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Register Number				-	

Code: T-301

III Semester Diploma Examination, November 2011

# E & C BOARD

## ANALOG ELECTRONICS

		ANALOG ELECTRONICS	
Tim	e:3	Hours ] [Max. Marks: 10	00
Insti	ructio	ons: (1) Section - I is compulsory.  (2) Answer any two full questions from the remaining Sections.	
		SECTION - I	
1,	(a)	Fill in the blanks:	5
		Fill in the blanks:  (i) Percentage regulation of an local power supply is	
		(ii) Positive feed back is	
		(iii) circuit is used to converting a sine wave to square wave.	
		(iv) The main use of emitter follower is as ckt.	
		(v) A differentiator circuit is also a circuit.	
	(b)	Write a note on over voltage protection circuit.	5
	•	SECTION - II	
2.	(a)	With a neat diagram explain the working of a Bridge Rectifier.	6
	(b)	Describe the action of capacitor filter.	4
	(c)	Explain how zener maintains constant voltage across the load.	5
3.	(a)	List the types of transistor biasing. State their advantages and disadvantages.	10
	(b)	Write a note on operating point in transistor.	5
4.	(a)	Classify the amplifiers in terms of voltage gain and power gain.	5
	(b)	With a neat diagram, explain the operation of C.E. Amplifier. What its advantages?	10
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		SECTION – III	
5.	(a)	Give the comparison of different types of power amplifiers.	2-
	(b)		agram.
	(c)		;
6.	(a)	Write a note on thermal run away.	4
	(b)	Explain Damped and undamped oscillations.	5
	(c)	Explain how oscillations are produced in tank circuit.	5
7.	(a)	With a neat diagram explain the operation of phone-shift oscill	ator. 10
	(b)		5
		SECTION - IV	
8.	(a)	What is a multivibrator? Explain the working of Mono-stable i	nultivibrator. 8
	(b)	Explain the working of crystal oscillator with a neat diagram.	7
9.	(a)	Define CMRR and explain its significance.	
	(b)	What is actions filter? What are its advantages?	6
	(c)	Explain with a neat diagram comparator circuit.	. 7
10.	(a)	List the ideal OP-Amp characteristics.	<b>. .</b> . <b>.</b> . <b>.</b> . <b>.</b>
	(b)	Explain how an OP-Amp is used to obtain Inverting and namplifier.	

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	5. (	SECTION - MI	447 - 3
,	J. (	(a) Give the comparison of different types of power amplifiers.  (b) Explain the working of Given a second and the working of Given a second and the second	
	(	b) Explain the working of Class-B power amplifier with a neat diagram.  c) Explain the need for using best sixty.	
	(	c) Explain the need for using heat sink.	
6	,	a note on thermal run away	
	(t	Explain Damped and undamped oscillations.	;
<u> </u>	(c	Explain how oscillations are produced in tank circuit.	
7.	(a) (b)	With a neat diagram explain the operation of phone 113	10 5
8.	(a) (b)	SECTION – IV  What is a multivibrator? Explain the working of Mono-stable multivibrator Explain the working of crystal oscillator with a neat diagram.	. 8
9,	(a)	Define CMRR and explain its significance	7
	(b)	What are its advantage a	2
	(c)	Explain with a neat diagram comparator circuit.	6
		o and the circuit.	7
10.	(a)	List the ideal OP-Amp characteristics.	
	(b)	Explain how an OP-Amp is used to obtain Inverting and non-Inverting amplifier.	5
			10

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III Semester Diploma Examination, November 2011,

