Reg No.:

Max. Marks: 50

2.

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Name:

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSIT

Sixth Semester B.Tech Degree Supplementary Examination May 2023 (2013)

Course Code: EET308

Course name: COMPREHENSIVE COURSE WORK

Duration: 1Hour

cheme

(1) Each question carries one mark. No negative marks for wrong answers Instructions: (2) Total number of questions: 50 (3) All questions are to be answered. Each question will be followed by 4 possible answers of which only ONE is correct. (4) If more than one option is chosen, it will not be considered for valuation.

What is the transfer impedance of a two port network? 1.

1.2

	a)	The ratio of input voltage to output current	b)	The ratio of output voltage to input current	c)	The ratio of input impedance to output impedance	d)	The ratio of output impedance to input impedance
	For imp	edance and output	, Z11 impe	= 20 Ω, Z12 = 30 Ω, Z2 edance?	21 =	15 Ω, and Z22 = 25 Ω	D. Wh	nat are the input
	a)	Zin = 2 Ω and Zout = 10 Ω	b)	Zin = 10 Ω and Zout = 2 Ω	c)	Zin = 5 Ω and Zout = 15 Ω	d)	Zin = 15 Ω and Zout = 5 Ω
	For	a two-port network, Zin	= 50	Ω, Zout = 100 Ω, Av = ξ	ō, and	d Ai = 0.5. Find the Z-	oaram	eter matrix
	a)	[-25 -250] [] [- 62.5 125]		[25 -250] [] [-62.5 -125]	c)		d)	[-25 250] [] [62.5 125]
¥ ⁴	Wha	at is the relationship	bet	ween Z-parameters a	nd iı	mpedance in a two	-port	network?
	a)	Z11 = input impedance, Z22 = Output impedance	b)	Z11 = output impedance, Z22 =	c)	Z12 = input impedance, Z21 =	d)	Z12 = output impedance, Z21 =

output impedance	input impedance	output impedance	input impedance

What is the equivalent circuit representation of a two-port network using T-parameters? 5.

a) T = [A B; C D]b) T = [A - B; C - D]c) T = [D - B; - C A]d) T = [D B; -C A] A network is said to be symmetrical if: a) Z11 = Z22 b) Y11 = Y22 c) H11 = H22 d) All of the above

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	7.	The	e transfer function o	fas	ystem has two poles	at s	= -2 and s = -5. What	at is th	ne order of the
		sys	stem?	*					ic order of the
		a)	First order	b)	Second order	c)	Third order	d)	Fourth order
	8.	Wł	nich of the following	state	ements is true about	the	pole of a transfer fu	Inctio	in?
		a)	It is the value of s for which the denominator of the transfer function becomes zero	b)	It is the value of s for which the numerator of the transfer function becomes zero	c)	It is the value of s for which the transfer function becomes infinite	d)	It is the value of s for which the transfer function becomes zero
	9.	Wh	at is the name of the	e par	rameter that is used t	to de	scribe a series-con	necte	d network?
		a)	Impedance	b)	Admittance	c)	Transmission	d)	Hybrid
	10.	How	w do you obtain the	equi	valent transmission	baraı	meter of a cascade-	conn	ected network?
		a)	By adding their individual transmission parameters	b)	By subtracting their individual transmission parameters	c)	By multiplying their individual transmission parameters	d)	By dividing their individual transmission parameters
	11	The	binary number 10101	is ec	quivalent to decimal nu	umbe	r		
		a)	19	b)	12	c)	27	d)	21
	12	The	inputs of a NAND gate	e are	connected together. T	he re	esulting circuit is		
		a)	OR gate	b)	AND gate	c)	NOT gate	d)	None of the above
	13	The	NAND gate is AND gat	te fol	lowed by				
3		a)	NOT gate	b)	OR gate	c)	AND gate	d)	None of the above
	14	In Bo	oolean algebra, the ba	ır sigi	n (-) indicates				
			OR operation				NOT operation	d)	None of the above
	15	The	resolution of an n bit	DAC	with a maximum input	of 5	V is 5 mV. The value	of n is	1
	*	a)	8	b)		c)	10	d)	11•
	16				nput is high and the otl	ner tl	nree are low. The out	put is	
		a)	Low	b)	High	c)	Alternately high and low	d)	may be high or low depending on relative magnitude of inputs
	17	In 2's	s complement represe	entati	ion the number 11100	101 r	epresents the decim	al nun	nber
		a)	+37	b)		c)	+27	d)	-27
	18		number of digits in oct	al sy	stem is				
		a)	8	b)	7	c)	9	d)	10

