILE COMMUNICATIONS	4
2	14.12.2021	117EG	MANAGEMENT SCIENCE	4
3	21.12.2021	117FE	MICROWAVE ENGINEERING	4

SessionTimings: 1) 09:30am - 10:15am / 2) 11:45am - 12:30pm / 3) 02:30pm - 03:15pm / 4) 04:30pm - 05:15pm

S. Manisha

Student Signature

Principal Signature with Seal

PRINCIPAL
Sri Indu Institute of Engineering & Tech.
Sheriguda (V), Ibrahimpatnam (M)
R.R. Dist. Telangana - 501 510

Controller of Examinations

----------INSTRUCTIONS TO THE CANDIDATE----------

1. All the students must be present in the examination hall before the commencement of the examination and students who come after the commencement of examination shall not be allowed to appear for the examination.

2. Students should not carry any other [illegible] Hall Ticket and Identity Card.

3. Programmable calculators palm computers and mobile phones and pagers are not permitted into examination halls. They should show Hall Ticket and Identity card to the Invigilator/Observer/Chief Superintendent whenever they are asked.

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Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510

I- Mid Examinations, DEC-2020

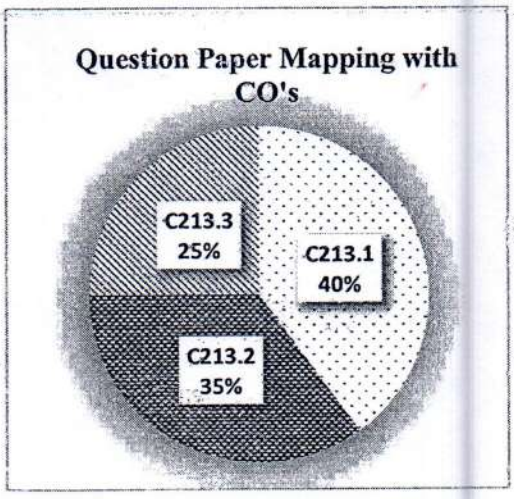
Set- I

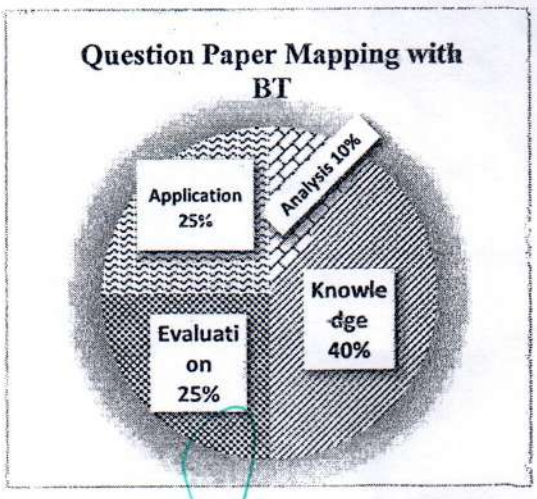
Year &Branch: II ECE(A ,B&C) Date: 28/12/2020 (FN)

Subject: DSD Max. Marks: 10 Time: 60 mins

Answer any **TWO** Questions. All Question Carry Equal Marks 2*5=10 marks.

1	Solve the following conversions. a) $(27.125)_{10} = (\ )_8$ b) $(1010100111.111001)_2 = (\ )_{16}$ c) $(237.75)_8 = (\ )_{10}$ d) $(735.5)_8 = (\ )_{16}$	5	C213.1	(Evaluation)
2	Apply the K-map method to simplify the Boolean function. Y =AB+C+ACD+ABCD+CD.	5	C213.2	(Application)
3	A)Write 7-bit hamming code, for a given 4-bit data 1110 by using even parity.	3	C213.1	(Knowledge)
	B)Define the Encoder?Design a 8*3 Encoder?	2	C213.2	(Knowledge)
4	A)Define Sequential circuits and what are the types of sequential circuits?	3	C213.3	(Knowledge)
	B)Differentiate Combinational and sequential circuits	2	C213.3	(Analysis)





PRINCIPAL
Sri Indu Institute of Engineering & Tech.
Sheriguda(V), Ibrahimpatnam(M),
R.R Dist. Telangana -501 510

Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510

I- Mid Examinations, DEC-2020

Set – I

Year & Branch: II ECE A,B&C | Date:28/12/2020(FN)

Subject: DSD | Marks: 10 | Time: 60 min

Answer any **TWO** Questions. All Question Carry Equal Marks | 2*5=10 marks

(This question paper is prepared with Course Outcome and BT's mapping)

ANSWER KEY

1 Solve the following conversions [5M]

a) $(27.125)_{10} = (\ )_8$

$(27.125)_{10}$

$8|27$

$3-3\uparrow$

$(33.1)_8$

$0.125 \times 8 = 1.000$ (carry 1)

0.0

b) $(1010100111.111001)_2 = (\ )_{16}$

$0\overline{010}\,\overline{1010}\,\overline{0111}.\overline{1110}\,\overline{0100}$

$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow$

$2 \quad A \quad 7 \quad E \quad 4$

$(2A7.E4)_{16}$

c) $(237.75)_8 = (\ )_{10}$

$(237.75)_8$

$= 7\times8^0 + 3\times8^1 + 2\times8^2 + 7\times8^{-1} + 5\times8^{-2}$

$= 7\times1 + 24 + 2\times64 + \frac{7}{8} + \frac{5}{64}$

$= 7 + 159 + 0.953$

$(159.953)_{10}$

d) $(735.5)_8 = (\ )_{16}$

735.5

111 011 101 . 101

0001 1101 0111 0101 . 1010

1 D D . A

$(1DD.A)_{16}$.

2. Apply the k-map method to simplify the boolean function [5M]

$Y = AB+C+ACD+ABCD+CD$

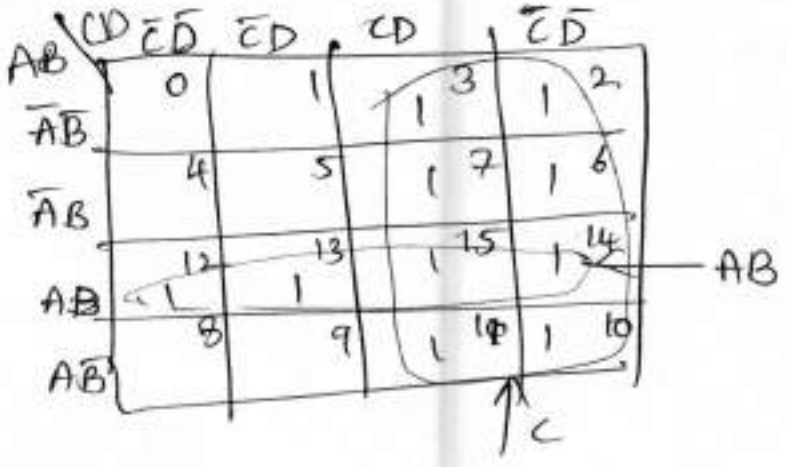
$AB+C+ACD+ABCD+CD$ [3M]

$= AB(C+\bar{C}) + C(A+\bar{A})(B+\bar{B})\cdot(D+\bar{D}) + ACD(B+\bar{B}) + ABCD$
$+ CD(A+\bar{A})(B+\bar{B})$

$= ABCD + ABC\bar{D} + AB\bar{C}D + AB\bar{C}\bar{D} + ABCD + A\bar{B}CD +$
$\bar{A}BCD + \bar{A}\bar{B}CD + ABC\bar{D} + A\bar{B}C\bar{D} + \bar{A}BC\bar{D} + \bar{A}\bar{B}C\bar{D} +$
$ABCD + \bar{A}BCD + ABCD + A\bar{B}CD + \bar{A}BCD + \bar{A}\bar{B}CD.$

$= m_{15} + m_{14} + m_{12} + m_{13} + m_{11} + m_7 + m_3 + m_{10} + m_6 + m_2$

$\Sigma m(2,3,6,7,10,11,12,13,14,15)$



[2M]

$Y = AB + C$

3a) 7-bit hamming code for a given 4-bit data 1110 using even parity. [3M]

m = 1110

7	6	5	4	3	2	1
1	1	1	P_4	0	P_2	P_1

$P_1 \rightarrow 1357 \rightarrow P_1011 \rightarrow = 0$

$P_2 \rightarrow 2367 \rightarrow P_2011 = 0$

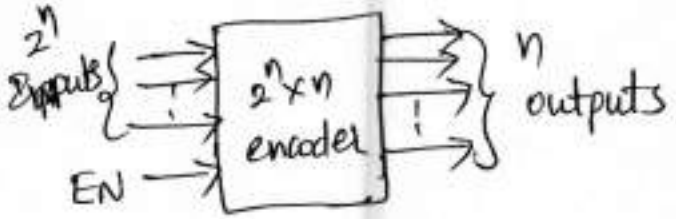
$P_4 \rightarrow 4567 \rightarrow P_4111 = 1$

$P_1 = P_2 = 0$, $P_4 = 1$

P_3	P_2	P_1	
0	0	0	— 0
0	0	1	— 1
0	1	0	— 2
0	1	1	— 3
1	0	0	— 4
1	0	1	— 5
1	1	0	— 6
1	1	1	— 7

7bit hamming code is (1111000)

3b. Encoder:- encoder is a digital circuit It has 2^n inputs and n outputs. when enable signal is high only the operation is performed. [2M]



8X3 Encoder:- It has 8 inputs 3 outputs.