## E & C BOARD

# DIGITAL ELECTRONICS - II

Time	e: 3 Hours ]	[ Max. Marks : 100						
Instru	(2) Answer any six full questions choosing any from Section – II, III & IV.	y two full questions each						
	SECTION – I							
1. (	(a) Fill in the blanks:							
	(i) If both mode control inputs [S <sub>0</sub> , S <sub>1</sub> ] to 74194 IC a	re low, the unit is in						
÷	mode.							
	(ii) Synchronous counter operate at speed counters.	than Asynchronous						
1.	(iii) A 2K × 4 memory can store no. of bits.							
	(iv) The fastest ADC is  (v) type of ROM can erase one byte at a tim							
	(v) type of ROM can erase one byte at a tim	<b>e.</b>						
(1	(b) Using flip flops, explain Johnson counter.							
	and the second of the second o							
	SECTION – II	MAC.						
2.1 (	(a) Explain 4 bit bi-directional shift register using D-flip flor	os. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
(1	(b) For a 3 bit shift Register, Compare SISO & PIPO regardi	ing the 3						
	(i) No. of clock pulses	aMadian ajar Africa. Masara						
	(ii) Speed of shifting date and	North Albert (1997) North Albert (1997) On the Albert (1997)						
. 6	(iii) Hardware requirement							
,	(c) How long will it take to shift a 8 bit number into a 8 bit s frequency is 10 MHz?	4						
3. (a	(a) With truth table, timing diagram and using J-K synchronous decade counter.	flip flops, explain						
(1	(b) Why are Asynchronous counters operate at low speed?	3						
4. (a	(a) Give the pin details of IC 7490.	3						
(t	(b) With truth table, timing diagram & using D-FFS, explain 4	bit Ring counter. 12						
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T-302	<b>2</b>	
2 - Th. 1875	SECTION-III	
5. (a)	A certain memory has a capacity of 4K × 8. Calculate  (i) the no. of address lines	5
	(ii) data input lines	
	(iii) data output lines and	
(b)	(iv) capacity of memory in bits & bytes  Explain the following with respect to memory:	10
(0)	(i) Non-volatile	10
	(ii) Refresh	
	(iii) Write operation of RAM (iv) Access time	
	(v) Firmwave	
6. (a)	What EPROM shortcomings are overcome by EEROMS? Explain:	3
(0)	(i) PROM (ii) EPROM	12
	(iii) EEPROM (iv) FLASH EEROM	
7. (a)	Explain the operation of R-2R Ladder type DAC with diagram.	8
<b>(b)</b>	List two disadvantages of weighted resistor DAC and one advantage of R-2R DAC.	
(c)		3
*	converter.	4
8. (a)	SECTION – IV	
8. (a) (b)	Explain successive ADC with diagram.  The voltage range of an A/D converter that uses 14 bit number is -6 to +6 V.	8
( )	Find:	7
	(i) the number of discrete levels.	•
	<ul><li>(ii) the no. of voltage increments to divide the total range.</li><li>(iii) the resolution of ADC.</li></ul>	
0. (3)		
9.: (a)	Explain the following with respect to ADC:  (i) Resolution	<b>`6</b>
	(ii) Quantization error	
(h)	(III) Conversion time	
(b) (c)	Give the circuit set for driving seven segment LED display using 7447 IC. Explain the operation of LED and concept of 7-segment display.	3
		6
10. (a) (b)	List two advantages and five disadvantages of LCD.  Implement PAL for the following Boolean equations:	7
i i i i	그 <u>게 하면 하는 프랑이 보고 그</u> 렇게 되어 하는 하는데 그는 그들은 그 모든 그 그 모든 그 그 모든 그 그를 다 그 것이다.	8
y.	(i) $X = ABC + ABC + ABC$ Here the second in the second i	
	(ii) $I - A + BC$	
• .	(iii) $Z = \overline{A} + \overline{B} + \overline{C}$	
	and the first of the control of the	

5. (a) A certain memory because	
5. (a) A certain memory has a capacity of 4K × 8. Calculate  (i) the no. of address lines	
(ii) data input lines	
(iii) data output lines and	
(IV) capacity of memory in hite & L.	
(b) Explain the following with respect to memory:  (i) Non-volatile	1
(4) D-C 1°	
(iii) Write operation of RAM	
Access time	
(v) Firmwave	The State of the State of
<ul><li>6. (a) What EPROM shortcomings are overcome by EEROMS?</li><li>(b) Explain:</li></ul>	erina. Erina olan karangan
(i) PROM	3
(ii) EPROM	12
() LASH EEROM	
L'Apiant die operation of D-2D 7 - 11	
(b) List two disadvantages of weighted resistor DAC and one advantages of weighted resistor description of the advantages of weighted resistor description of the advantages of weighted resistor desc	ntage of
(c) Calculate the no. of comparators & resistors required for a 7 bit fl	3
converter.	ash type
8. (a) Explain successive ADC and the	4
(b) The voltage range of an A/D converter that uses 14 bit number is -6	6 to +6 V.
(1) the number of discrete levels	7
VIII VIII VUITAGE INCREMENTS to distill at	
or rec.	
9. (a) Explain the following with respect to ADC:	
C-> Treportrion	6
(ii) Quantization error (iii) Conversion time	
(b) Give the circuit set for driving and	
(c) Explain the operation of LED and concept of 7-segment display using 7447	IC. 3
(a) List two advantages and five discal	6
(b) Implement PAL for the following Boolean equations:	7
(i) $X = A\overline{B}C + \overline{A}\overline{B}\overline{C} + ABC$	. 8
(ii) $Y = \overline{A} + BC$	
(iii) $Z = \overline{A} + \overline{B} + \overline{C}$	
The Property of the Control of the C	
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Time: 3 Hours ]

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[ Max. Marks : 100

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III Semester Diploma Examination, November 2011