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20 1's complement of 11100110 is a) 00011001 b) 10000001 c) 0001101 d) 00000000 21 Which losses can be identified from Swinburne's test? a) No-load core loss b) Windage and friction loss c) No-load and windage and friction loss 22 A starter is required for a 220-V shunt motor. The maximum allowable current is 55 A and the min current is about 35 A. The armature resistance of the motor is 0.4 Ω. What will be the number of sections of starter resistance required? a) 5 b) 4 c) 6 d) 8 23 The speed of a motor falls from 1200 rpm at no-load to 1050 rpm at rated load. The speed regulat the motor is a) 12.36% b) 14.28% c) 16.77% d) 18.84% 24 The efficiency of the DC motor at maximum power will be a) 100% b) Around 90% c) Anywhere d) Less than 50 between 75% and 90% 25 Armature reaction AT in a dc machine a) a) are in direct on as the main poles go" with the main pole axis direction as the main poles go" with the main axis which is dependent 26 A differentially compounded motor under high- over-load conditions will behave like a/a								
20 1's complement of 11100110 is a) 00011001 b) 10000001 c) 00011010 d) 000000000000000000000000000000000000	19	An AND gate has two inp	outs A	and B and one inhibit	inpu	t 3, Output is 1 if		
 a) 00011001 b) 10000001 c) 00011010 d) 00000000 21 Which losses can be identified from Swinburne's test? a) No-load core loss b) Windage and friction loss c) No-load and d) Stray load lo windage and friction loss 22 A starter is required for a 220-V shunt motor. The maximum allowable current is 55 A and the min current is about 35 A. The armature resistance of the motor is 0.4 Ω. What will be the number of sections of starter resistance required? a) 5 b) 4 c) 6 d) 8 23 The speed of a motor falls from 1200 rpm at no-load to 1050 rpm at rated load. The speed regulat the motor is a) 12.36% b) 14.28% c) 16.77% d) 18.84% 24 The efficiency of the DC motor at maximum power will be a) 100% b) Around 90% c) Anywhere d) Less than 50% and 90% 25 Armature reaction AT in a dc machine a) are in the same b) are in direct opposition to the main poles a) are in the same b) are in direct opposition to the main poles b) Series motor c) Cumulatively d) Synchronous motor motor 26 A differentially compounded motor under high- over-load conditions will behave like a/an a) 1000 AT peak, b) 500 AT peak, c) 1000 AT peak, d) 500 AT peak, triangular in way shape shape shape shape shape shape shape a) Tx vP b) T2 x P3 c) Tx P d) T is independ of P 29 A 200 V, 2000 rpm, 10A, separately excited de motor has an armature resistance of 2002. Rated de voltage is applied to both the armature and field winding of the motor. If the armature draws 5 A first the armature draws 5 A fir the source, the torgue develop		a) A = 1, B = 1, S = 1	b)	[*] A = 1, B = 1, S = 0	c)	A = 1, B = 0, S = 1	d)	A = 1, B = 0, S = 0
 21 Which losses can be identified from Swinburne's test? a) No-load core loss b) Windage and friction loss 22 A starter is required for a 220-V shunt motor. The maximum allowable current is 55 A and the min current is about 35 A. The armature resistance of the motor is 0.4 Ω. What will be the number of sections of starter resistance required? a) 5 b) 4 c) 6 d) 8 23 The speed of a motor falls from 1200 rpm at no-load to 1050 rpm at rated load. The speed regulat the motor is a) 12.36% b) 14.28% c) 16.77% d) 18.84% 24 The efficiency of the DC motor at maximum power will be a) 100% b) Around 90% c) Anywhere d) Less than 50 between 75% and 90% 25 Armature reaction AT in a dc machine a) are in the same b) are in direct opposition to the main poles with the main axis which is dependent main poles b) Son AT peak, triangular in wave shape a) 1000 AT peak, b) 500 AT peak, c) 1000 AT peak, d) 500 AT peak, triangular in wave shape a) 1000 AT peak, b) 500 AT peak, c) 1000 AT peak, d) 500 AT peak, triangular in wave shape a) 1000 AT peak, b) 500 AT peak, c) 1000 AT peak, d) 500 AT peak, d) Tis independent constant terminal voltage, is nusoidal in wave shape a) 1000 AT peak, b) 500 AT peak, c) 1000 AT peak, d) 500 AT peak, d) Tis independent of a sub and the armature existing all on the armature with 720 conductors draws 50 A from the mains. Its armature react per pole is a) 1000 AT peak, b) 500 AT peak, c) 1000 AT peak, d) 500 AT peak, d) 1000 AT peak, d) 200 AT peak, d) 1000 AT peak, d) 1000 AT peak, d) 1000 AT peak, d) 500 AT peak, d) 1000 AT peak,	20	1's complement of 1110	0110	is				
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 27 6-pole lap-wound dc armature with 720 conductors draws 50 A from the mains. Its armature react per pole is a) 1000 AT peak, b) 500 AT peak, c) 1000 AT peak, d) 500 AT peak, c) 1000 AT peak, d) 500 AT peak, d) 500 AT peak, c) 1000 AT peak, d) 100 per terminal voltage, is related to its output power (P) as a) Tx vP b) T2 x P3 c) Tx P d) T is independ of P 29 A 200 V, 2000 rpm, 10A, separately excited de motor has an armature resistance of 2002. Rated de voltage is applied to both the armature and field winding of the motor. If the armature draws 5 A fit the source, the torque developed by the motor is a) 4.30 Nm b) 4.77 Nm c) 0.45 Nm d) 0.50 Nm 30 An electric motor with "constant output power" will have a torque-speed characteristic in the form a) straight line b) straight line parallel c) circle about the d) rectangular 	26	A differentially compound	ded n	notor under high- over-	load	conditions will beha	ve like	aependent e a/an
 6-pole lap-wound dc armature with 720 conductors draws 50 A from the mains. Its armature react per pole is a) 1000 AT peak, b) 500 AT peak, c) 1000 AT peak, d) 500 AT peak, triangular in wave sinusoidal in wave sinusoidal in triangular in wave shape 28 Neglecting all losses, the developed torque (T) of a dc separately excited motor, operating under constant terminal voltage, is related to its output power (P) as a) Tx vP b) T2 x P3 c) Tx P d) T is independ of P 29 A 200 V, 2000 rpm, 10A, separately excited de motor has an armature resistance of 2002. Rated de voltage is applied to both the armature and field winding of the motor. If the armature draws 5 A from the source, the torque developed by the motor is a) 4.30 Nm b) 4.77 Nm c) 0.45 Nm d) 0.50 Nm 30 An electric motor with "constant output power" will have a torque-speed characteristic in the form a) straight line b) straight line parallel c) circle about the d) rectangular 		a) Shunt motor	b)	Series motor	c)		d)	Synchronous
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 A 200 V, 2000 rpm, 10A, separately excited de motor has an armature resistance of 2002. Rated de voltage is applied to both the armature and field winding of the motor. If the armature draws 5 A fit the source, the torque developed by the motor is a) 4.30 Nm b) 4.77 Nm c) 0.45 Nm d) 0.50 Nm An electric motor with "constant output power" will have a torque-speed characteristic in the form a) straight line b) straight line parallel c) circle about the d) rectangular 	28	Neglecting all losses, the constant terminal voltage	e, is re	oped torque (T) of a do elated to its output pow	: sepa ver (P	arately excited motor	r, ope	rating under
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 An electric motor with "constant output power" will have a torque-speed characteristic in the form a) straight line b) straight line parallel c) circle about the d) rectangular 	29	voltage is applied to both the source, the torque de	the a velop	rmature and field winc bed by the motor is	ling c	of the motor. If the a	rmatu	re draws 5 A from
a) straight line b) straight line parallel c) circle about the d) rectangular	30	,			•			
		a) straight line		straight line parallel		circle about the		rectangular