T.T

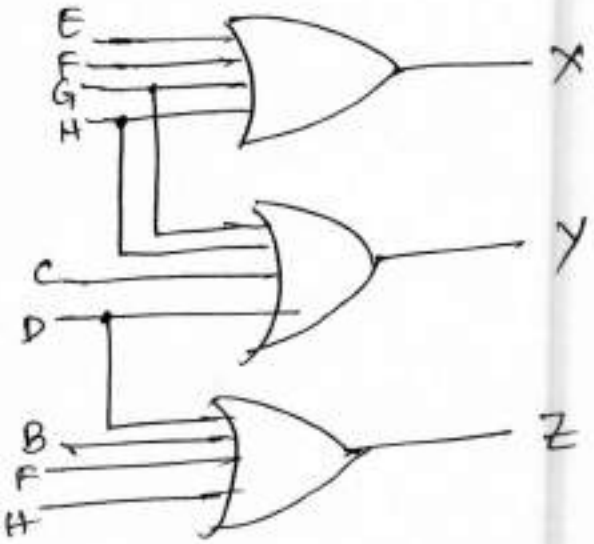
H	G	F	E	D	C	B	A	X	Y	Z
0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	1	0	0	0	1
0	0	0	0	0	1	0	0	0	1	0
0	0	0	0	1	0	0	0	0	1	1
0	0	0	1	0	0	0	0	1	0	0
0	0	1	0	0	0	0	0	1	0	1
0	1	0	0	0	0	0	0	1	1	0

1 0 0 0 0 0 0 0	1 1 1

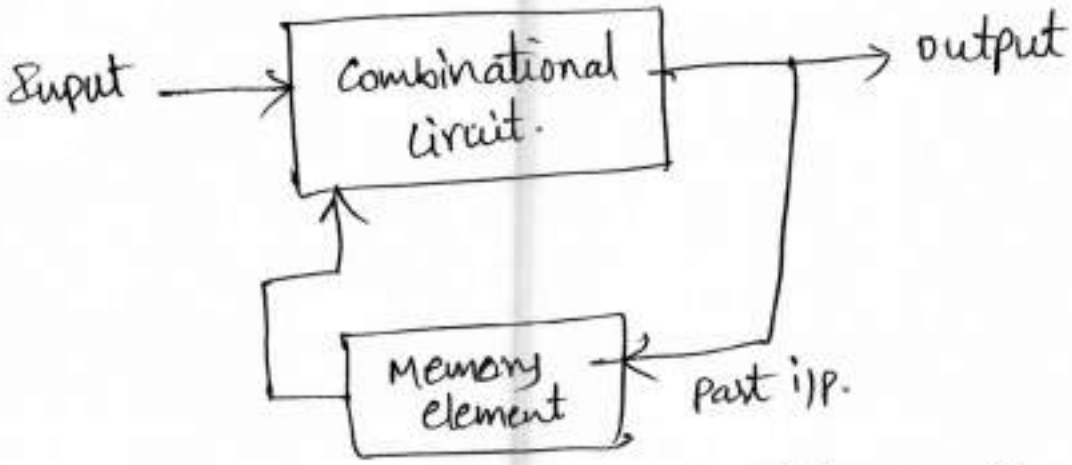
$X = E + F + G + H$

$Y = C + D + G + H$

$Z = B + D + F + H$



4a) Sequential circuits :- It is a digital circuit. the output is depends on present inputs and past inputs. The past input data is stored in memory element. [6M]



Block diagram of sequential circuits.

Types of sequential circuits:-

- It is depends on their timming of their signals. They are two types.

1) Synchronous sequential circuits
2) Asychronous sequential circuits.

→ synchronous sequential circuits, the signal can effect the memory elements at discreate instant of time.

→ Asynchronous sequential circuits the input of signal can effect the memory element at any instant of time.

46.

Combinational circuits	sequential circuits.
1) In combinational circuits, the op is depends on its present input variables.	1) In sequential, the output is depends on its present and past input variables.
2) Memory element is not required.	2) Memory element is required to store Past input variables.
3) Easy to design	3) Comparatively harder to design.
4) It is very faster than sequential circuits due to delay of variables. ex:- parallel adder.	4) It is slower than combinational circuits. ex:- serial adder.

PRINCIPAL
Sri Indu Institute of Engineering & Tech.
Sheriguda(V), Ibrahimpatnam(M),
Dist. Telangana -501 510

Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510

II - Mid Examinations, JULY -2021

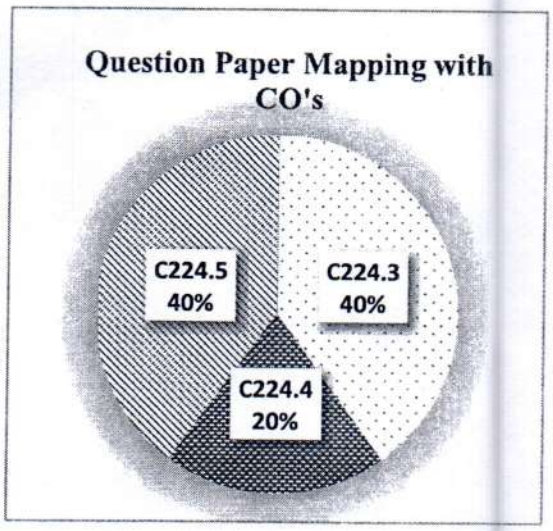
Set -I

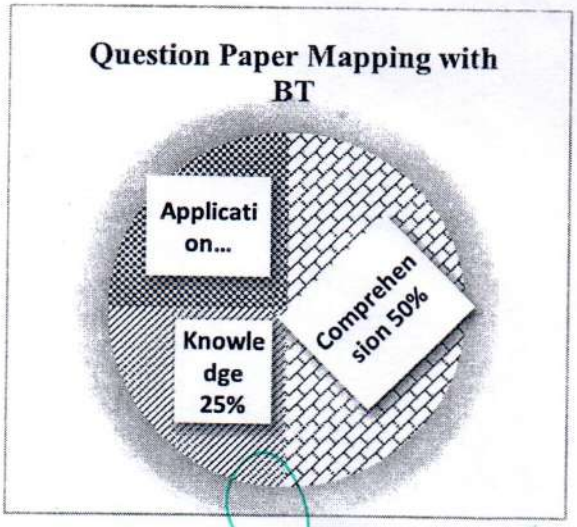
Year & Branch: II –ECE(A,B&C) Date: 23/07/21(AN)

Subject:**LINEAR IC APPLICATIONS** Max. Marks: 10 Time: 60 mins

Answer any **TWO** Questions. All Question Carry Equal Marks 2*5=10 marks

1.	Draw the basic circuit of RC-Phase Shift Oscillator and explain its operation. Also derive the expression for frequency of oscillations.	5	(C224.3)	(Application)
2	Describe the working Operation of IC555 Timer PLL and in detail?	5	(C224.4)	(Knowledge)
3	Explain the working of R-2R ladder DAC with neat circuit diagram	5	(C224.5)	(Comprehension)
4	Explain the working of dual slope ADC with neat circuit diagram	5	(C224.5)	(Comprehension)





PRINCIPAL
Sri Indu Institute of Engineering & Tech.
Sheriguda(V), Ibrahimpatnam(M).
R.R. Dist. Telangana -501 5

Sri Indu Institute of Engineering & Technology

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Set - I

Year & Branch: II ECE (A, B & C) Date: 23/07/21 (AN)

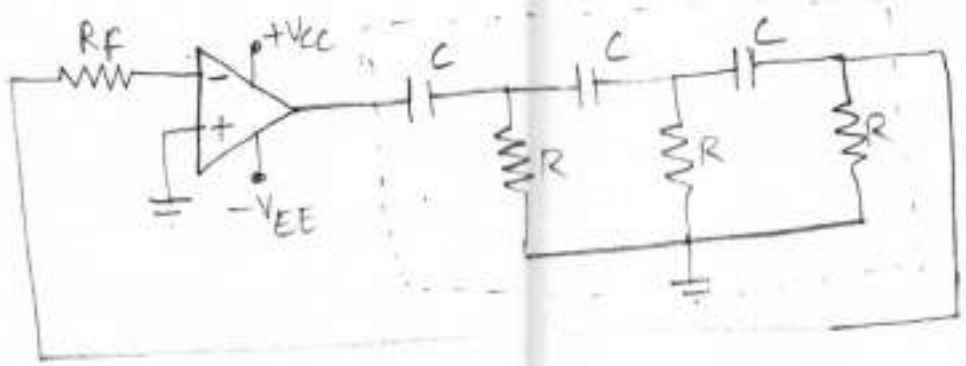
Subject: LICA Marks: 10 Time: 60 min

Answer any **TWO** Questions. All Question Carry Equal Marks 2*5=10 marks

(This question paper is prepared with Course Outcome and BT's mapping)

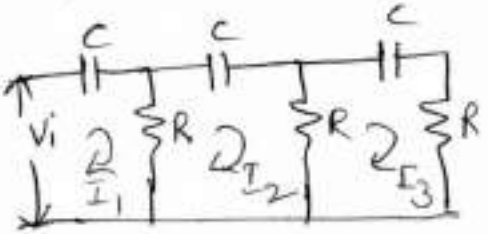
ANSWER KEY

1. RC Phase shift oscillator :- [2M]



RC phase shift oscillator using op-amp in inverting amp mode. thus, it produces the phase shift of 180° between i/p & o/p. The feedback n/w consist of three RC sections each producing 60° phase shift.