## E & C BOARD

# ANALOG COMMUNICATION

Instructions:		ns:	(1)			s comp			_					_		
÷.			(2)	Answ	er any	two fi	ull qu	estions	from	each	of the	rem	ainir	ng Sec	tions.	
													٠٠.	: .		
						SEC	CTIC	N-I					· . :	i de la composição de l		
1.	(a)	Fill	in the	e blank	s :								٠	÷ :	5 × 1	= 5
	. ,	(i)	Slot	tted lin	e is use	ed to m	neasu	re								
<i>:</i> :		(ii)			antenn	ia radia	ates u	niform	in all	direc	tion.					
<u>ر.</u>		(iii)	The	e distan	ce of li	ine of s	sight	is calle	d		_ •				,	
`		(iv)	The	e pre-er	nphasi	s is acl	hieve	d at the	trans	mitte	r by _			•	•	
		(v)	The	e ability	of the	receiv	ver to	receive	e weal	k sigr	ai is	called	1		_•	
																_
.:	(b)					erms w	7.r.t. r	etwork	s:						<i>:</i> -	<b>5</b> .
		(i)		tive net	work			٠.		. :						
		(ii)	Noc						٠.							
		(iii)								. :					:	
			Bra													
).		(v)	V OI	ltage so	urce						7			٠		
	•														.:	
٠.						SEC	CTIO	N – II		:						
2.	(a)	State	e and	prove	'Super	-positi	ion Ti	heorem	appli	ed ito	DC c	ircuit	s.	• :		7
	(b)			**				neorem		:						2
2.7	(c)	Defi	ne 's	eries re	sonan	ce' and	l obta	in an e	xpres	sion	for it.			200		6
	` '							:	•	, i						
3,	(a)	Defi	ne O	- factor	and e	xplain	its –	impact	on re	SDO118	e – cı	urve.				5
	(b)		-	•		-		h <b>pass</b> f		-			ressi	on for	it.	7
	(c)					•	-	& Dec				F				3
	(-)					· · · ·	<b></b>									-
4.	(a)	Men	tion :	and ex	olain di	ifferen	t tyne	s of eq	บลให้ระ	ers.						8
••	(b)			-				xplain			ef.					7
	(-)			,,,,,,,,,,				P								•

	(a)	Describe the electrical model of transmission line.	5	
	(b)	Define altenuation constant and derive an expression for it.	6	
	(c)	Define the following:  (i) Characteristics  (ii) Propagation constant	4	
i.	(a)	Sketch and explain open-circuited line.	6	
	(b)		5	
	(c)	Describe the various types of losses in transmissions lines.	4	Time:
	(-)	The second of th	.11.	Instruc
	(a)	Define the following terms w.r.t. antennas:  (i) Radiation pattern.  (ii) Radiation intensity.	5	Label and Acquisition South minimates were in the control of the c
		(iii) Antenna resistance.		1. (
		(iv) Directivity. (v) Antenna Gain.	:	,
	(L)		5	Andrew An
	(b)	Describe the Dish-antenna.  Define antenna Array. Mention different types of array's.	5	and the second s
	(c)		J	· ·
		SECTION – IV		ent disposed and the
	(a)	Explain the Inophere of earth's atmosphere.	5	single second
	(b)	Explain space wave propagation.	5	None Activities
	(c)	Explain single-stub matching.	5	process of the proces
	(0)	What is VSB? What are its advantages?	4	
•	(a)	Derive an expression for AM wave.	5	2.
	(b)		6	and the second
	(c)	Explain the working of simple modulator circuit.	U	1940000
	(4)	Paralata de la caractera de Caractera de Anti-Communistra de Caractera	0	- Antonomical Anto
0.	(a)	Explain the operation of high level AM Transmitter with block diagram.	8	3.
	(b)	Explain the operation of linear AM diode detector.	5	
	(c)	List the advantages of ratio detector.	2	Sant Garage

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_	SECTION - III	
5.	(a) Describe the electrical model of transmission line	
	(b) Define altenuation constant and derive an expression for it.	, 5
	(c) Define the following:  (i) Characteristics  (ii) Propagation constant	6 4
	(a) Sketch and explain open-circuited line.	
!	(b) Derive the relation between reflection coefficient and SWR.	6
(	(c) Describe the various types of losses in transmissions lines.	., ., ., ., ., ., <b>., 5</b> .
		4
· :	(a) Define the following terms w.r.t. antennas:  (i) Radiation pattern.  (ii) Radiation intensity.  (iii) Antenna resistance.  (iv) Directivity.  (v) Antenna Gain.  (v) Describe the Dish enterms	5
,		· · ·
(c	Define antenna Array. Mention different types of array's.	5 5
(a) (b) (c)	Explain space wave propagation.	5 5 5
(a)	What is VSB? What are its advantages?	
(b)	Derive an expression for AM wave	4
(c)	Explain the working of simple modulator circuit.	5 6
(a) (b) (c)	Explain the operation of high level AM Transmitter with block diagram.  Explain the operation of linear AM diode detector.  List the advantages of institute also as a first of the second seco	8
:	List the advantages of ratio detector.	2
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Time: 3 Hours]