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31	lf th	e length of the cross a	rm is	increased, the string e	fficie	ency		
	a)	becomes zero	b) •	increases	c)	remains unaffected	d)	decreases
32	The	minimum phase-neut	ral vo	oltage at which corona	start	s to occur in power t	ransm	nission lines is called
ar en Sen graff	a)	Knee voltage	b)	Visual critical voltage	c)	Critical disruptive voltage	d)	Flash voltage
33	The	corona effect can be r	ninir	nized by increasing				
	a)	The length of conduct	b)	Spacing between conductors	c)	Diameter of conductors	d)	Both spacing between conductors and diameter of the conductors
34				; if working tension is 4	000	g, resultant force pe	r met	er length of
	cono a)	ductor is 2 and span le 10.2		is 320 meter? 6.4	c)	3.2	d)	9.6
35	-			hich of the following is		major consideration?		
	a)	Voltage drop	b)	Current carrying capacity	c)	Frequency	d)	KVA system
36	Whi	ch of the following cha	aract	eristics should the line	supp	orts for transmissior	i line j	possess?
	a)	Low-cost	b)	High mechanical strength	c)	Longer life	d)	All of the above
37	The	feeder is designed ma	inly	from the point of view	of			
	a)	Its current carrying capacity	b)	Voltage drop in it	c)	Operating voltage	d)	Operating frequency
38	Iden	tify the correct staten	nent	for EHVAC transmission	n on	comparison to HVDC	trans	mission system?
Ŷ	a)	There is greater power per conductor and simpler line construction	b)	Pollution affects less and less frequency clearing of insulators is required	c)	A smaller amount of right of way and narrower tower are required	d)	Corona loss, radio interference and audible emissions are less
39	lf th	e effect of earth is tak	en in	to account, then the ca	apaci	tance of line to grou	nd:	
40	a) The	Remains unchanged distribution feeding sy		decreases n of ring main system h	c) as	Increases	d)	Becomes infinite
	a)	4 feeders		2 feeders	c)	1 feeder	d)	Can't be predicted
41	·	astruct the inverse sys	stem	of $y(t) = 2x(t)$				
	a)	y(t) = 0.5x(t)		y(t) = 2x(t)	c)	y(2t) = x(t)	d)	y(t) = x(2t)

