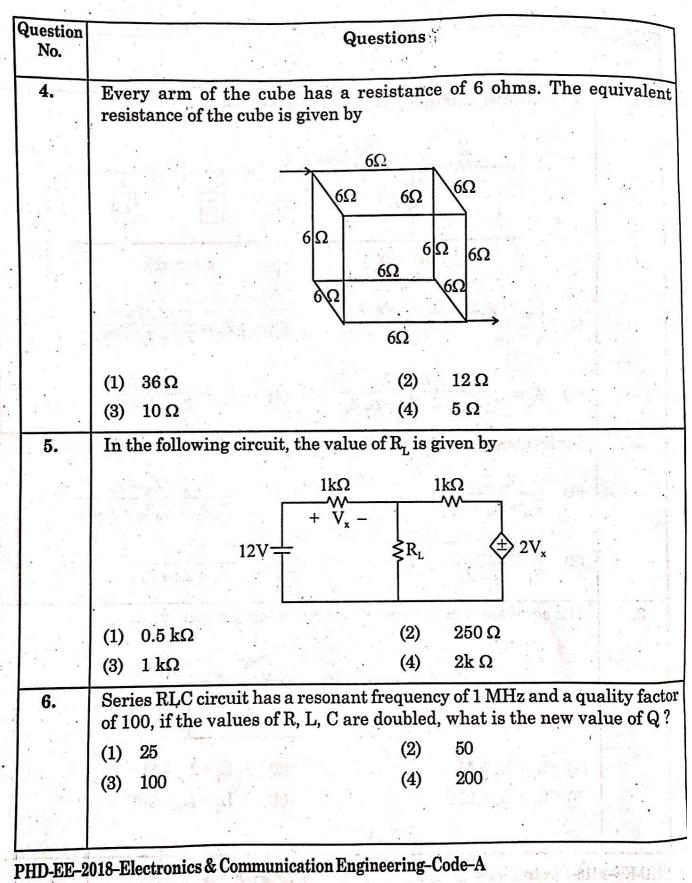
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	(M.Phil/Ph.D/URS_EE_2018)
Code	Electronics & Communication Sr. No. 10000
Time:1¼ Hours	Max. Marks : 100 Total Questions : 100
Roll No	(in figure) (in words)
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Question No.	Questions
1.	T to $\pi$ transformation gives the value of $Z_c \Rightarrow$
	$Z_2$
-	$\sim Z_1 \qquad Z_2 \qquad \sim Z_4 \qquad \qquad$
	${} \xi Z_3 \qquad \Leftrightarrow \qquad \overline{Z}_{B} \qquad \overline{Z}_{C}$
19.10	T network $\pi$ network
	$\begin{pmatrix} - & Z_1, Z_2 + Z_2, Z_2 + Z_3, Z_2 \end{pmatrix}$ Z. Z.
1.1.5	(1) $\left(Z_{c} = \frac{Z_{1}Z_{2} + Z_{2}Z_{3} + Z_{1}Z_{3}}{Z_{1}}\right)$ (2) $Z_{c} = \frac{Z_{A}Z_{B}}{Z_{A} + Z_{B} + Z_{c}}$
	7 . 7 . 7 . 7 . 7 . 7 . 7
	(3) $Z_{c} = \frac{Z_{A} + Z_{B} + Z_{C}}{Z_{A} Z_{B} + Z_{A} Z_{C} + Z_{B} Z_{C}}$ (4) $Z_{c} = \frac{Z_{1} Z_{2} Z_{3}}{Z_{1} + Z_{2} + Z_{3}}$
2.	In the above question $\pi$ to T conversion gives the value of $Z_1$
	(1) $\frac{Z_B Z_C}{Z_A + Z_B + Z_C}$ (2) $\frac{Z_A + Z_B + Z_C}{Z_A + Z_B + Z_C}$
	(1) $\frac{Z_B Z_C}{Z_A + Z_B + Z_C}$ (2) $\frac{Z_A + Z_B + Z_C}{Z_A Z_B + Z_B Z_C + Z_C Z_A}$
	$Z_{A}Z_{B}$
	(3) $\frac{Z_1 + Z_2}{Z_1 + Z_2 + Z_3}$ (4) $\frac{Z_A Z_B}{Z_A + Z_B + Z_C}$
3.	The equivalent inductance of the following is given by
	~M~
	1_•m
14 ap 8	2
	(1) $L_1 + L_2 + M$ (2) $L_1 + L_2 - M$
	(3) $L_1 + L_2 + 2M$ (4) $L_1 + L_2 - 2M$

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(1)

Code-A



(2)

Question No.	Questions
7.	In a series RLC circuit R = $2k\Omega$ , L = 1H, C = $\frac{1}{400}$ $\mu$ F, The resonant frequency is
	(1) $2 \times 10^4 \mathrm{Hz}$ (2) $\frac{10^4}{\pi} \mathrm{Hz}$
	(3) 10 kHz (4) 20π kHz
8.	For a 2-port network to be reciprocal, following is true
	(1) $Z_{11} = Z_{22}$ and $Y_{11} = Y_{22}$ (2) $Y_{21} = Y_{12} \& h_{21} = -h_{12}$
	(3) $AD - BC = 0$ (4) $AB - CD = 0$
9.	The network shown behaves like a
	$2^{\circ}$
	(1) High pass filter (2) LPF
1.00-41	(3) BPF (4) Band stop filter
10.	If the scattering matrix [S] of a two port network is $[S] = \begin{bmatrix} 0.2 \angle 0^{\circ} & 0.9 \angle 90^{\circ} \\ 0.9 \angle 90^{\circ} & 0.1 \angle 90^{\circ} \end{bmatrix}$ then the network is
	(1) lossless and reciprocal (2) lossless but non reciprocal
	(3) lossy but reciprocal (4) neither lossy nor reciprocal
11.	Current density in a semiconductor material is given by
	(1) $J = n \mu_n q/E$ (2) $J = p \mu p q/E$ (3) $J = (n \mu_n + p \mu p) \cdot E$ (4) $J = (n \mu_n + p \mu p) / E$
	(3) $J = (n \mu_n + p \mu p) \cdot E$ (4) $J = (n \mu_n + p \mu p) / E$