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[ Max. Marks : 100

III Semester Diploma Examination, November 2011

# E & C BOARD

# ANALOG ELECTRONICS

Insti	uctio	ens: (1) Section – I is compulsory.  (2) Answer any two full questions from the remaining Sections.	
		SECTION - I	
1. V	(a)	Fill in the blanks:  (i) Percentage regulation of an local power supply is  (ii) Positive feed back is	<b>5</b> .∄
Ŋ.		(iii) circuit is used to converting a sine wave to square wave.	Λ.
		(iv) The main use of emitter follower is as ckt.  (v) A differentiator circuit is also a circuit.	
	(b)	write a note on over voltage protection chemic	5
s'	'	SECTION - II	
2.	(a)	With a neat diagram explain the working of a Bridge Rectifier.	6
	(b)	Describe the action of capacitor filter.	4
	(c)	Explain how zener maintains constant voltage across the load.	5
3.	(a)	List the types of transistor biasing. State their advantages and disadvantages.	10
	(b)	Write a note on operating point in transistor.	5
4.	(a)	Classify the amplifiers in terms of voltage gain and power gain.	5
	(b)	With a neat diagram, explain the operation of C.E. Amplifier. What its advantages?	10
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	5.	(a) Give the command	
		to the companson of different types of	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		S VI Class-R name and 110	
	(	(c) Explain the need for using heat sink.	n.
4		a) Write a note on thermal run away.	
	(1	Explain Damped and undamped oscillation	
	, (C	Explain how oscillations are produced in tank circuit.	•
7.	(a)	a meat diagram explain the operations of	in the second
8.	(a) (b)	a many orator? Explain the west.	orator.
9.	(a)	Define CMRR and explain its significance.	
	(b)	What is actions filter 2 yr	1
	(c)	What is actions filter? What are its advantages?	:
٠.	• •	Explain with a neat diagram comparator circuit.	
10.	(a) (b)	List the ideal OP-Amp characteristics.	

(b) Explain how an OP-Amp is used to obtain Inverting and non-Inverting amplifier.

10

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- SECTION-III Give the comparison of different types of power amplifiers.
  - (b) Explain the working of Class-B power amplifier with a neat diagram.
  - Explain the need for using heat sink.
- Write a note on thermal run away.
  - Explain Damped and undamped oscillations. (b)
  - Explain how oscillations are produced in tank circuit.
- (a) With a neat diagram explain the operation of phone-shift oscillator. (b) Explain the Barkausan criteria in oscillator.

# SECTION-IV

- What is a multivibrator? Explain the working of Mono-stable multivibrator. Explain the working of crystal oscillator with a neat diagram.
- Define CMRR and explain its significance.
  - (b) What is actions filter? What are its advantages?
  - (c) Explain with a neat diagram comparator circuit.
- 10. (a) List the ideal OP-Amp characteristics.
  - Explain how an OP-Amp is used to obtain Inverting and non-Inverting

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III Semester Diploma Examination, November 2011

## E & C BOARD

# DIGITAL ELECTRONICS - II

jie	ne : 3	3 Hours ] [ Max. Marks : 1	100
Cus	tructi	ions: (1) Section - I is compulsory.	
5		(2) Answer any six full questions choosing any two full questions e	aci
7-7		from Section - II, III & IV.	
Pinendala		SECTION - I	
1.	(a)		<del>-</del> 5
parine Santa		(i) If both mode control inputs [S <sub>0</sub> , S <sub>1</sub> ] to 74194 IC are low, the unit is in	
		mode.	
		(ii) Synchronous counter operate at speed than Asynchronous	
· .		counters.	
		(iii) A 2K x 4 memory can store no of hits	
è		(iv) The fastest ADC is	
		(v) type of ROM can erase one byte at a time.	
:	(b)		
	(0)	Using flip flops, explain Johnson counter.	5
		SECTION – II	
2:	(a)	Explain 4 bit bi-directional shift register using D-flip flops.	8
	(b)	For a 3 bit shift Register, Compare SISO & PIPO regarding the	3
		(i) No. of clock pulses	
~		(ii) Speed of shifting date and	
41		(iii) Hadward requirement	
	(c)	How long will it take to shift a 8 bit number into a 8 bit shift register if clock	
		frequency is 10 MHz?	4
},	(a)	With truth table, timing diagram and using J-K flip flops, explain	
	` '		12
	(b)	Why are Asynchronous counters operate at low speed?	3
	, ,		,
	(a)	Give the pin details of IC 7490.	3
-	(b)	TYTOL A DEATH OF THE STATE OF T	12
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		[TRITI AA	GE.

5.	(a)	A certain memor	y has a cap	acity of 4K	× 8.	Calculate
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the no. of address lines

data input lines

(iii) data output lines and

(iv) capacity of memory in bits & bytes

Explain the following with respect to memory:

(i) Non-volatile

(ii) Refresh

(iii) Write operation of RAM

(iv) Access time

(v) Firmwave

What EPROM shortcomings are overcome by EEROMS?

Explain: (b)

(i) PROM

(ii) EPROM

(iii) EEPROM

(iv) FLASH EEROM

Explain the operation of R-2R Ladder type DAC with diagram.

List two disadvantages of weighted resistor DAC and one advantage of R-2R DAC.