Apply KVL at the circuit, we can get the matrix format.



$$\begin{bmatrix} \frac{1+RS}{SC} & -R & 0 \\ -R & \frac{1+2RSC}{SC} & -R \\ 0 & -R & \frac{1+2RSC}{SC} \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \\ I_3 \end{bmatrix} = \begin{bmatrix} V_i \\ 0 \\ 0 \end{bmatrix}$$

$$\Delta = \frac{1+6R^2S^2C^2+5RSC+R^3S^3C^3}{S^3C^3}$$ [1M]

$$D_3 = V_i R^2$$

$$I_3 = \frac{\Delta_3}{\Delta} = \frac{V_i R^2 s^3 C^3}{1 + 5RsC + 6R^2 s^2 C^2 + s^3 R^3 C^3}$$

$$V_0 = V_f = I_3 \cdot R$$

$$= \frac{1}{(1-5\alpha^2) - j\alpha(6-\alpha^2)}$$

equate imaginary part & real parts equal to zero.

$$-j\alpha(6-\alpha^2) = 0$$

$$6 - \alpha^2 = 6$$

$$\alpha^2 = 6$$

$$\frac{1}{\omega RC} = \sqrt{6}$$

$$f = \frac{1}{2\pi RC\sqrt{6}}$$

$$(1-5\alpha^2) = 0 \qquad [2M]$$

$$1 - 5(6) = 0$$

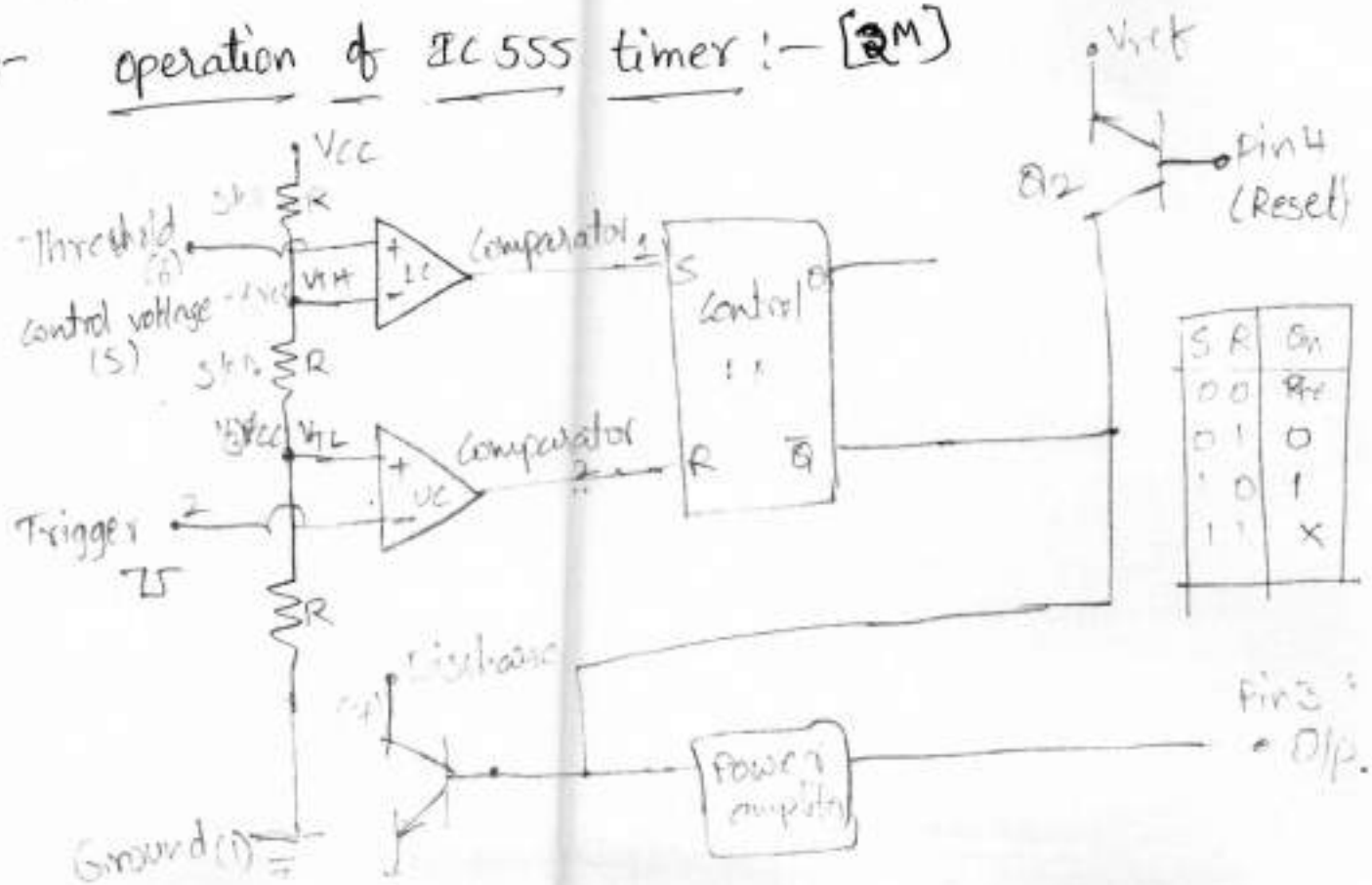
$$1 - 30$$

$$A = -29$$

$$|B| = \frac{1}{|A|}$$

$$B = \frac{1}{29}$$

2Ai- Operation of IC 555 timer :- [2M]



Pin 1 (Ground): All the voltages are measured with [3M] respect to this terminal.

pin 2 (trigger) :- The 8C 555 uses two comparators. the voltage divides consist of 3 equal resistances due to voltage divider. The inverting i/p of compartor-2 which is compared with Vcc/3. trigger i/p is slightly less than Vcc/3. The comparator o/p goes high. The o/p is given to set i/p of the FF. so high o/p of comparator-2 resets the flipflop.

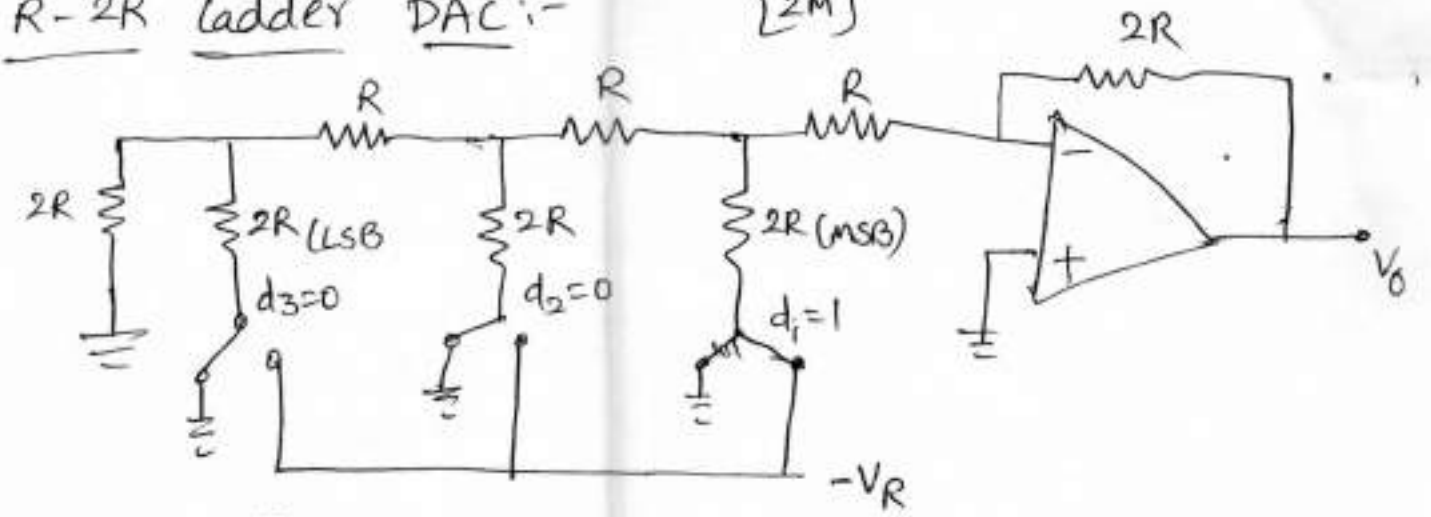
The non-inverting i/p of comparator - 1. which is compared with 2/3 Vcc. The threshold voltage is greater than the 2/3 Vcc the comparator o/p goes low the o/p of the Flipflop will be set state.