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Question No.	Questions
12.	Fermi Level for a P-type semiconductor is given by
	(1) $E_F = E_V - KT \ln \frac{N_A}{N_V}$ (2) $E_F = -E_V + KT \ln \frac{N_A}{N_V}$
	(3) $E_F = E_V - K_T \ln \frac{N_A}{N_V}$ (4) $E_F = E_C - K_T \ln \frac{N_C}{N_D}$
13.	For conductors the value of Hall coefficient is given by
8	(1) $R_{\rm H} = \frac{1}{nq}$ (2) $R_{\rm H} = \frac{nq}{\mu_{\rm n}}$
	(3) $R_{H} = \frac{\mu_{p}}{nq}$ (4) $R_{H} = \frac{n\mu_{n} + p\mu_{p}}{q}$
14.	The band gap energy of Ge at 300 $\overset{\circ}{\mathrm{K}}$ is given by
	(1) $E_g = 0.785 \text{ eV}$ (3) $E_g = 0.7181 \text{ eV}$ (2) $E_g = 1.121 \text{ eV}$ (4) $E_g = 1.212 \text{ eV}$
15.	Under low level injection assumption, the injected minority current for an extrinsic semiconductor is essentially the
	<ol> <li>Diffusion current</li> <li>Recombination current</li> <li>(2) Drift current</li> </ol>
16.	Ga As has band gap energy of the order of
	(1) $1.43 \text{ eV}$ (3) $2.4 \text{ eV}$ (2) $0.7 \text{ eV}$ (4)
17.	(4) 1.6 eV Typical value of impurity concentration in a tunnel diode is (1) 1 part in 10 <sup>8</sup> parts
PHD FF o	<ul> <li>(1) 1 part in 10<sup>8</sup> parts</li> <li>(2) 1 part in 10<sup>3</sup> parts</li> <li>(3) 1 PPM</li> <li>(4) 1 part in 10 parts</li> <li>018-Electronics &amp; Communication Engine</li> </ul>

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Question No.	Que	stions	
18.	In the given circuit, the value of co	llector	current is :
	$\alpha = 0.9$	5	•-•+4.5 VA
	¥ ¥		$R_{\rm L} = 5k\Omega$
1	Ţ <u></u>		- 6V
i lanar tari		navig -	
	(1) 0.8 mA	(2)	0.9 mA
	(3) 0.947 mA	(4)	0.847 A
19.	MOSFET can be used as a		
	(1) Current controlled capacitor	(2)	Voltage controlled capacitor
er " - carbod - to	(3) Current controlled inductor	(4)	Voltage controlled inductor
20.	The effective channel length of a M the increase in	OSFE	T in saturation decreases with
•	(1) Gate voltage	(2)	Drain voltage
	(3) Source voltage	(4)	Body voltage
21.	For a common base BJT, having I = mV is applied between the base an impedance is given by	= 5 mA nd the	and $\alpha = 0.97$ an AC signal of 5 emitter terminals. The input
L. F	(1) 5.2 Ω	(2)	6Ω
	(3) 4.9 Ω	(4)	6.7 Ω
22.	The typical value of h, for common b	ase Ba	JT is
	(1) 50-250	(2)	- 50
	(3) -1	(4)	25

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#### **Uode-A**

Question No.	Questions
23.	If the source resistance, the output resistance of emitter follower using the simplified hybrid model would be
	(1) $\frac{h_{ie} + R_s}{1 + h_{fe}}$ (2) $\frac{h_{ie} + R_s}{h_{fe}}$
	(3) $R_s + \frac{1}{h_{oe}}$ (4) $\frac{1}{h_{oe}}$
24.	The ripple factor is given by
	(1) $\sqrt{\left(\frac{I_{ms}}{I_{dc}}\right)^2 - 1}$ (2) $\left(1 - \sqrt{\frac{I_{ms}}{I_d}}\right)^2$
(1) <b>80</b> 7 <sup>6</sup> (	(3) $\frac{I_{ms}}{I_{dc}}$ (4) $\frac{I_{dc}}{I_{ms}}$
25.	Following circuits is given by :
	$ \bigcirc \qquad $
1 - 2 *	<ol> <li>Bridge rectifier</li> <li>Ring modulator</li> <li>Frequency discriminator</li> <li>Voltage doubler.</li> </ol>
26.	For a transistor amplifier to be inherently stable against thermal ru away, the condition is
	(1) $V_{CE} > \frac{V_{CC}}{2}$ (2) $V_{CE} < \frac{V_{CC}}{2}$
2.4	(3) $V_{CE} = \frac{V_{CC}}{2}$ (4) $V_{CE} = 1.5 V_{CC}$

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f.

Question No.	Questions
27.	For the circuit given the value of V <sub>out</sub> is :
e *	
	ار عام
	<b>ξ</b> 3 kΩ
	$r = \frac{1}{2 k \Omega}$
	╤└┯┈┉
н н Н н	$V_{out}$ – 10V
	$(V_{BE} = 0.7V)$
	(1) $+5.14$ V (2) $-6.14$ V
	(3) $-5.14$ V (4) $+6.14$ V
28.	The gain of a transistor amplifier falls at high frequency due to the
	(1) internal capacitance of the device
	(2) coupling capacitor at the input
	(3) skin effect
	(4) coupling capacitor at the output
29.	The effect of negative feedback on Noise is
	$\mathbf{N}$
	(1) $\frac{N}{1-\beta A}$ (2) N (1 - $\beta A$ )
	(3) N (1 + $\beta$ A) (4) $\frac{N}{1+\beta A}$
and a second	an ann ann a' ann ann ann ann ann ann an
30.	Cross-over distortion behaviour is a characteristics of
	(1) Class – A output stage (2) Class – B output stage
	(3) Class – AB output stage (4) Common base output stage

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81.	The octal equivalent of Hexadecimal number 2E.C1 would be				
	(1) 212.602	(2)	56.602		
	(3) 56.623	(4)	65.302		
32.	The complement of complement of	$\overline{A}B + A$	B will be		
	(1) $AB + \overline{A}\overline{B}$	(2)	ĀΒ		
en e	$(3)  \overline{A}B + A\overline{B}$	(4)	$\overline{A}B.(\overline{A}+B)$		
33.	What is minimum number of 2-inpu a 2-input OR gate	t NANI	O gates required to complement		
	(1) 2	(2)	4 4 4 1 4 1 4 1		
•	(3) 3	(4)	<b>5</b>		
34.	A basic CMOS two input NAND ga	te requi	ires		
	(1) Two N-channel MOSFETs	• (14)			
	(2) Two N-Channel & two P-chann	nel MOS	SFETs		
	(3) Two P-Channel MOSFETs				
	(4) One N-Channel and one P-cha	nnel M	OSFET		
35.	IC 7402 is a $-2$ input	124			
50.			EX OD		
ð <b>ð.</b>	(1) NAND gate	(2)	EX-OR gate		
<b>35.</b>	<ul><li>(1) NAND gate</li><li>(3) NOR gate</li></ul>	(2) (4)	OR Gate		
		(4)	OR Gate		
134.,	(3) NOR gate	(4) K withou	OR Gate ut		
134.,	<ul><li>(3) NOR gate</li><li>A decoder is nothing but a DEMUX</li></ul>	(4) (4) (2)	OR Gate ut data input		
36.	<ul> <li>(3) NOR gate</li> <li>A decoder is nothing but a DEMUX</li> <li>(1) control inputs</li> </ul>	(4) K without (2) (4)	OR Gate ut data input clock		
134.,	<ul> <li>(3) NOR gate</li> <li>A decoder is nothing but a DEMUX</li> <li>(1) control inputs</li> <li>(3) enable input</li> <li>The size of a PROM needed to imple</li> </ul>	(4) (2) (4) ement a	OR Gate ut data input clock		