(c) Calculate the no. of comparators & resistors required for a 7 bit flash type converter.

### SECTION-IV

Explain successive ADC with diagram.

The voltage range of an A/D converter that uses 14 bit number is -6 to +6 V. Find:

(i) the number of discrete levels.....

(ii) the no. of voltage increments to divide the total range.

(iii) the resolution of ADC.

9. (a) Explain the following with respect to ADC:

(i) Resolution

(ii) Quantization error

(iii) Conversion time

Give the circuit set for driving seven segment LED display using 7447 IC.

Explain the operation of LED and concept of 7-segment display.

List two advantages and five disadvantages of LCD.

Implement PAL for the following Boolean equations:

(i)  $X = A\overline{B}C + \overline{A}\overline{B}\overline{C} + ABC$ 

(ii)  $Y = \overline{A} + BC$ 

(iii)  $Z = \overline{A} + \overline{B} + \overline{C}$ 

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ction	is:			- I is comp		•		6.1		14/w/s		
		(2)	Answer	any two ful	i questioi	ns fro	m eact	oft	ie rem	aining Se	ctions	
				SEC	TION – I	T	• .					
(a)	Fill	in th	e blanks :	SEC.	11011	•					5×1	= 5
	(i)			s used to me			<del></del> •		·	$\mathcal{F}_{\mathcal{F}}(\mathcal{G})$		_
	(ii)			tenna radiat of line of si					•		, .	
	(iv)			nasis is achi	<del>-</del> .			_			4	
(	(v)			the receive						Ī	•	
b)	Defi	ine th	ne followir	ıg terms w.ı	.t. netwo	rks :			.:			5
1	(i)	Act	tive netwo								: • •	-
	• •	No										
	(iv)	Me Bra	anch				- 4	•	<b>.</b>			
	(v)		ltage sourc	e								
			-						. 1	15 4	7.1	:
				SECT	ION – I	ī				10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
a) ;	State	and	prove 'Su	per-position			lied to	DC	circuit	<b>s.</b>	٠.	7
			_	wer transfe								2
			_	nance' and o			ssion	for it	•	$(\cdot,\cdot) \otimes \mathcal{T}.$		· 6
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a) ]				d explain it quency' for	-		-			1. 24.2		5 7

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		( )			•		. •			• •				. h		134 134		,
						SE	CTIC	<b>)N</b> – 1	Į.			: .:		 		\$ 1		
(a)	Fill	in the	e bla	ınks :								•					5 x	1 = 5
(-)	(i)				s usec	d to n	neasu	ıre -						. :			•	
*,	(ii)							nifor	n in a	ill dir	ection	on.					, .	
	(iii)	The	e dis					is call										
	(iv)							d at th		nsmit	ter t	V					4	
	(v)							recei					calle	d			_•	
(b)	Defi	ne th	ne fo	llowi	ng ter	rms w	v.r.t. 1	netwo	rks :	•								5
` '	(i)			netwo	_								·. ·		17.5		: • •	-
	(ii)	Noc	de										· :			G.	. •	
	(iii)	Me	sh							٠٠.	<i>;</i> :			:	٠.	41.		
	(iv)	Bra	anch												•	•		
•	(v)	Vol	ltage	sour	ce					٠.		٠.				4	7.4	;
													. 15		į. · ·	15		
						SEC	CTIO	N-I	[							j.		
(a)	State	and	l pro	ve 'S	uper-j	positi	ion T	heorei	n app	lied	to D	Сc	ircui	ts.	` .		٠.	7
(b)	State	• 'ma	axim	um p	ower	trans	fer' t	heorei	n.							:		2
(c)	Defi	ne 's	erie	s reso	nance	e' and	d obta	in an	expre	ssion	ı fo	r it.						6
(a)	Defi	ъе О.	. fac	etor a	nd av	nlain	ite	impac	t on t	·acna	250	Δ1	****	•/			•	5
(b)					-			h pass		-						·		7
(c)					_	-	_	n pass & De			CIIV	e al	ı exp	168	SIOH	101	Iŧ.	3
• •									<b></b>			-						-
(a)	Men	tion a	and	expla	in dif	feren	t type	es of e	guali	zers.			,	•				8
(b)				_				xplair	-		rief							7
` '		+3	, F . •	2				<b>F</b>				: ,	, ",					•