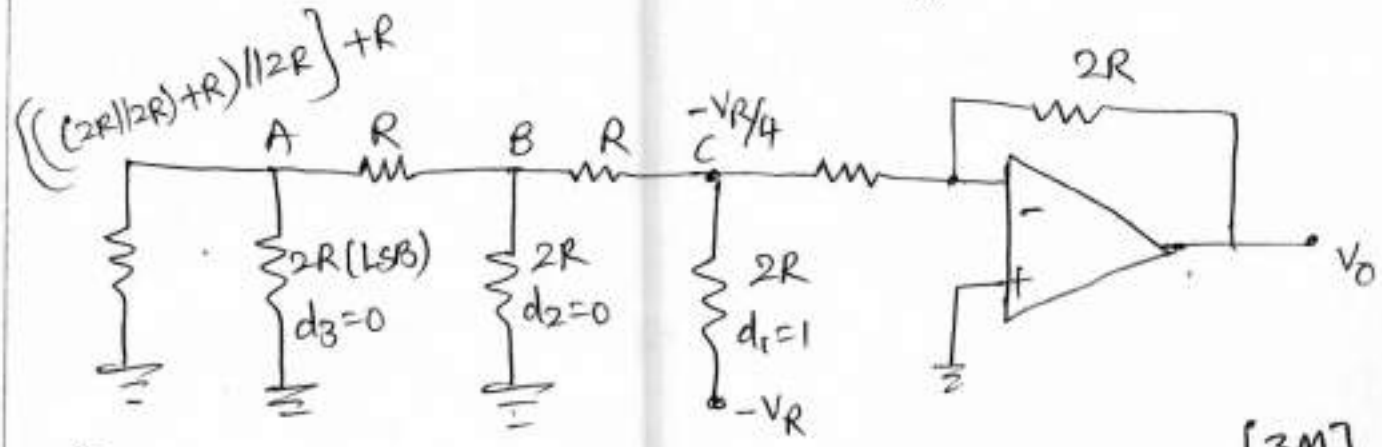
Pin 3 (Reset) :- The complementary signal o/p ($\bar{Q}$) of the FF goes to pin3 which is the o/p. The load can be connected in two ways one b/n pin3 to Gnd @ pin 3 to Vcc

Pin4 (Reset) :- This is an interpet to the timming driven when pin4 is connected to ground. It stopps the working of device and makes it off. The pin 4 provides ON (or) OFF.

Pin 7 (Dicharge) :- This pin is connected to collectors of the discharge transistor Q_1. when the o/p is high the Q is low. The transistor Q_1 is OFF. It acts as open ckt to the external capacitor 'C' connected across it.

3) R-2R ladder DAC :- [2M]

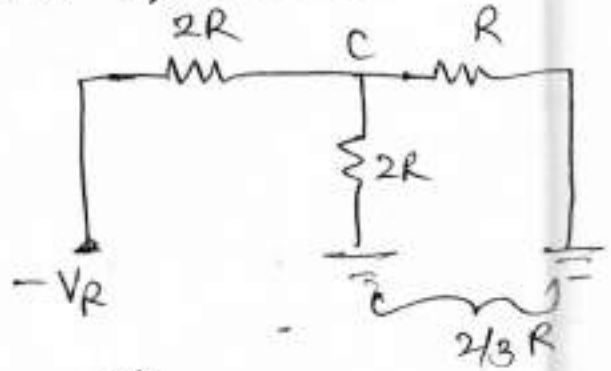




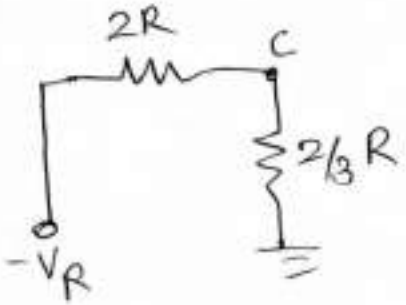
[3M]

$\{[(2R||2R)+R)||2R]+R = 2R$ ~~equals~~ Reduced eqn.

the equivalent circuit is



$R||2R = 2/3 R$

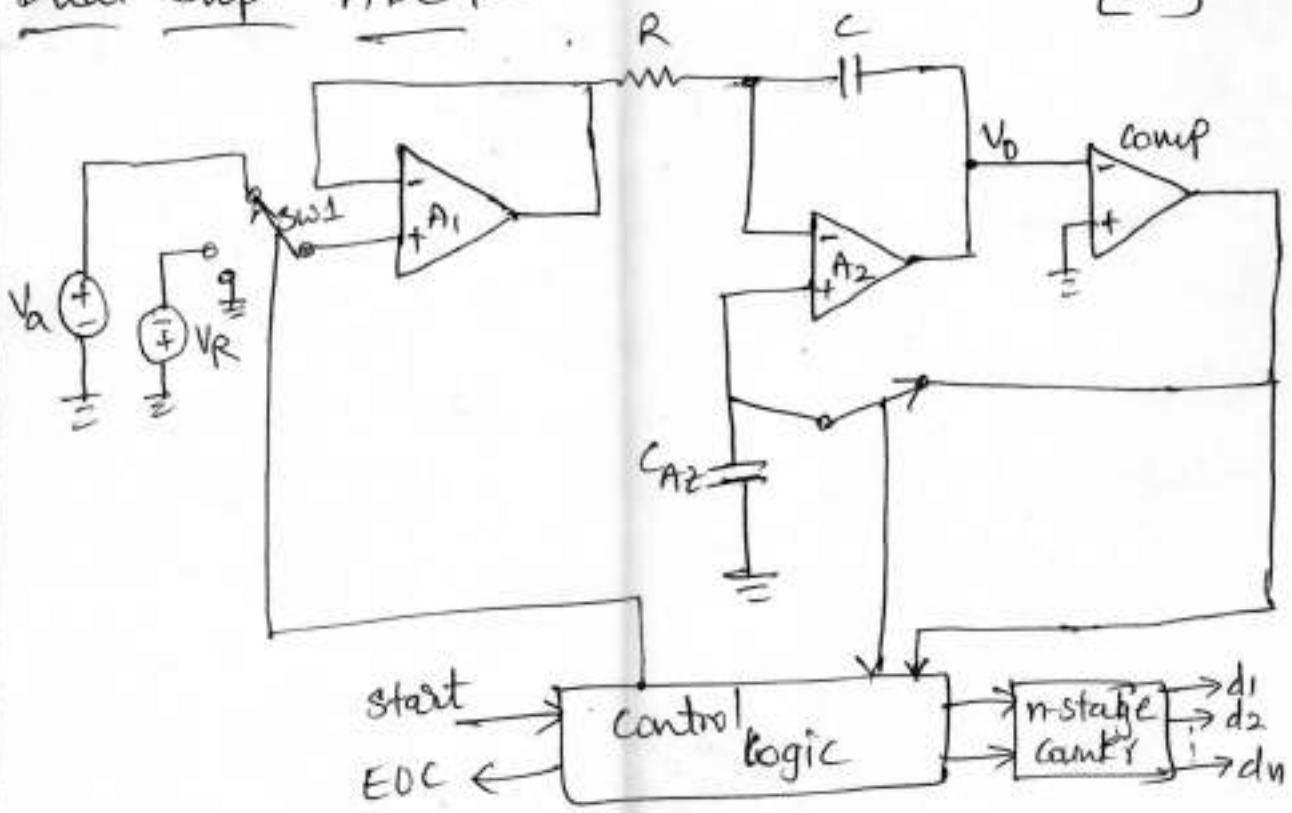


$$= \frac{-V_R\,(2/3R)}{2/3R + 2R}$$

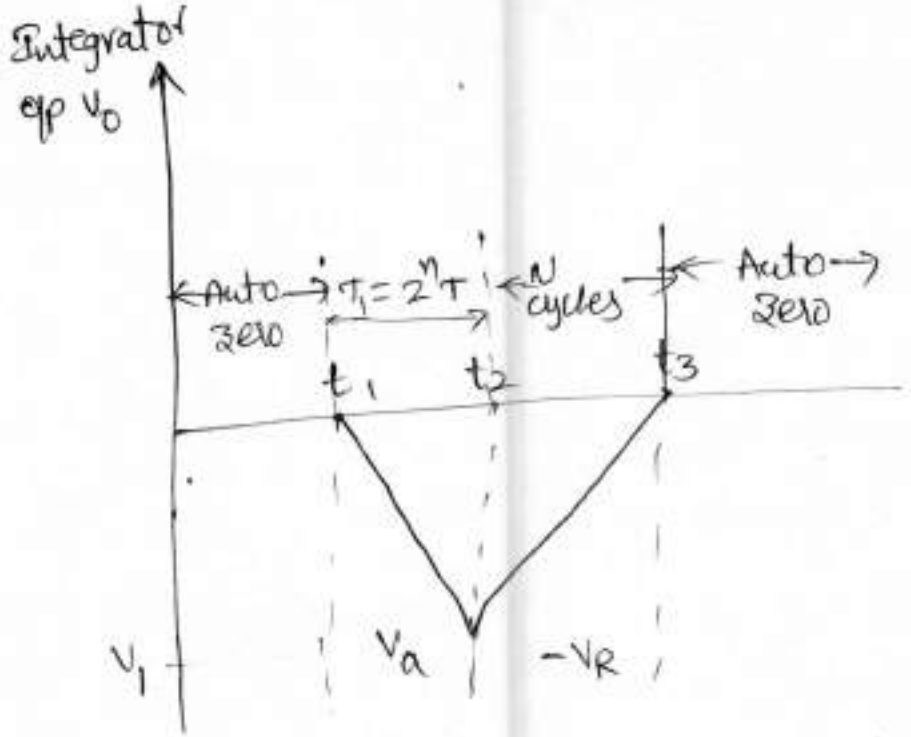
$$= \frac{-V_R\,2/3R}{8R/3} = \frac{-V_R}{4}$$

∴ Voltage at C = $\frac{-V_R}{4}$

4) Dual slop ADC :- [2M]



[1M].



[2M]

The circuit consists of high i/p impedance buffer A_1 & integrator A_2 and comparator. The converter first integrates the analog i/p signal V_a for a fixed duration of 2^n clock periods then it integrates reference voltage V_R of opposite polarity until the integrator o/p is zero. The no. N of clock cycles

required to return the integrator to zero. is propotional to the value of Va.

→ Before start command arise SW1 connected to ground and SW2 is closed. Any offset voltage present in the A1, A2, comparator loop after integration, appears across the capacitances CA2 till the threshold of comparator is achieved.

SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY

SHERIGUDA (V), IBRAHIMPATNAM (M), RANGA REDDY DIST. – 501 510

Diploma / B.Tech II year ECE-C

CERTIFICATE

This is to Certify that Mr. / Ms. S. Shivani

of Diploma / B.Tech Electronics & Communication Engineering Branch, bearing the H.T. No. 20X35A0423 has satisfactorily completed 12 Experiments in the PC Applications Lab laboratory as prescribed by Jawaharlal Nehru Technological University, State Board of Technical Education and Training Hyderabad. During the Academic year 201 - 201

Head of the Department

Lab-In-Charge

Practical date held on 12-08-2021

Signature of Internal Examiner

Signature of External Examiner

Department of Electronics & Communication. Engineering

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ATTENDANCE

S.No.	Roll No. 19551P0	NAME
1	401	A. Lavanya
2	402	A Gayathri priyaga
3	403	A. Ikitha
4	404	A. Bhuvaneshwari
5	405	A. manoj reddy
6	406	A. Jagdish Naik
7	407	A. priyanka
8	408	A. Anwesh goud
9	409	A. Sudheer
10	410	A. Arun kumar
11	411	A. Nikitha
12	412	A. Srikanth yadav
13	413	A manish reddy
14	414	B. yeshwanth reddy
15	415	B. srinesh
16	416	B. saikrishna
17	417	B. Ravi teja
18	418	B. Nikhil kumar
19	420	B. Tejasri
20	421	B. Pavan chandra
21	422	C. vamshi
22	423	C. tharun kumar
23	424	C. Bala Ravi teja
24	425	C. sridhar
25	426	C. Rakesh
26	427	D. Ashok
27	428	D. Akash reddy
28	429	D. mounika
29	430	D. bala krishna
30	431	D. Rohith kumar

ATTENDANCE

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ATTENDANCE

S.No.	Roll No. 19X81A05	NAME
1	401	A - Lavanya
2	402	A Gayathri priyaga
3	403	A - Ikitha
4	404	A - Bhuvaneshwari
5	405	A - manoj reddy
6	406	A - Jagdish Naik
7	407	A - priyanka
8	408	A - Anwesh goud
9	409	A - Sudheer
10	410	A - Arun kumar
11	411	A - Nikitha
12	412	A - Srikanth yadav
13	413	A manish reddy
14	414	B. yeshwanth reddy
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16	416	B. saikrishna
17	417	B. Raviteja
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20	421	B. Pavan chandra
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22	423	C. tharun kumar
23	424	C. Bala Ravi Teja
24	425	C. sridhar
25	426	C. Rakesh
26	427	D. Ashok
27	428	D. Akash reddy
28	429	D. mounika
29	430	D. bala krishna
30	431	D. Rohith kumar

ATTENDANCE

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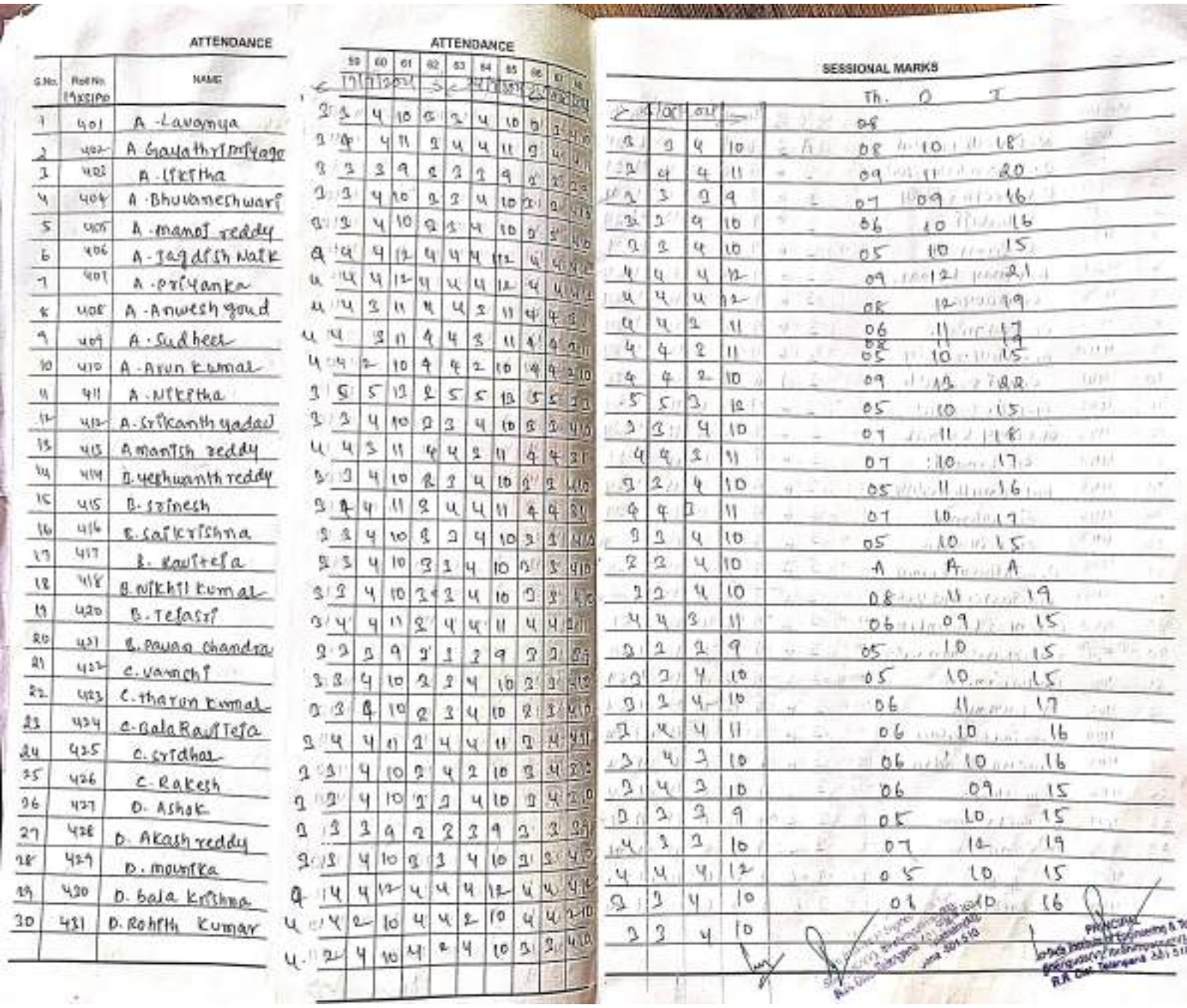

ATTENDANCE

S.No.	Roll No. 19X51D0	NAME
1	401	A. Lavanya
2	402	A. Gayathri Priyaja
3	403	A. Ikshitha
4	404	A. Bhuvaneshwari
5	405	A. manoj reddy
6	406	A. Jagdish Naik
7	407	A. priyanka
8	408	A. Anwesh goud
9	409	A. Sudheer
10	410	A. Arun kumar
11	411	A. Nikshitha
12	412	A. Srikanth yadav
13	413	A. Manish reddy
14	414	B. yeshwanth reddy
15	415	B. srinesh
16	416	B. Sai krishna
17	417	B. Rawteja
18	418	B. Nikhil kumar
19	420	B. Tejasri
20	421	B. Pavan Chandra
21	422	C. Vamshi
22	423	C. tharun kumar
23	424	C. Bala Rawteja
24	425	C. sridhar
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26	427	D. Ashok
27	428	D. Akash reddy
28	429	D. mounika
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30	431	D. Rohith kumar

ATTENDANCE

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18	3	4	10	3	3	4	10	3	3	4/10
19	4	4	11	3	4	4	11	4	4	4/11
20	3	3	9	3	3	3	9	3	3	3/9
21	3	4	10	3	3	4	10	3	3	4/10
22	3	4	10	3	3	4	10	3	3	4/10
23	4	4	11	3	4	4	11	4	4	4/11
24	3	4	10	3	4	3	10	3	4	3/10
25	3	4	10	3	3	4	10	3	4	3/10
26	3	3	9	3	3	3	9	3	3	3/9
27	3	4	10	3	3	4	10	3	3	4/10
28	4	4	12	4	4	4	12	4	4	4/12
29	4	2	10	4	4	2	10	4	4	2/10
30	2	4	10	4	2	4	10	3	3	4/10

SESSIONAL MARKS

				Th.	O	T
				08		
1	1	4	10	08	10	18
2	4	4	11	09	11	20
3	3	3	9	07	09	16
4	3	3	10	06	10	16
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7	4	4	12	08	12	19
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13	4	3	11	07	10	17
14	3	4	10	05	11	16
15	4	3	11	07	10	17
16	3	4	10	05	10	15
17	3	4	10	A	A	A
18	3	4	10	08	11	19
19	4	3	11	06	09	15
20	3	3	9	05	10	15
21	3	4	10	05	10	15
22	3	4	10	06	11	17
23	4	4	11	06	10	16
24	4	3	10	06	10	16
25	4	3	10	06	09	15
26	3	3	9	05	10	15
27	3	3	10	07	12	19
28	4	4	12	05	10	15
29	3	4	10	06	10	16
30	3	4	10			