uestion No.	Que	stions	
38.	Which one of following is not a sync	hronou	s input with reference to a flip
1.24	flop (1) J input in JK flip flop	(2)	R input in RS flip flop
	<ul><li>(3) Preset input in JK flip flop</li></ul>		
39.	A counter having a modulus of 64 s	hould h	Be a set a Reservation of the second of the
S. S. C. Starlo	(1) Six flip flops	(2)	Seven flip flops
 	(3) $5-D-$ flip flops	(4)	64 flip flops
40.	A logic circuit that gives a pulsed w input	aveforr	n at the output for a sinusoidal
A around	(1) Bi stable multivibrator	(2)	Monostable multivibrator
142.4	(3) Astable multivibrator	(4)	Schmitt trigger
41.	Poisson's equation is given by	and the	and an and the second
	(1) $\nabla .\mathbf{D} = 0$	(2)	$\nabla^2 \mathbf{V} = 0$
Sitence of	$(3)  \nabla^2 \mathbf{V} = -\frac{\rho}{\epsilon}$	(4)	$\nabla^2 \mathbf{V} = \mathbf{P}_{\mathbf{e}_0}$
42.	The total flux of a closed surface within the surface. This statement		
	(1) Divergence Theorem	(2)	Gauss's Law
	(3) Faraday Law	(4)	Maxwells equations
43.	The divergence of a vector $\overline{A} = x \hat{a}x$	+ y ây +	zâz is
,*	(1) 0	(2)	1/3
	(3) 1	(4)	73 3
44.	Which of the following expression	en de la servició	for a perfect dielectric
	<ul> <li>(1) σ&gt;&gt;w∈</li> </ul>	(2)	$\sigma = w \in$
	(3) σ`≪w∈	(4)	$\sigma = \sqrt{w \epsilon}$
1. 19	and the second start of	1.11.812	

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No.				Questions			1937 (61.) 197
45.		$t \sigma = 38 r$ of 2 MHz v			luminium, the	skin dep	oth at a
1	(1) 64.5 m	m		(2)	64.5 μm	102 14	
	(3) 57.7 n	ım	.)	(4)	57.77 μm		
46.	The powe	r density	of solar	radiation a	at a place is 1	$2 \frac{kW}{m}$	2. The
		ate value o			sponding to the		
· · · · · · · · · · · ·	(1) 950 V	//m		(2)	750 V/m		- Spicel
	(3) 450 V	7/m		(4)	475 V/m	1.13	
47.	wave prop	ave in air in bagates at a constant of	in angle 3	0° with resp	less dielectric. T ect to the norm	al. The v	alue o
	(1) 2.5			(2)	2.0		
	(3) 3.0	d y ddi e s		(4)	4.0	N. 1	1
			4				
48.	A plane was having $\in_{\mathbf{r}}$ given by	ave travelli = 4.0. The	ing in a fro fraction o	ee space is i of power tra	ncident normal ansmitted in to	ly on a m the med	iediun lium i
48.	having $\in_{\mathbf{r}}$	ave travelli = 4.0. The	ing in a fro fraction o	ee space is i of power tra (2)	ncident normal ansmitted in to $\frac{1}{2}$	ly on a m the med	iedium lium i
48.	having $\in_{\mathbf{r}}$ given by	ave travelli = 4.0. The	ing in a fro fraction o	of power tra	ncident normal ansmitted in to $\frac{1}{2}$ $\frac{5}{6}$	ly on a m the med	iedium lium i
48. 49.	having $\in_{\mathbf{r}}$ given by (1) $\frac{8}{9}$ (3) $\frac{1}{3}$	= 4.0. The	fraction of	of power tra (2)	ansmitted in to $\frac{1/2}{5/6}$	ly on a m the med	iedium lium i
4177.	having $\in_r$ given by (1) $\frac{8}{9}$ (3) $\frac{1}{3}$ A metallic	= 4.0. The	fraction of	of power tra (2) (4)	ansmitted in to $\frac{1/2}{5/6}$	the med	iediur lium i
4177.	having $\in_r$ given by (1) $\frac{8}{9}$ (3) $\frac{1}{3}$ A metallic (1) low pa	= 4.0. The	fraction of	of power tra (2) (4) nsidered as	ansmitted in to $\frac{1/2}{5/6}$ a	the med	iedium lium i
4177.	having $\in_r$ given by (1) $\frac{8}{9}$ (3) $\frac{1}{3}$ A metallic (1) low pa (3) band p A 10 GHz v 4 cm. The	= 4.0. The waveguide ass filter pass filter vave is prop largest nu	fraction of the compagating i	of power tra (2) (4) nsidered as (2) (4) n a wavegu	ansmitted in to $\frac{1/2}{5/6}$ a high pass filte	the med er lter Ill separa	lium i
49.	having $\in_r$ given by (1) $\frac{8}{9}$ (3) $\frac{1}{3}$ A metallic (1) low pa (3) band p A 10 GHz v 4 cm. The the wavegu	= 4.0. The waveguide ass filter pass filter vave is prop largest nu	fraction of the compagating i	of power tra (2) (4) msidered as (2) (4) in a wavegu alf waves o	ansmitted in to 1/2 5/6 a high pass filte band reject fi ide having a wa	the med er lter Ill separa	lium i
49.	having $\in_r$ given by (1) $\frac{8}{9}$ (3) $\frac{1}{3}$ A metallic (1) low pa (3) band p A 10 GHz v 4 cm. The	= 4.0. The waveguide ass filter pass filter vave is prop largest nu	fraction of the compagating i	of power tra (2) (4) nsidered as (2) (4) n a wavegu	ansmitted in to 1/2 5/6 a high pass filte band reject fi ide having a wa	the med er lter Ill separa	lium i
49.	having $\in_r$ given by (1) $\frac{8}{9}$ (3) $\frac{1}{3}$ A metallic (1) low pa (3) band p A 10 GHz v 4 cm. The the wavegu (1) 1	= 4.0. The waveguide ass filter pass filter vave is prop largest nu tide is	fraction of a can be compagating in the mber of h	of power tra (2) (4) msidered as (2) (4) in a wavegu alf waves o (2) (4) (4)	1/2 5/6 a high pass filte band reject fi ide having a wa f electric inten 3 4	the med er lter Ill separa	lium i