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42	y[n] = x[-n]. The system is a) Time invariant t	b) Causal c)	Non causal
		, -,	tivon causar
43	A system is said to be shift in	nvariant only if	a share -
	a) a shift in the input <u>b</u> signal also results in the corresponding shift in the output	b) a shift in the input c) signal does not exhibit the corresponding shift in the output	a shifting level does not vary in an input as well as output
44	Under which conditions doe	es an initially relaxed system b	pecome unstable ?
	a) only if bounded b input generates unbounded output	 only if bounded c) input generates bounded output 	only if d) only if unbounded unbounded input input generates generates bounded output unbounded output
45		H(z) = $\frac{z(3z-4)}{(z-0.4)(z-4)}$	
	What about the stability of s		,
	a) system is stable b) unstable c)	stable at 0.4 d) Can't be predicted
46	When is the system said to system transfer function?	be causal as well as stable in	n accordance to pole/zero of ROC specified by
	a) Only if all the b poles of system transfer function lie in left-half of S-plane	 Only if all the c) poles of system transfer function lie in right-half of S-plane 	Only if all the d) None of the poles of system above transfer function lie at the centre of S- plane
47	y[t]= ∫x[t],t ranges from 0 to	o t. Is the system a memoryl	•
	a) Yes b) No c)	Both memoryless d) None of the above and having memory
48	Comment on the linearity o	of y[n] = n*x[n].	
	a) Linear b) Only additive c)	Not scalable d) Non-linear
49	Find the value of h[n]*d[n-:	1], d[n] being the delta funct	tion
) h[n] c)	h[n-1] d) h[n+1]
50	Which of the following is co	prrect regarding to impulse s	ignal?
×	a) $x[n]\delta[n] = x[0]\delta[n]$ b) $x[n]\delta[n] = \delta[n]$ c)	$x[n]\delta[n] = x[n]$ d) $x[n]\delta[n] = x[0]$

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