PRINCIPAL

ATTENDANCE

S.No.	Roll No. 19X51A0	NAME	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
			5/8	19/8		23/3/2021				20/3/2021			6/4/21			27/4/2021				1/05/2021		
1	432	N. Dinesh kondal	51	A		3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
2	433	D. Akanksh goud	54	57		4	4	4	12	4	4	4 12	4 4	4	10	4	4	4	12	4	4	4 12
3	434	D. Vineeth reddy	57	60		3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
4	435	D. balaji	54	57		3	3	4	10	3	3	4 10	3 3	4	10	3	4	3	10	3	3	4 10
5	436	D. sampath	54	57		3	3	4	10	3	3	4 10	3 3	4	10	3	4	3	10	3	3	4 10
6	437	D. Vinay kumar.	57	A		3	4	4	11	3	4	4 11	3 4	4	11	3	4	4	11	3	4	4 11
7	438	G. Navya	57	60		4	4	5	13	4	4	5 13	4 4	5	13	4	5	4	13	4	4	5 13
8	439	G. Vignesh.	57	A		3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
9	440	G. Ajay reddy	54	57		3	4	3	10	4	3	3 10	3 3	4	10	3	3	4	10	3	3	4 10
10	441	G. sai prakash	51	54		3	4	3	10	3	4	3 10	3 3	4	10	3	3	4	10	3	3	4 10
11	442	G. Teja babau	57	A		3	3	3	9	3	3	3 9	3 3	3	4	3	3	3	9	3	3	3 9
12	443	G. Vinay kumar	57	60		3	4	3	10	3	4	3 10	3 3	4	10	3	3	4	10	3	3	4 10
13	444	G. Janani.	54	A		5	5	4	14	5	5	4 14	4 5	5	14	4	5	5	14	5	5	4 14
14	445	G. praneeth reddy	51	A		3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
15	446	G. Sushma	57	60		4	4	5	13	4	4	5 13	4 4	5	13	4	4	5	13	4	4	5 13
16	447	G. Priyanka	54	A		5	5	4	14	5	5	4 14	4 5	5	14	4	5	5	14	4	5	5 14
17	448	P. Gautham kumar	54	57		3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
18	449	G. Tejasreelcal yad	54	57		3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
19	450	G. Venkat pawankum	54	57		3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
20	20X55A01	A. Harshavardhan red	57	A		3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
21	402	A. navaneesh	57	60		3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
22	403	A. Lavanya	57	60		4	4	5	13	4	4	5 13	4 4	5	13	4	5	4	13	4	5	4 13
23	404	A. Srinath reddy	57	60		3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
24	405	B. Rama chandra	57	60		3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
25	406	B. Meghana	51	A		3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
26	407	B. Saikrishna	51	54		3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
27	408	M. Sama	54	57		4	3	4	11	4	3	4 11	3 3	3	11	3	4	4	11	3	4	4 11
28	409	C. Dipthi	51	54		4	5	4	13	4	5	4 13	4 5	4	13	4	4	5	13	4	5	4 13
29	410	D. Rushikesh.	57	A		3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
3																						

ATTENDANCE

S.No.	Roll No. 19331A0	NAME	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
			18/5/2021 →			← 1/6/2021 →				← 29/6/2021			← 8/7/2021			13/7/2021				← 20/7/2021		
1	432	N. Dinesh Kondal	3 3	4	10	3	3	4	10	3	4	3 10	3 3	4	10	3	3	4	10	3	3	4 10
2	433	D. Akanksh agori	3 5	4	12	4	4	4	12	4	4	4 12	4 4	4	12	4	4	4	12	4	4	4 12
3	434	D. Vineeth reddy	3 3	4	10	3	4	3	10	3	4	3 10	3 3	4	10	3	3	4	10	3	3	4 10
4	435	D. balaji	3 3	4	10	3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
5	436	D. Sampath	3 3	4	10	3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
6	437	D. Vinay kumar.	3 4	4	11	4	4	3	11	4	4	3 11	3 4	5	11	3	3	5	11	3	4	4 11
7	438	G. Navya	4 4	5	13	4	4	5	13	4	4	5 13	3 5	5	13	3	5	5	13	3	5	5 13
8	439	G. Vignesh.	3 3	4	10	3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
9	440	G. Ajay reddy	3 3	4	10	3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
10	441	G. Sai prakash	3 3	4	10	3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
11	442	G. Teja babu	3 3	3	9	3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
12	443	G. Vinay kumar	3 3	4	10	3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
13	444	G. Janani.	4 5	5	14	5	4	5	14	5	5	4 14	4 5	5	14	4	5	5	14	4	5	5 14
14	445	G. Praneeth reddy	3 3	4	10	3	4	3	10	3	4	3 10	3 3	4	10	3	3	4	10	3	3	4 10
15	446	G. Sushma	4 5	4	13	3	5	5	13	3	5	5 13	3 5	5	13	3	5	5	13	3	5	5 13
16	447	G. Priyanka	5 4	5	14	4	5	5	14	4	5	5 14	4 5	5	14	4	5	5	14	4	5	5 14
17	448	P. Gautham kumar	3 3	3	9	3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
18	449	G. Teja sreekar yad	3 3	3	9	3	3	4	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
19	450	G. Venkat pavan kum	3 2	4	10	3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
20	20R 35A0 401	A. Harshavardhan red	3 3	3	9	3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
21	402	A. Navaneesh	3 3	4	10	3	3	4	10	3	3	4 10	3 3	4	10	3	3	4	10	3	3	4 10
22	403	A. Lavanya	3 5	5	13	4	5	5	13	4	5	5 13	4 4	5	13	4	4	5	13	4	4	5 13
23	404	A. Srinath reddy	3 3	3	9	3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
24	405	B. Rama chandra	3 3	3	9	3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
25	406	B. Meghana	3 3	3	9	3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
26	407	B. Saikrishna	3 3	3	9	3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
27	408	M. Sama	4 4	3	11	4	5	5	11	3	4	4 11	4 4	3	11	4	4	3	11	4	4	3 11
28	409	C. [illegible]	4 5	4	13	3	5	5	13	3	5	5 13	4 4	5	13	4	4	5	13	4	4	5 13
29	410	D. Rushikesh.	3 3	3	9	3	3	3	9	3	3	3 9	3 3	3	9	3	3	3	9	3	3	3 9
3																						

S.No.	Roll No. 19C51A0	NAME	ATTENDANCE 59	60	61	62	63	64	65	66	67	68		SESSIONAL MARKS				Th	D	T
			[illegible]											5/6/2020						
1	432	N. Dinesh Kondal	2/3	4	10	2/	2	4	10	2	2	4	10	3	2	4	10	05	10	15
2	433	D. Akanksh [illegible]	4/4	4	12	4	4	4	12	4	4	4	12	4	4	4	12	08	12	20
3	434	D. Vineeth reddy	3/2	4	10	3	4	3	10	3	3	3	10	3	3	4	10	05	10	15
4	435	D. balaji	3/2	4	10	3	4	3	10	3	3	4	10	3	3	4	10	7	10	17
5	436	D. Sampath	2/3	4	10	3	3	4	10	3	3	4	10	3	3	4	10	05	10	15
6	437	D. Vinay Kumar.	3/4	4	11	3	3	4	11	3	4	4	11	3	4	4	11	07	11	18
7	438	G. Navya	3/5	5	13	3	5	5	13	4	4	5	13	4	4	5	13	09	13	22
8	439	G. Vignesh.	3/3	4	10	3	3	4	10	3	3	4	10	3	3	4	10	06	10	16
9	440	G. Ajay reddy	3/3	4	10	3	3	4	10	3	3	4	10	3	3	4	10	05	10	15
10	441	G. Sai prakash	3/4	3	10	3	4	3	10	3	4	3	10	3	4	3	10	06	10	16
11	442	G. Teja babu	2/3	3	9	3	3	3	9	3	3	3	9	3	3	3	9	06	09	15
12	443	G. Vinay Kumar	3/3	4	10	3	3	4	10	3	3	4	10	3	3	4	10	05	10	15
13	444	G. Janani.	4/5	5	14	4	5	5	14	4	5	5	14	4	5	5	14	10	14	24
14	445	G. Praneeth reddy	3/3	4	10	3	3	4	10	3	3	4	10	3	3	4	10	05	10	15
15	446	G. Lochana	3/5	5	13	3	5	5	13	4	4	5	13	4	4	5	13	10	13	23
16	447	G. Priyanka	4/5	5	14	5	5	4	14	5	5	4	14	5	5	4	14	10	14	24
17	448	P. Goutham Kumar	3/3	3	9	3	3	3	9	3	3	3	9	3	3	3	9	06	09	15
18	449	G. Teja sreekanth yad	3/3	3	9	3	3	3	9	3	3	3	9	3	3	3	9	06	09	15
19	450	G. Venkat Pawan Ku	3/3	4	10	3	3	4	10	3	3	4	10	3	3	4	10	06	10	16
20	20R/5A 01	A. Parthavardhan re	3/3	3	9	3	3	3	9	3	3	3	9	3	3	3	9	7	9	16
21	402	A. Navaneeth	3/3	4	10	3	3	4	10	3	3	4	10	3	3	4	10	06	10	16
22	403	A. Lavanya	3/5	5	13	3	5	5	13	3	5	5	13	3	5	5	13	09	13	22
23	404	B. Srinath reddy	3/3	3	9	3	3	3	9	3	3	3	9	3	3	3	9	07	9	16
24	405	B. Ruthna Chandra	3/3	3	9	3	3	3	9	3	3	3	9	3	3	3	9	07	9	16
25	406	B. Meghana	3/3	3	9	3	3	3	9	3	3	3	9	3	3	3	9	05	09	14
26	407	B. Saikrishna	3/3	3	9	3	3	3	9	3	3	3	9	3	3	3	9	06	9	15
27	408	M. Sana	3/4	4	11	3	4	4	11	4	4	3	11	4	4	3	11	8	11	19
28	409	C. [illegible]	3/5	5	13	3	5	5	13	3	5	5	13	3	5	5	13	9	13	22
29	410	D. Rushikesh.	3/3	3	9	3	3	3	9	3	3	3	9	3	3	3	9	06	9	15
3																				