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Question No.						
51.	The open loop transfer function of a certain control system is given by $GH = \frac{K}{(S+2)^3}$ for $K > 0$ . For what value of gain factor, K, will the root					
	locus of the control system cross the jw-axis.					
	(1) 8 (2) 1	4				
a sector a	(3) 24 (4) 6	4				
52.	For the above question, the value of the dan value of gain factor equal to 8 ?	nping factor ξ for a design				
	(1) 0.5 (2) 0	.3 Maria Rista di				
	(3) 0.707 (4) 0	.866				
53.	(3) $-280 \text{ dB/decade}$ (4) $-$	240 dB/decade 320 dB/decade				
54.	Bode plot of a stable system is shown in the fo function of the system is :	llowing figure. The transfer				
		villa-pasia. (G				
an a		dB/decade				
	w=1	→w				
in ein	(1) $\frac{1}{(S+1)}$ (2) 1	<sup>0</sup> /(S+1)				
	(3) $\frac{1}{S(S+1)}$ (4) $\frac{1}{S(S+1)}$	$\frac{10}{s(s+1)}$				

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Question No.		Questions		
55.	The state transition matrix represents			
	(1) Forced response of the system			
5	(2) Free response of the system			
	(3) Transient response of t	he system		
	(4) None of these			
56.	The attenuation of the optic	al fiber is of th	ne order of	
	(1) 0.01 dB/K <sub>m</sub>	(2)	0.2 dB/K <sub>m</sub>	
	(3) 20 dB/K <sub>m</sub>	(4)	- 40 dB/K <sub>m</sub>	
57.	The operating frequency con	rresponding to	1550 nm is	
	(1) 193 THz	(2)	19.3 THz	
	(3) 100 THz	(4)	300 THz	
58.	Which of the following oper pulse width	ational mode is	s likely to produce the shortes	
	(1) Q-switched	(2)	Cavity dumped	
	(3) Quasi-CW	(4)	Mode Locked	
59.	In optical communication sy at	stems, zero disj	persion wavélength is operatin	
	(1) 800 nm	(2)	1330 nm	
	(3) 1550 nm	(4)	1630 nm	
	In DWDM technology, the s	eparation betw	ween the adjacent channels is	
60.	the order of	(27) - (C27)	and the second	
60.		(2)	0.8 nm	

(12)

11

Question No.	Questions
61.	The region of convergence of z-transform of the sequence $\left[\frac{5}{6}\right]^{n} u(n) - \left[\frac{6}{5}\right]^{n} u(-n-1) \text{ is}$
	(1) $ z  < \frac{5}{6}$ (2) $ z  > \frac{5}{6}$ (3) $\frac{5}{6} <  z  < \frac{6}{5}$ (4) $\frac{6}{5} <  z  < \infty$
62.	The power saving in case of SSB/SC signal as compared to a standard AMsignal for modulation index = 0.5 is(1) 94.4 %(2) 23.2 %
action of	(3) 56.7% (4) 75%
63. Junar	<ul> <li>Which of the following suffer (s) from the threshold effect</li> <li>(1) AM detection using envelope detection</li> <li>(2) AM detection using synchronous detection</li> <li>(3) FM detection using a discriminator</li> <li>(4) SSB detection with synchronous detection</li> </ul>
64.	A sinusoidal wave of amplitude 10 V and frequency 1kHz is applied to an FM generator having a frequency sensitivity constant of 40 Hz/V, the frequency deviation is (1) 100 Hz (2) 200 Hz (3) 400 Hz (4) 500 Hz
65.	In a VSB system, modulating frequency of 3 MHz results in a sideban power of 25 W. If the carrier power is 100 W, the depth of modulation is (1) 25% (2) 50% (3) 75% (4) 100%

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uestion No.	Ques	tions		101029-033. .cl <sup>20</sup>
66.	An FM signal is represented by v(t) maximum phase deviation in radian		$= [10^8 \pi t + 6 \sin 2\pi \times$	10 <sup>3</sup> t]. Th
	<ul> <li>(1) 5</li> <li>(3) 6</li> </ul>	(2) (4)	8-(i) / [2] 9	
67.	PLL can be used to demodulate	(-/		
	(1) PAM signals	(2)	FM signals	
	(3) PCM	(4)	DSBSC	
68.	PAM signals can be detected by usin	ng		antanana ara ara a
	(1) ADC	(2)	Integrator	
	(3) Band pass filter	(4)	High pass filter	
69.	The input to a coherent de octor is I the detector output is given by	fait for the same	and the second second second	he noise
	(1) In phase component	(2)	Quadrature comp	onent
	(3) Zero	(4)	Envelope	
70.	A Hilbert transformer is a	- %r - 88	not wat MR 14	
	(1) Non linear system	(2)	Non-causal system	n
a awit	(3) Time-varying system	(4)	Low pass system	
71.	The Nyquist rate for message signa	l giver	ı by	
	$m(t) = 10 \cos 10^3 \pi t \cdot \cos 4 \times 10^3 \pi t$	is	e anna an tha an tha Tha an tha an t	
	(1) 10 kHz	(2)	2.5 kHz	
	(3) 5 kHz	(4)	2 kHz	tenter por
72.	Compression in PCM refers to rela	tive co	ompression of	2. a.
	(1) Lower signal amplitudes	(2)	Higher signal am	plitudes
	(3) Lower signal frequencies	(4)	Higher signal fre	1

Question No.	Ques	tions	
73.	For a bit rate of 8 kbps, the best frequencies in a coherent binary FS		
	(1) 16 kHz and 20 kHz	(2)	20 kHz and 32 kHz
	(3) 20 kHz and 40 kHz	(4)	32 kHz and 40 kHz
74.	Which function displays a string of at its end ?	ext an	nd append a new line characte
	(1) putchar ()	(2)	printf()
	(3) puts ()	(4)	put ()
75.	What will be output of the follow: a [i] = i ++ ;	ing co	de if i = 10 and $a[10] = 20$
	(1) a [10] will be 10	(2)	a [11] will be 11
	(3) a [11] will be 10	(4)	None of the above
76.	Following statement is given	a sala sa	PRATE PARTIAN
n i M	a = 0;	ំ ខ្លាំងខ្លួំខំ	Taxel de 9 (cc)
	b = (a = 0) ? 2 : 3;	Pari,	10 00 Parts 19 10 10
	What will be the value of b	. e. Statistics	an a
19 2 1914 1 1 1 1 1 1 1	(1) 2	(2)	3 s.c. and state (
1 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1	(3) 0	(4)	1
77.	Find the output for the following C	orogra	m: (1)
• •	main()		3(3,8 ± 18)
	$\{int x = 2, y = 6, z = 6;$	156.3	54. A 160 1078 17
1.10110-1	$\mathbf{x} + \mathbf{y} = \mathbf{z};$		al month in the same in the second
	printf (" % d", x)		Constant of the second
	(1) 1	(2)	2