## SECTION-III

- A certain memory has a capacity of  $4K \times 8$ . Calculate
  - the no. of address lines
  - data input lines
  - (iii) data output lines and
  - (iv) capacity of memory in bits & bytes
  - (b) Explain the following with respect to memory:
    - (i) Non-volatile
    - Refresh
    - (iii) Write operation of RAM
    - (iv) Access time
    - (v) Firmwave
- What EPROM shortcomings are overcome by EEROMS?
  - (b) Explain:
    - (i) PROM
- (ii) EPROM
- (iii) EEPROM
- (iv) FLASH EEROM
- (a) Explain the operation of R-2R Ladder type DAC with diagram.
  - List two disadvantages of weighted resistor DAC and one advantage of
  - (c) Calculate the no. of comparators & resistors required for a 7 bit flash type
    - SECTION IV
- Explain successive ADC with diagram.
  - The voltage range of an A/D converter that uses 14 bit number is -6 to +6 V.
    - the number of discrete levels.
    - (ii) the no. of voltage increments to divide the total range.
    - (iii) the resolution of ADC.
- (a) Explain the following with respect to ADC:
  - (i) Resolution
  - (ii) Quantization error
  - (iii) Conversion time
  - Give the circuit set for driving seven segment LED display using 7447 IC.
  - Explain the operation of LED and concept of 7-segment display.
- List two advantages and five disadvantages of LCD.
  - Implement PAL for the following Boolean equations:
    - (i)  $X = A\overline{B}C + \overline{A}\overline{B}\overline{C} + ABC$
    - (ii)  $Y = \overline{A} + BC$
    - (iii)  $Z = \overline{A} + \overline{B} + \overline{C}$

- 5. (a) Describe the electrical model of transmission line.
  - (b) Define altenuation constant and derive an expression for it.
  - c) Define the following:
    - (i) Characteristics
    - (ii) Propagation constant
- 6. (a) Sketch and explain open-circuited line.
  - (b) Derive the relation between reflection coefficient and SWR.
  - (c) Describe the various types of losses in transmissions lines.
- 7. (a) Define the following terms w.r.t. antennas:
  - (i) Radiation pattern.
  - (ii) Radiation intensity.
  - (iii) Antenna resistance.
  - (iv) Directivity.
  - (v) Antenna Gain.
  - (b) Describe the Dish-antenna.
  - (c) Define antenna Array. Mention different types of array's.

### SECTION - IV

- 8. (a) Explain the Inophere of earth's atmosphere.
  - (b) Explain space wave propagation.
  - (c) Explain single-stub matching.
- 9. (a) What is VSB? What are its advantages?
  - (b) Derive an expression for AM wave.
  - (c) Explain the working of simple modulator circuit.
- 10. (a) Explain the operation of high level AM Transmitter with block diagram.

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- (b) Explain the operation of linear AM diode detector.
- (c) List the advantages of ratio detector.

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A	NALOG ELECTRONICS	
yi.	[ Max. I	Marks: 100
ime : 3 Hours ]		
lote: (1) Section – I  (2) Answer an	I is compulsory.  By two full questions from each of the remaining questions.	tions.
	SECTION - I	5
(a) Fill in the blank	ks:	•
	:- constration	
	idth of IC 555 monostable Multivibrator is	
(iii) Pulse-Wi	idth of IC 555 monostable with victorial sine wave to se	quare wave.
(iv)	circuit.	
(v) A integr	rator is also a circuit.	5
(h) Explain the W	vorking of Series-Voltage Regulator.	
(b) Explain the "		
•	SECTION - II	8
	explain the working of Bridge Rectifier.	7
2. (a) With a neat of	adjustable voltage regulator using LM 317.	· · · · · · · · · · · · · · · · · · ·
(b) Explain the	adjustable voltage logaritation	
		5
Describe the	e block diagram of SMPS.	5
	and demerits of UPD.	5
(b) List the me	terms voltage and line and load regulator.	
(c) Define the	terms voltage and me	
· 1		10
(a) Evolain the	e self-bias circuit to set the operating point.	
4. (a) Explain un	voltage amplifier with power amplifier.	
(b) Compare	AOTIMDA	

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- Explain the working class B power-amplifier cut with a neat diagram.
  - Explain the need of Heat-Sink to power amplifier.
- Explain the operation common Emitter Amplifier with a neat diagram.
  - (b) Explain the working of combination biased diode clipper.
- Explain the block diagram of LM 741 Op-Amp.
  - Define the following w.r.t. Op-amplifier.
    - (i) Slew rate
    - (ii) CMRR
    - (iii) Voltage gain

## SECTION - IV

- Explain the virtual ground concept in Op-Amplifier.
  - List the ideal characteristics of Op-Amp.
  - List the advantages of active filters.
- (a) Explain how a astable multivibrator can be constructed using Op-Amp.
  - Explain inverting amplifier with a neat diagram.
  - Explain the differentiator circuit using Op-Amp.
- 10. (a) Explain the working of Wein-bridge oscillator using Op-Amp.
  - (b) List the classification of oscillator.
  - (c) Describe the block diagram of frequency multiplexer using PLL.