PRINCIPAL [illegible] Institute of Engineering & Tech. [illegible]

PARTICULARS OF SYLLABUS COVERED

Sl. No.	Date	No. of Periods	Brief Note of topic dealt	Signature of Head / Principal
1	21/4/2024	3	manual writing	
2	3/4/2024	3	Amplitude modulation & Demodulation	
3	10/4/2024	3	Frequency modulation & Demodulation	
4	8/5/2024	3	DSB-SC modulator & Detector	
5	5/6/2024	3	SSB-SC modulator & Detector.	
6	19/6/2024	3	Frequency Division multiplexing	
7	26/6		& Demultiplexing	
7	26/6/2024	3	pulse Amplitude modulation & Demodulation	
8	3/7/2024	3	pulsewidth Modulation & Demodulation	
9	10/7/24	3	pulse position modulation & Demodulation	
10	17/7/2024	3	pcm Generation and Detection	
11	24/7/2024	3	delta modulation	
12	22/5/2024	3	Frequency shift keying Generation and Detection	
13	17/4/2024	3	Binary phase shift keying Generation and Detection.	
14	7/08/2024	3	Generation & Detection (i) DPSK (ii) QPSK	
15	5/08/2024	2	Internal exam.	

PRINCIPAL
Sri Indu Institute of Engineering & Tech.
Sheriguda(V), Ibrahimpatnam(M),
R.R Dist. Telangana -501 510.

PARTICULARS OF SYLLABUS COVERED

Sl. No.	Date	No. of Periods	Brief Note of topic dealt	Signature of Head / Principal
1	23/03/204	3	manual writing	
2	30/3/204	3	Amplitude modulation & Demodulation	
3	6/4/204	3	Frequency modulation & Demodulation	
4	27/4/204	3	DSB-SC modulator & Detector	
5	11/5/204	3	SSB-SC modulator & Detector	
6	18/5/204	3	Frequency division multiplexing & Demultiplexing	
7	1/6/204	3	pulse Amplitude modulation & Demodulation	
8	29/6/204	3	pulse width modulation & Demodulation	
9	6/7/204	3	pulse position modulation & Demodulation	
10	13/7/204	3	PCM Generation and Detection	
11	20/7/204	3	Delta modulation	
12	27/7/204	3	Frequency shift keying Generation & Detection	
13	20/4/204	3	Binary phase shift keying Generation & Detection	
14	10/08/204	3	Generation and detection (i) DPSK (ii) QPSK	
15	05/08/204	3	lab Internal exam	

PRINCIPAL
Sri Indu Institute of Engineering
Sheriguda(V), Ibrahimpatnam
R.R. Dist. Telangana

Circuit diagram :-

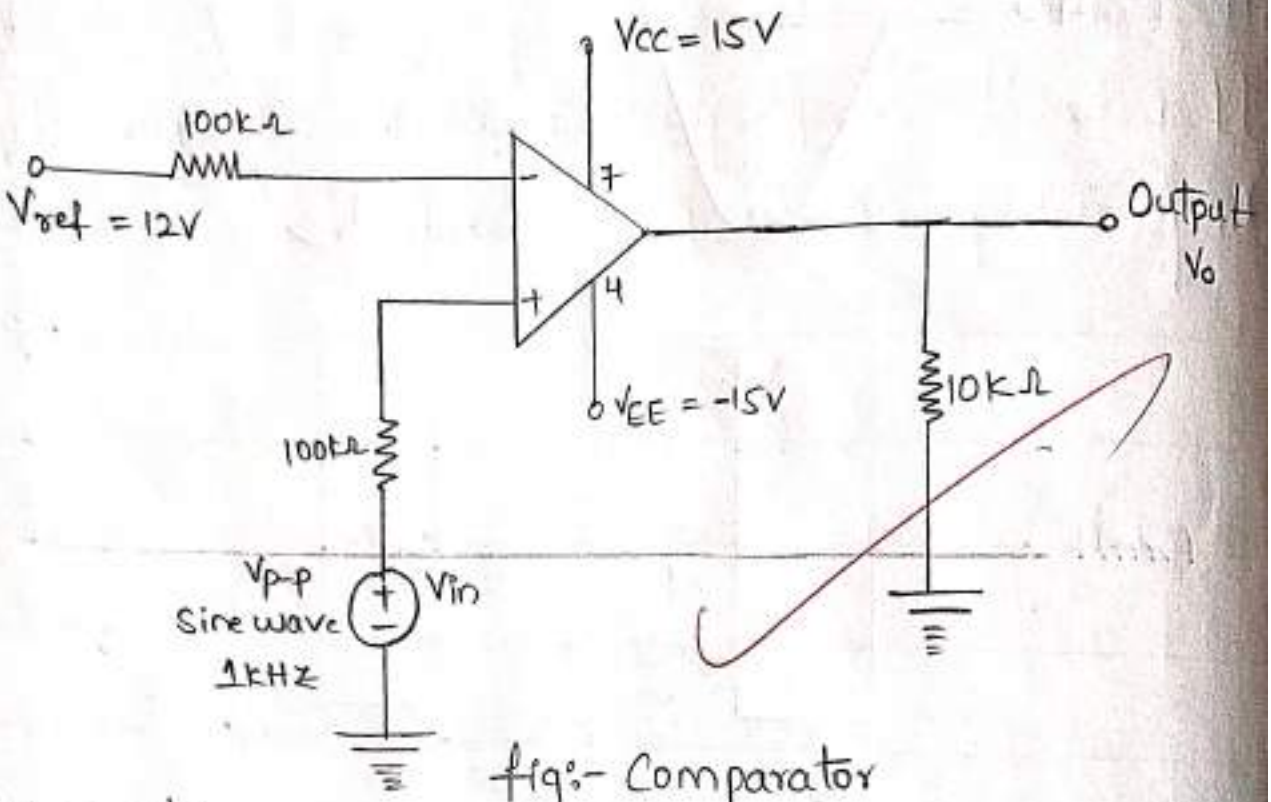
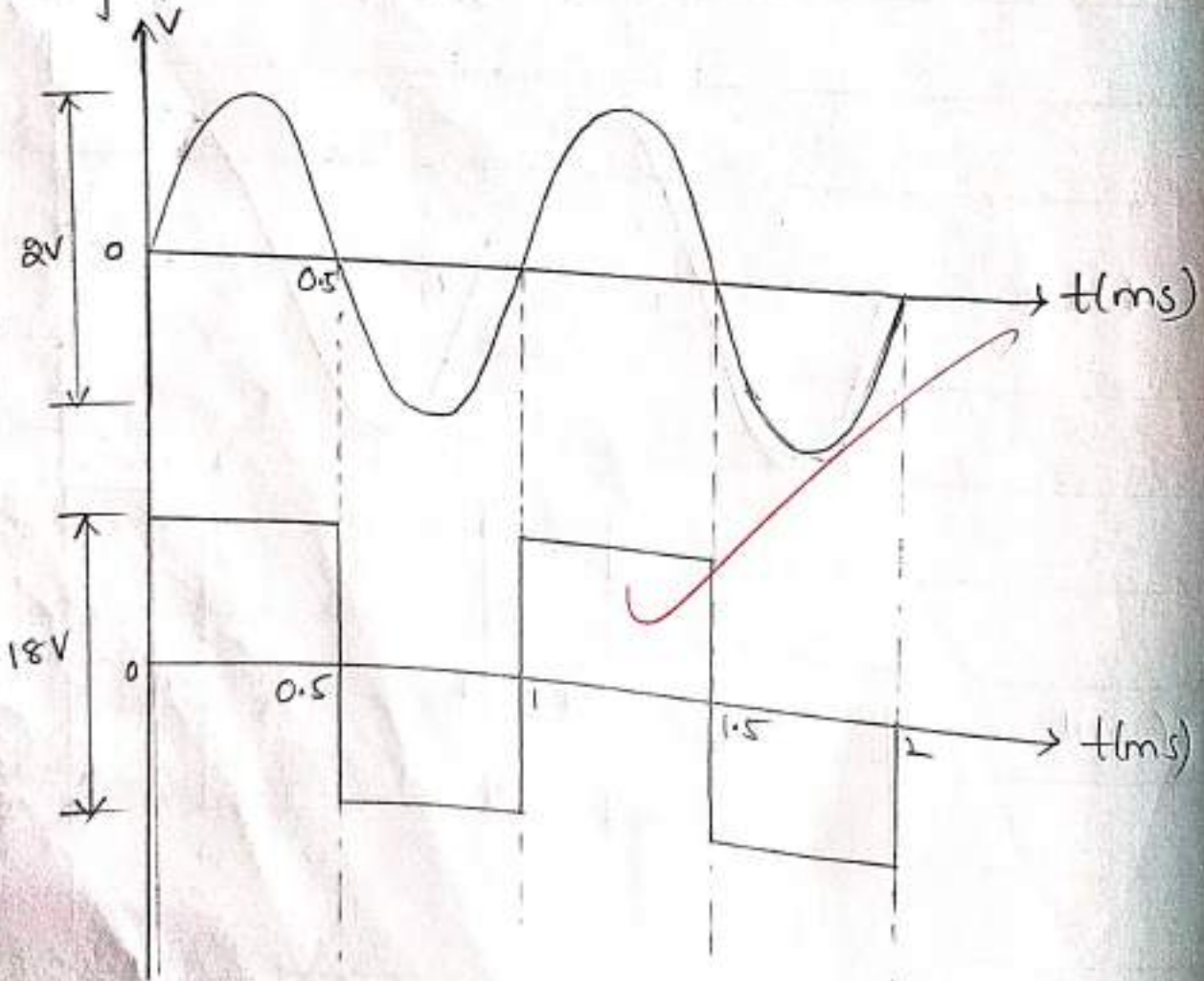