PHD-EE-2018-Electronics & Communication Engineering-Code-A (15)

uestion No.		Questions	
78.	The data type of the control be of the type :	ling statement	of a switch statement can no
	(1) int	(2)	char
	(3) short	(4)	float
79.	main(){	1 - A 1 - 1.6	as her work where it is a
	Char a [] = "Hello world";		วาเช่ วิที
	print f (" % s", a + 1) ;		्ये हे प्रसंधित हो हो ।
		Lind 8 Million Line	
er e fai	What is the output of above	'C' program	1998 SALAN 19 19 198 1 .05 1
	(1) Compilation Error	(2)	Garbage Output
	(3) ello World	(4)	hello world
80.	FORTRAN is a	north diffe	The state of the state
	(1) High level language	(2)	Low level language
	(3) OOP language	(4)	Machine language
81.	Three resistances $R_1 = 37$ oh Determine the value of ser series	m ± 5%, R <sub>2</sub> =78 ries resistance	$5 \text{ ohm } \pm 5\%$ , $R_3 = 50 \text{ ohm } \pm 5\%$ error if they are connected i
	(1) ± 5%	(2)	± 7.5%
	(3) ± 3.5%	(4)	± 8.10%
82.	A 160 $\pm$ 0% PF capacitor 1200 $\pm$ 10 $\Omega$ are connected i	, an inductor in series. The v	of 160 µH and a resistor value of resonant frequency is
-	(1) 1000 kHz	(2)	100 kHz
	(3) 1.1 MHz	(4)	0.9 MHz

Lever today

uestion No.		104	Ques	tions	8 ° 2
83.	Nor	mal probability curve	e is denoted	l by	
	(1)	$\frac{1}{\sigma\sqrt{2\pi}} \exp(x^2/2\sigma^2)$		(2)	$\frac{1}{\sigma\sqrt{2\pi}}e^{x/2\sigma^2}$
	(3)	$\frac{1}{\sigma\sqrt{2\pi}}\exp\left(-x^{2}/2\sigma^{2}\right)$	<sup>2</sup> )	(4)	$\frac{1}{\sigma\sqrt{2\pi}} \exp(x^3/2\sigma^3)$
84.	Rela	tive static error may	y`be defined	as .	
5.16	(1)	true value Absolute Error		(2)	true value – Absolute Error true value
(40)		Absolute Error		See at	Absolute Error
				(4)	1
	(3)	true value + Absolute I	Error	i ng prisi T	true value
85.	5	true value + Absolute I tic sensitivity at an op		L og gener	
85.	Sta		perating po	L og gener	
85.	5	tic sensitivity at an op	perating po the output	L og gener	
85.	Sta (1)	tic sensitivity at an or infinitesimal change in	perating po the output n the input	L og gener	
85.	Sta	tic sensitivity at an op infinitesimal change in infinitesimal change in	perating po the output n the input the input	int is g	
85.	Sta (1) (2)	tic sensitivity at an op infinitesimal change in infinitesimal change in infinitesimal change in	perating po the output n the input the input	int is g	iven by
85.	Sta (1)	tic sensitivity at an op infinitesimal change in infinitesimal change in infinitesimal change in infinitesimal change in	perating po the output n the input the input	int is g	iven by
85.	Sta (1) (2)	tic sensitivity at an op <u>infinitesimal change in</u> infinitesimal change in <u>infinitesimal change in</u> <u>infinitesimal change in</u> <u>infinitesimal change in</u> <u>true value</u>	perating po the output n the input the input	int is g	iven by
85.	Sta (1) (2) (3) (4)	tic sensitivity at an op <u>infinitesimal change in</u> <u>infinitesimal change in</u> <u>infinitesimal change in</u> <u>infinitesimal change in</u> <u>true value</u> <u>Absolute value</u> <u>Absolute value</u> <u>true value</u>	perating por the output n the input the input the output	int is g	iven by
	Sta (1) (2) (3) (4) The	tic sensitivity at an op <u>infinitesimal change in</u> <u>infinitesimal change in</u> <u>infinitesimal change in</u> <u>infinitesimal change in</u> <u>true value</u> <u>Absolute value</u> <u>Absolute value</u> <u>true value</u>	perating por the output n the input the input the output	int is g	iven by

uestion No.	Questions
87.	The mean deviation $\overline{D}$ in terms of deviations from the mean value of readings is
	(1) $\frac{\sum  \mathbf{d} }{n}$ (2) $\sqrt{\sum \mathbf{d}^2/n}$
	(3) $\sum d/n$ (4) $\sqrt{\frac{\sum d^2}{n}}$
88.	The transfer function of a system is G (s) = $\frac{100 e^{-st}}{s(s+10)}$ , the system
	(1) is a linear system (2) is a nonlinear system
	(3) has a transportation 'ag (4). None of the above
89.	8086 microprocessor has address bus of
	(1) 16 bits (2) 24 bits
	(3) 20 bits (4) 8 bits
90.	8086 has a bus cycle of at least
	(1) 4 clock periods (2) 2 clock periods
	(3) 3 clock periods (4) None of these
91.	8086 has basic no. of instructions
	(1) 64 (2) 117
	(3) 128 (4) 256
92.	The starting address of an interrupt is called (in 8086 Micro processor
	(1) stack pointer (2) program counter
egi Hos	(3) interrupt output (4) interrupt vector

Question No.	Questions	a a pai
93.	In 8086 type O interrupt is reserved for	
	(1) single step (2) NMI	
	(3) Interrupt on overflow (4) Divide Error	
94.	For a fully controlled single phase converter supplies power to a load of 10 $\Omega$ , the input voltage is 230 V, 50 Hz, the value of averag voltage is for $\alpha = 45^{\circ}$	r <b>e</b> sistive ce output
	(1) $276.74 V$ (2) $376.74 V$	
	(3) 176.74 V (4) 76.74 V	48
95.	Consider the circuit shown. What is the minimum width of gate ensure turn of the thyristor ( $I_L = 4 \text{ mA}$ ).	pulse to
	$\begin{bmatrix} T \\ T \\ T \\ 220V \\ 0.2H \end{bmatrix}$	
	(1) 2 μs (2) 4 μs	
	(3) 6 μ s (4) 8 μ s	
96.	Snubber circuit is a	
•	(1) RL circuit (2) Purely Resistive	
	(3) Purely inductive (4) R - C circuit	
97.	Chopper is used for conversion of	
	(1) ac to dc (2) dc to ac	
		·
	(3) ac to ac (4) dc to dc	

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1

(19)

Class			
	'C' chopper works in the fo	ollowing qu	adrants
(1)	lst	(2)	2nd
(3)	1st & 2nd	(4)	All quadrants
Indu	ction heating is used for		Contraction and the second
(1)	Volume heating	(2)	Plastic packing
(3)	Plyboard industry	(4)	Surface heating
For s	peed control of ac motors	following a	re used
(1)	Cyclo converters	(2)	Choppers
(3)	Rectifiers	(4)	UJT and SCR
(1)			
and			
			a 1
			Care Court (a) (all all
			ny, Openo - Re
		CARL S	and the second states
	and the second		
	[induc (1) (3) For s (1) (3)	Induction heating is used for (1) Volume heating (3) Plyboard industry For speed control of ac motors (1) Cyclo converters (3) Rectifiers	Induction heating is used for(1) Volume heating(2)(3) Plyboard industry(4)For speed control of ac motors following a(1) Cyclo converters(2)