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- 5. (a) Explain the working class B power-amplifier cut with a neat diagram.
  - (b) Explain the need of Heat-Sink to power amplifier.
- 6. (a) Explain the operation common Emitter Amplifier with a neat diagram.
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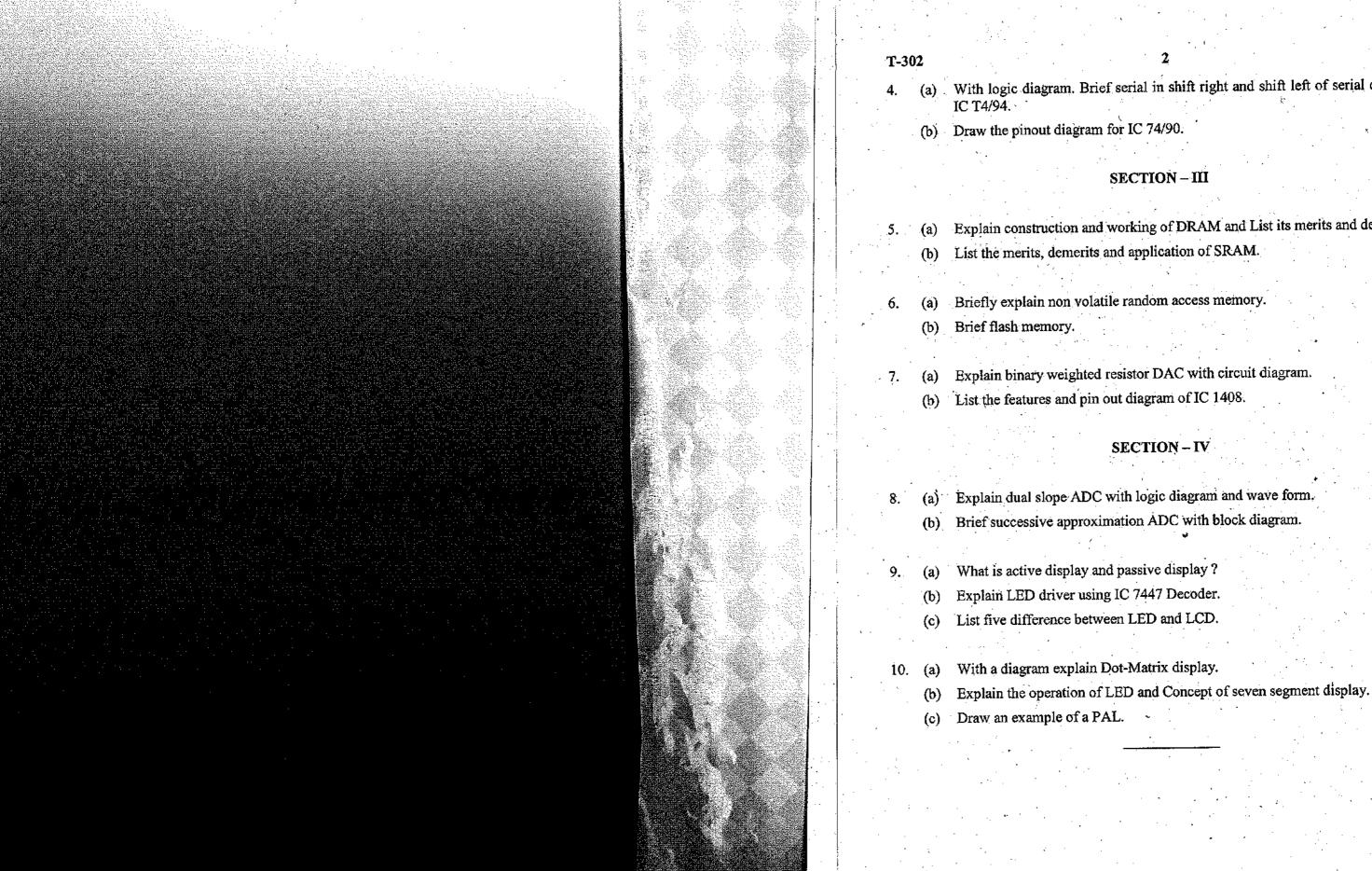
III Semester Diploma Examination, May 2011

# ELECTRONICS & COMMUNICATION ENGG. BOARD

# DIGITAL ELECTRONICS – II

: .			
Tin	ne : 3	3 Hours ] [Max. Marks: 100	ļ
Not	e: (	1) Section – I is compulsory.	
	(	<ol> <li>Answer six full questions choosing any two full questions from each Sections - II, III &amp; IV.</li> </ol>	<u>.</u>
		SECTION - I	
· • .			
-1.	(a)	Fill in the blanks with appropriate word / words:	
		(i) Natural count of 4 bit counter is	
·		(ii) Bidirectional counter is counter.	
		(iii) The output of a Johnson counter are always waves.	
		(iv) A ring counter resembles	
		(v) Easing EPROM can be done by using light.	
`.;·	(b)	Brief different kinds of classification of counters.	
		SECTION – II	
2.	(a)	Explain the working of four bit ripple binary counter with logic diagram, truth table.	
: · .	(b)	List merits and demerits of asynchronous counter.  5	
3.	(a)	Explain the working of two bit synchronous counter with logic diagram truth table and timing diagram.	
•	(b)	Draw the logical diagram of four bit serial in serial out shift register.	

List three application of shift register.