fig:- Comparator

Model graph:-



Name of the Experiment : Comparator Using IC 741 OP-Amp

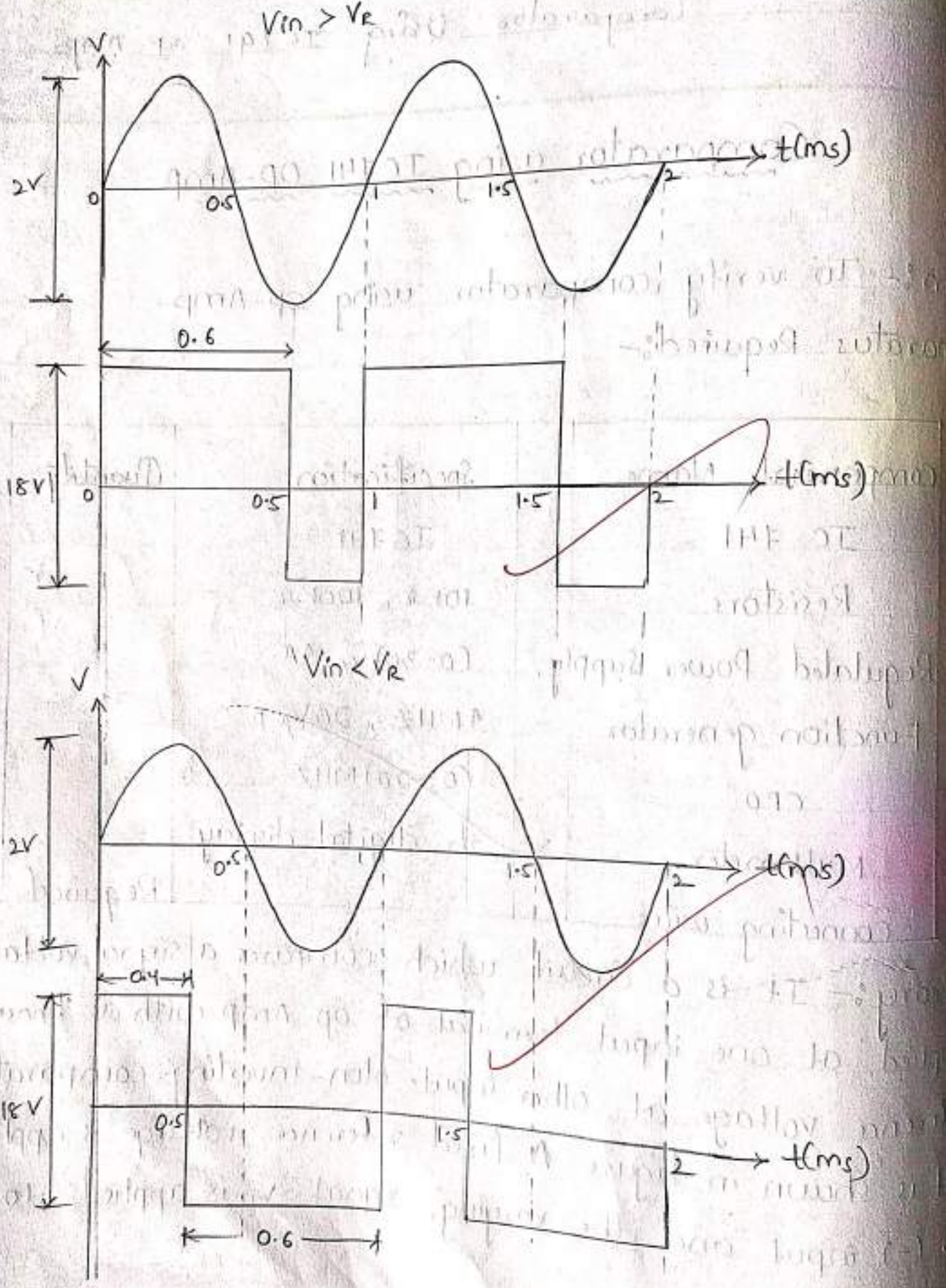
Comparator using IC 741 OP-Amp

Aim :- To verify comparator using op-Amp.

Apparatus Required :-

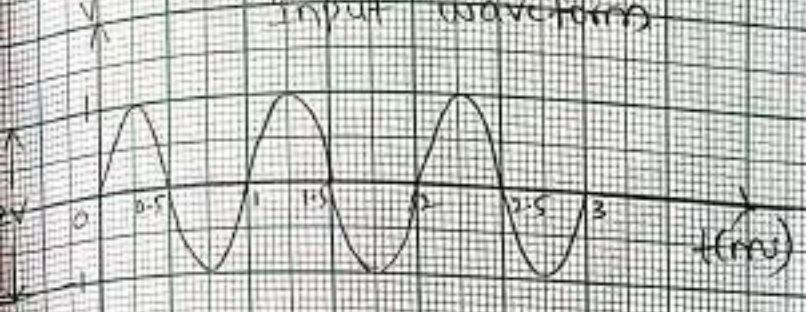
Component Name	Specification	Quantity
IC 741	IC 741	1
Resistors	10kΩ, 100kΩ	1
Regulated Power Supply	(0-30) V, 1A	2
Function generator	1MHz, 20 V_{p-p}	1
CRO	(0-20) MHz	1
Multimeter	3½ digital display	1
Connecting wires	—	Required

Theory :- It is a circuit which compares a signal voltage applied at one input terminal of op-Amp with a known reference voltage at other input. Non-inverting comparator ckt is shown in figure. A fixed reference voltage is applied to (-) input and the varying signal V_i is applied to (+) signal.


Vin > VR
V
2V
0
0.5
1
1.5
2
t(ms)
0.6
18V
0
0.5
1
1.5
2
t(ms)
Vin < VR
V
2V
0.5
1.5
2
t(ms)
0.4
18V
0.5
1.5
2
t(ms)
0.6

Comparator

Input waveform



Scale

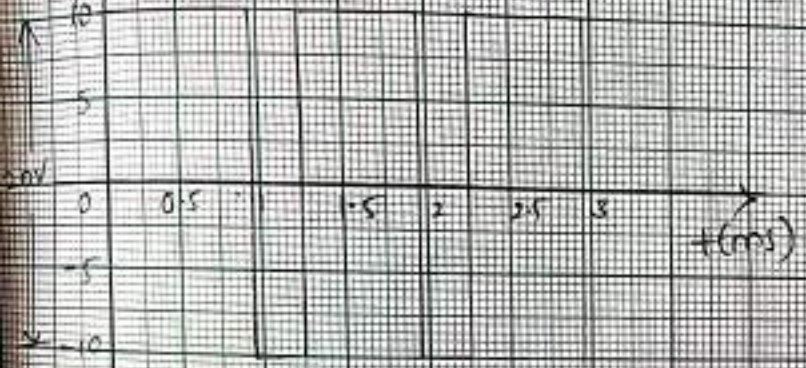
on x-axis 1unit = 0.5msec

on y-axis 1unit = 1V

Amplitude = 2V,

time period = 1msec

$V_{in} > V_{ref}$



on x-axis 1unit = 0.5msec

on y-axis 1unit = 5V

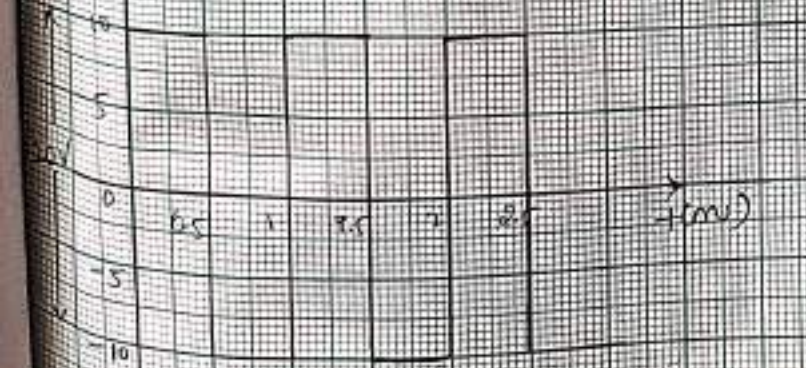
Amplitude = 20V, T = 10msec

$V_{in} < V_{ref}$

Amplitude = 20V

time period = 1msec

$V_{in} = V_{ref}$



Amplitude = 20V

time period = 1msec.

Name of the Experiment :

The output voltage is at $-V_{sat}$ for $V_1 < V_{ref}$ and no goes to $+V_{sat}$ for the $V_1 > V_{ref}$. The output wave form for a line input applied to (+) input as shown.

procedure:-

1. Connect the circuit as per circuit diagram.
2. Apply supply voltage of 15V to pin 7 and 15V to pin 4 of IC 741 respectively.
3. Apply input V_1 as sine wave of 10Vp-p and note down the output at pin 6 of IC 741
4. Note down the square wave output amplitude.

precautions:-

1. check the connections before giving power supply
2. Readings should be taken carefully.

Result:-

Hence using op-amp comparator circuit is verified.

29/7/21 (AT)