\* \*\*

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TNIC	TRUCTIONS BEFORE STIM			
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2.	The condidates must return	the Question become leave	ing the E	xamination Hall,
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	through E Mail within 24 hours of	uploading the same	on the Or	niversity Website.
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5.	mi Jidata MIIST NOT do	any rough work	or writ	ing in the Own
	Answer-Sheet. Rough work, if an	y, may be done in the	ne quesu -lot	Ion Dook-let lisen.
	Answers MUST NOT be ticked in There will be no Negative mark	ing Each correct	onswor	will be awarded
6.	one full mark. Cutting, erasing	ang. Each correct	d more t	han one answer
	in OMR Answer-Sheet will be	treated as incorre	ect ansv	ver.
7.	Use only Black or Blue BALL PO	INT PEN of good qu	uality in	the OMR Answer-
1.	Sheet.			
8.	BEFORE ANSWERING THE G	UESTIONS, THE	CANDIJ	DATES SHOULD
	ENSURE THAT THEY HAVE BE	CEN SUPPLIED CO	DRRECT.	AND COMPLETE
	BOOK-LET. COMPLAINTS, IF A	NY, REGARDING N	MISPRIN	TING ETC. WILL
	NOT BE ENTERTAINED 30	MINUTES AFTE	UR STA	KTING OF THE
	EXAMINATION.			

uestion No.	Questions
1.	Current density in a semiconductor material is given by
	(1) $J = n \mu_n q/E$ (2) $J = p \mu p q/E$
×. × .	(3) $J = (n \mu_n + p \mu p) \cdot E$ (4) $J = (n \mu_n + p \mu p) / E$
2.	Fermi Level for a P-type semiconductor is given by
	(1) $E_F = E_V - KT \ln \frac{N_A}{N_V}$ (2) $E_F = -E_V + KT \ln \frac{N_A}{N_V}$
	(3) $E_F = E_V - K_T \ln \frac{N_A}{N_V}$ (4) $E_F = E_C - K_T \ln \frac{N_C}{N_D}$
3.	For conductors the value of Hall coefficient is given by
	(1) $R_{\rm H} = \frac{1}{nq}$ (2) $R_{\rm H} = \frac{nq}{\mu_{\rm n}}$
	(3) $R_{H} = \frac{\mu_{p}}{nq}$ (4) $R_{H} = \frac{n\mu_{n} + p\mu_{p}}{q}$
4.	The band gap energy of Ge at 300 $\overset{\circ}{\mathrm{K}}$ is given by
	(1) $E_g = 0.785 \text{ eV}$ (2) $E_g = 1.121 \text{ eV}$
	(3) $E_g = 0.7181 \text{ eV}$ (4) $E_g = 1.212 \text{ eV}$
5.	Under low level injection assumption, the injected minority current for an extrinsic semiconductor is essentially the
	(1) Diffusion current (2) Drift current
8	(3) Recombination current (4) Induction current
6.	Ga As has band gap energy of the order of
	(1) 1.43 eV (2) 0.7 eV
	(3) 2.4 eV (4) 1.6 eV

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(1)

Question No.	Quest	ions	
7.	Typical value of impurity concentrati	on in a	a tunnel diode is
	(1) 1 part in $10^8$ parts	(2)	1 part in 10 <sup>3</sup> parts
	(3) 1 PPM	(4)	1 part in 10 parts
8.	In the given circuit, the value of colle	ector c	urrent is :
	<b>α= 0.95</b>		
		·	•+4.5 V∱
	ş <del>T</del>	اچ ا	$R_{t} = 5k\Omega$
	· · · · · · · · · · · · · · · · · · ·	Ť	6V
	(1) 0.8 mA	(2)	0.9 mA
	(3) 0.947 m/.	(4)	0.847 A
9.	MOSFET can be used as a		
	(1) Current controlled capacitor	(2)	Voltage controlled capacito
<ul> <li>enição que</li> </ul>	(3) Current controlled inductor	(4)	Voltage controlled inductor
10.	The effective channel length of a Mo the increase in	OSFET	
·	(1) Gate voltage	(2)	Drain voltage
	(3) Source voltage	(4)	Body voltage
11.	8086 has basic no. of instructions	a sin e	
	(1) 64	(2)	117
	(3) 128	(4)	256
12.	The starting address of an interrup	t is cal	led (in 8086 Micro processor)
14.	(1) stack pointer	(2)	program counter
14.	(1) Stack pointer		

(2)

Question No.		Questions	
13.	In 8086 type O interrupt is re	served for	
	(1) single step	(2)	NMI
	(3) Interrupt on overflow	(4)	Divide Error
14.	For a fully controlled single ph load of 10 $\Omega$ , the input voltage is voltage is for $\alpha = 45^{\circ}$		
	(1) 276.74 V	. (2)	376.74 V
	(3) 176.74 V	.(4)	76.74V
·			
	220V	0.2H	
		0.2H	4 μs
			4 μs 8 μs
16.	(1) 2 μs	(2)	
16.	(1) 2 μs (3) 6 μs	(2)	
16.	<ul> <li>(1) 2 μs</li> <li>(3) 6 μs</li> <li>Snubber circuit is a</li> </ul>	(2) (4)	8 µ s
	<ul> <li>(1) 2 μs</li> <li>(3) 6 μs</li> <li>Snubber circuit is a</li> <li>(1) RL circuit</li> </ul>	(2) (4) (2) (2) (4)	8μs Purely Resistive
17.	<ol> <li>(1) 2 μs</li> <li>(3) 6 μs</li> <li>Snubber circuit is a</li> <li>(1) RL circuit</li> <li>(3) Purely inductive</li> </ol>	(2) (4) (2) (2) (4)	8μs Purely Resistive