(a) With logic diagram. Brief serial in shift right and shift left of serial data using IC T4/94. Explain construction and working of DRAM and List its merits and demerits. Briefly explain non volatile random access memory. Explain binary weighted resistor DAC with circuit diagram. (a) Explain dual slope ADC with logic diagram and wave form. (b) Brief successive approximation ADC with block diagram.

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4.	(a)	With logic diagram. Brief serial in shift right and shift left of serial data using IC T4/94.	10	Register Number
	(b)	Draw the pinout diagram for IC 74/90.	5	III Semester Diploma Examination, May 2011
		SECTION – III		ELECTRONICS & COMMUNICATION ENGG. BOARD
	:			ANALOG COMMUNICATION
<b>5.</b> .	(a)	Explain construction and working of DRAM and List its merits and demerits.	10	
	(b)	List the merits, demerits and application of SRAM.	5 Tim	e: 3 Hours ] [Max, Marks: 100
, `			1.	(1) Section - Lis compulsory.
6.	(a)	Briefly explain non volatile random access memory.	10	(2) Answer any other six full questions choosing any two questions from each
	(b)	Brief flash memory.	5	Sections - II, III & IV.
	. <i>.</i>		1.0	SECTION - I
7.	(a)	Explain untary weighted resistor 2012	10 1.	(a) Fill in the blanks:
	(b)	List the features and pin out diagram of IC 1408.	3	(i) The current during parallel resonance is
٠,		CDOWN W	` . ]	(ii) If modulation index is greater than 100 then it is called modulation
		SECTION – IV		(iii) Reflection is absent under condition.
		Explain dual slope ADC with logic diagram and wave form.	10	(iv) In a filter $R_0 = $
8.	(a)	Brief successive approximation ADC with block diagram.	5	(v) SWR in terms of K =
-	(b)	Bitel successive approximation 715 6 with 5257		(b) Explain variation diode method of generating FM.
9	(a)	What is active display and passive display?	3	
7	(b)	Explain LED driver using IC 7447 Decoder.	7	SECTION – II  (a) State and explain superposition theorem with circuits.
	(c)	List five difference between LED and LCD.	5 2.	20 mH is connected in series and this combination is
٠.				connected in parallel with a capacitor of 30 micro farad. Find resonating
10	(a)	With a diagram explain Dot-Matrix display.	5	frequency, current and dynamic impedance.
•	(b)	Explain the operation of LED and Concept of seven segment display.	7	(c) Explain Q factor and Band width of a resonant circuit.
	(c)	Draw an example of a PAL.	3   3.	(a) Write the attenuation v/s frequency characteristics graph of the following filter.
			J.	(i) LPF
				(ii) HPF
, .				(iii) BPF
				(iv) BSF
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			(b) Design a LPF, pie type for a cut off frequency of 10 kHz, with characteristic impedence of 1 k $\Omega$ .	stic
1			(c) Design a 'T' Type attenuates have	
  - 		;	(c) Design a 'T' Type attenuator having attenuation of 40 db and characteris impedence of 300 Ω.	stic.
Ì ! !	4 ,	4.	(a) Discuss the need for AGC.	
		ı	(b) Describe essential elements of communication	
		(	To both modulation index. Show with worse control of the control o	
	-		different values of m.	or
	5	5. (	SECTION - III	
	,	· (	a) Explain power relationship in AM, wave.	
		· • ()	-1 Condition of DOD () Ver UNB	;
		((	Explain the frequency response of pre-emphasis and de-emplasis circuits.	
	6.	. (a		,
		(b	Write the block diagram of high level and low level modulation transmitter.  With neat curve explain selectivity.	5
		(c	Define Image frequency Evaluity and Your	5
			Define Image frequency. Explain why LOF is made greater than incoming signal frequency to obtain derived incoming frequency.	g <b>5</b>
	.7.	(a)	Explain the working of AM Linear diode detector circuit.	-
٠		(b)	Explain working of FM receiver with block diagram.	5
		(c)	Explain the electrical characteristics of Transmission lines.	5
			characteristics of Transmission lines.	5
		(.)	SECTION - IV	
	8.	(a)	Draw & explain the electrical model of	
		(b)	The way vildidilligibility impadance in I	5
		(-)	line. Given $R = 50 \Omega$ , $L = 0.6$ mH. $C = 0.04$ $\mu$ F. $G = 1\mu$ U, $f = 1000$ Hz.	_
		(c)	Define reflection co-efficient and SWR.	5
	9.	· (a)		5
	<b>₹•</b>	(a) (b)	With neat diagram explain single stub matching used in Transmission lines.	
		(c)	Explain vertical, horizontal and elliptical polarization.  Write short note on Issued and elliptical polarization.	5
		(6)	short note on ionospheric propagation	5
	10.	(a)		5
	10.	(a) (b)	Define antenna array mention the types of array and their application.	_
		(c)	1 PLONGERINI	6 ·
		(~)	Write a note on isotropic radiator.	5
			<u> </u>	7
				3