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Question No.	Que	estions	
18.	Class 'C' chopper works in the follo	wing qu	adrants
	(1) 1st	(2)	2nd
	(3) 1st & 2nd	(4)	All quadrants
19.	Induction heating is used for		
	(1) Volume heating	(2)	Plastic packing
	(3) Plyboard industry	(4)	Surface heating
20.	For speed control of ac motors foll	owing a	re used
	(1) Cyclo converters	(2)	Choppers
	(3) Rectifiers	(4)	UJT and SCR
21.	The Nyquist rate for message sign	al given	by .
	$m(t) = 10 \cos 10^3 \pi t \cdot \cos 4 \times 10^3 \pi t$	; is	
~1	(1) $10  \text{kHz}$	(2)	$2.5\mathrm{kHz}$
	$(3) 5 \mathrm{kHz}$	(4)	$2\mathrm{kHz}$
22.	Compression in PCM refers to relative	ative cor	npression of
	(1) Lower signal amplitudes	(2)	Higher signal amplitudes
	(3) Lower signal frequencies	(4)	Higher signal fragment
23.	For a bit rate of 8 kbps, the best frequencies in a coherent binary F	st possik SK syste	1 1
	(1) 16 kHz and 20 kHz	(2)	20 kHz and 32 kHz
	(3) 20 kHz and 40 kHz	(4)	39 1-11 1 40 1
24.	Which function displays a string o at its end ?	f text an	d append a new line charac
	(1) putchar ()	(2)	printf()
	(3) puts ()	(1)	
25.	What will be output of the following code if $i = 10$ and $a[10] = 2$ a $[i] = i + +;$		
2	(1) $a[10]$ will be 10	(2)	
	(3) a [11] will be 10 D18-Electronics & Communication Engin	(4)	a [11] will be 11 None of the above

uestion No.	enourons) Questione	
	Questions	(dusstion)
26.	Following statement is given	No.
. 0	a = 0	.08
	(1) High level lang unge and a set of the hine fulle is a	
S. give	b = (a = 0) ? 2 : 3; (1)	
	What will be the value of b	31.
ili the	(1) 2 per mage in outer professor (2) $I = 3 \frac{X}{I(2+2)} = H_{0}^{2}$ (3) 0	
	(3) 0 (3) $(3+2)$	and the state
27.	Find the output for the fine and fine (4) in 1 to reft to such	
	Find the output for the following C program : main ()	
is de	3) 24	
	$\{int x = 2, y = 6, z = 6;$	82.
	$\mathbf{x} = \mathbf{y} = \mathbf{z};$ (3) $\mathbf{x} = \mathbf{y} = \mathbf{z};$	7
	printf ("% d", x)	
ti Gioli	\0.0 11	
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
	(4) 8 Mininger	
28.	The data type of the controlling statement of a switch stat	ement can r
nent m	be of the type :	· · ·
	(1) int (2) char 10125	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	(3) short (4) float	
29.		
45.	main(){	
	Char a [] = "Hello world";	
	print f (" % s", $a + 1$ );	
ale a	a service and and the state of the property of the service of the	1999
	i set o set o	(f)
	What is the output of above 'C' program	1.20
	(1) Compilation Error (2) Garbage Ou	tout
		par

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(5)

No.			
30.	FORTRAN is a	WER HA	to a termination of the
	(1) High level language	(2)	Low level language
	(3) OOP language	(4)	Machine language
31.	The open loop transfer function	of a certa	in control system is given by
	$GH = \frac{K}{(S+2)^3}$ for $K > 0$ . For what	at value o	f gain factor, K, will the root
	locus of the control system cross	the jw-axi	and the second s
	(1) 8	(2)	14
	(3) 24	(4)	64
32.	For the above question, the valu value of gain factor equal to 8 ?	e of the o	lamping factor ξ for a design
	(1) 0.5	(2)	0.3
	(3) 0.707	(4)	0.866
33.	A system has 14 poles and 2-zero magnitude plot will have a slope (1) - 40 dB/decade	of (2)	gh frequency asymptote in it — 240 dB/decade
33. 34.	<ul> <li>magnitude plot will have a slope</li> <li>(1) - 40 dB/decade</li> <li>(3) - 280 dB/decade</li> <li>Bode plot of a stable system is shown in the system in the system in the system is shown in the system in the system in the system is shown in the system in the system in the system is shown in the system in the system in the system is shown in the system in the system in the system is shown in the system in the system in the system is shown in the system in the system in the system is shown in the system in the system in the system is shown in the system in the system in the system in the system is shown in the system in the system in the system is shown in the system is shown in the system in the system in the system is shown in the system in the sys</li></ul>	of (2) (4)	– 240 dB/decade – 320 dB/decade
11	magnitude plot will have a slope (1) – 40 dB/decade (3) – 280 dB/decade	of (2) (4)	– 240 dB/decade – 320 dB/decade
11	<ul> <li>magnitude plot will have a slope</li> <li>(1) - 40 dB/decade</li> <li>(3) - 280 dB/decade</li> <li>Bode plot of a stable system is sho function of the system is :</li> </ul>	of (2) (4)	– 240 dB/decade – 320 dB/decade
11	magnitude plot will have a slope (1) - 40 dB/decade (3) - 280 dB/decade Bode plot of a stable system is she function of the system is : 20 gain	of (2) (4)	– 240 dB/decade – 320 dB/decade
11	<ul> <li>magnitude plot will have a slope</li> <li>(1) - 40 dB/decade</li> <li>(3) - 280 dB/decade</li> <li>Bode plot of a stable system is sho function of the system is :</li> </ul>	of (2) (4)	– 240 dB/decade – 320 dB/decade e following figure. The transfe
11	magnitude plot will have a slope (1) - 40 dB/decade (3) - 280 dB/decade Bode plot of a stable system is she function of the system is : 20 gain	of (2) (4)	– 240 dB/decade – 320 dB/decade e following figure. The transfe
11	magnitude plot will have a slope (1) - 40 dB/decade (3) - 280 dB/decade Bode plot of a stable system is she function of the system is : 20 gain	of (2) (4) own in the	<ul> <li>– 240 dB/decade</li> <li>– 320 dB/decade</li> <li>a following figure. The transference</li> <li>20 dB/decade</li> <li>→w</li> </ul>
11	magnitude plot will have a slope (1) -40 dB/decade (3) -280 dB/decade Bode plot of a stable system is sho function of the system is : 20 gain $(dB)$ $\uparrow$	of (2) (4) own in the w=1	<ul> <li>– 240 dB/decade</li> <li>– 320 dB/decade</li> <li>a following figure. The transference</li> <li>20 dB/decade</li> <li>→w</li> </ul>
11	magnitude plot will have a slope (1) - 40 dB/decade (3) - 280 dB/decade Bode plot of a stable system is she function of the system is : 20 gain	of (2) (4) own in the	– 240 dB/decade – 320 dB/decade e following figure. The transfe
11	magnitude plot will have a slope (1) -40 dB/decade (3) -280 dB/decade Bode plot of a stable system is sho function of the system is : 20 gain $(dB)$ $\uparrow$	of (2) (4) own in the w=1 (2)	<ul> <li>– 240 dB/decade</li> <li>– 320 dB/decade</li> <li>a following figure. The transference</li> <li>20 dB/decade</li> <li>→w</li> </ul>
11	magnitude plot will have a slope (1) -40 dB/decade (3) -280 dB/decade Bode plot of a stable system is sho function of the system is : 20 gain $(dB)$ $\uparrow$	of (2) (4) own in the w=1	- 240 dB/decade - 320 dB/decade following figure. The transfer 20 dB/decade $\rightarrow w$ 10/(S+1)

## Scanned with CamScanner

Question No.	Questions
35.	The state transition matrix represents
	(1) Forced response of the system
	(2) Free response of the system
	(3) Transient response of the system
	(4) None of these
36.	The attenuation of the optical fiber is of the order of
	(1) $0.01  dB/K_m$ (2) $0.2  dB/K_m$
	(3) $20  dB/K_m$ (4) $-40  dB/K_m$
37.	The operating frequency corresponding to 1550 nm is
• • •	(1) 193 THz (2) 19.3 THz
	(3) 100 THz (4) 300 THz
38.	Which of the following operational mode is likely to produce the shortest pulse width
	(1) Q-switched (2) Cavity dumped
n Marine and a	(3) Quasi-CW (4) Mode Locked
39.	In optical communication systems, zero dispersion wavelength is operating at
1408	(1) 800 nm (2) 1330 nm
	(3) 1550 nm (4) 1630 nm
40.	In DWDM technology, the separation between the adjacent channels is of the order of
	(1) $4-6 \text{ nm}$ (2) $0.8 \text{ nm}$
$\langle \rho_{e_{i}}\rangle_{i}$	(3) 0.1 nm (4) 8–10 nm

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(7)

Question No.	Questions		
41.	The octal equivalent of Hexadecima	alnumb	per 2E.C1 would be
	<ul> <li>(1) 212.602</li> <li>(3) 56.623</li> </ul>	(2) (4)	56.602 65.302
42.	The complement of complement of	$\overline{A}B + A$	B will be
	(1) $AB + \overline{A}\overline{B}$	(2)	AB (8)
•	$(3)  \overline{A}B + A\overline{B}$	(4)	$\overline{A}B.(\overline{A}+B)$
43.	What is minimum number of 2-input a 2-input OR gate (1) 2 (3) 3	1t NANI (2) (4)	D gates required to complement 4 5
44.	A basic CMOS two input NAND gate requires (1) Two N-channel MOSFETs (2) Two N-Channel & two P-channel MOSFETs (3) Two P-Channel MOSFETs (4) One N-Channel and one P-channel MOSFET		
45.	IC 7402 is a $-2$ input	· ·	11th wheeling
•	(1) NAND gate	(2)	EX-OR gate
	(3) NOR gate	(4)	OR Gate
46.	A decoder is nothing but a DEMUX	K withou	ut at
ultersdo	(1) control inputs	(2)	data inpution 1
	(3) enable input	(4)	clock ,
47.	The size of a PROM needed to implement a dual 8 to 1 MUX with common selection inputs would be		
in the second second	(1) $256 \text{ K} \times 2$	(2)	512 K×2
ni i inn	(3) $1024 \text{ K} \times 2$	(4)	128 K×2 70 1 0
48.	Which one of following is not a synchronous input with reference to a flip flop		
4. 1	(1) J input in JK flip flop	(2)	R input in RS flip flop
	- 10 F3 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 1		

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Code-I

Question No.	Questions			
49.	A counter having a modulus of 64 should have a minimum of			
8 <b>.</b>	(1) Six flip flops (2) Seven flip flops			
	(3) $5-D-flip flops$ (4) 64 flip flops			
50.	A logic circuit that gives a pulsed waveform at the output for a sinusoida input			
	(1) Bi stable multivibrator (2) Monostable multivibrator			
	(3) Astable multivibrator (4) Schmitt trigger			
51.	For a common base BJT, having $I_e = 5 \text{ mA}$ and $\alpha = 0.97$ an AC signal of 8 mV is applied between the base and the emitter terminals. The input impedance is given by			
	(1) $5.2 \Omega$ (2) $6 \Omega$			
	(3) 4.9 Ω (4) 6.7 Ω			
52.	The typical value of h <sub>f</sub> for common base BJT is			
	(1) $50-250$ (2) $-50$			
	(3) -1 (4) 25			
53.	If the source resistance, the output resistance of emitter follower using the simplified hybrid model would be			
y <sup>3</sup>	(1) $\frac{h_{ie} + R_s}{1 + h_{fe}}$ (2) $\frac{h_{ie} + R_s}{h_{fe}}$			
	(3) $R_s + \frac{1}{h_{oe}}$ (4) $\frac{1}{h_{oe}}$			
54.	The ripple factor is given by			
	(1) $\sqrt{\left(\frac{I_{rms}}{I_{dc}}\right)^2 - 1}$ (2) $\left(1 - \sqrt{\frac{I_{rms}}{I_d}}\right)^2$			
	(3) $\frac{I_{rms}}{I_{dc}}$ (4) $\frac{I_{dc}}{I_{rms}}$			

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Question No.	Questions	
110.		
55.	Following circuits is given by :	
	+ $+$ $+$ $-$	
	$ \bigcirc \qquad \bigtriangleup \begin{array}{c} \bigtriangleup \begin{array}{c} \Box \end{array} D_1 \qquad \swarrow \end{array} D_2 \\ \square \begin{array}{c} \blacksquare \end{array} \\ \square \end{array} \\ \square \end{array} \\ \square \end{array} $	
	<mark>C                                    </mark>	
	(1) Bridge rectifier (2) Ring modulator	
	(3) Frequency discriminator (4) Voltage doubler	
56.	For a transistor amplifier to be inherently stable against thermal ruaway, the condition is	
	(1) $V_{CE} > \frac{V_{CC}}{2}$ (2) $V_{CE} < \frac{V_{CC}}{2}$	
	(1) $V_{CE} > \frac{V_{CC}}{2}$ (2) $V_{CE} < \frac{V_{CC}}{2}$	
	(3) $V_{CE} = \frac{V_{CC}}{2}$ (4) $V_{CE} = 1.5 V_{CE}$	
	(3) $V_{CE} = \frac{-0.0}{2}$ (4) $V_{CE} = 1.5 V_{CC}$	
57.	For the circuit given the value of $V_{out}$ is :	
	$\stackrel{8V}{\leq} 3 k\Omega$	
2	$\int 2 k\Omega$	
	$\equiv$ $-10V$	
	V <sub>out</sub>	
	$(V_{BE} = 0.7V)$	
1.1	$\begin{array}{ccc} (1) & +5.14 \mathrm{V} \\ (2) & 5.14 \mathrm{V} \end{array} \tag{2} & -6.14 \mathrm{V} \end{array}$	
EQ	(3) - 5.14 (4) + C 1 4 M	
58.	The gain of a transistor amplifier falls at high fragment	
•		
	(3) skin effect	
PHD-EE	<ul><li>(2) coupling capacitor at the input</li><li>(3) skin effect</li></ul>	

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Question No.	Questions		
59.	The effect of negative feedback on Noise is		
	(1) $\frac{N}{1-\beta A}$ (2) N (1- $\beta A$ )		
	(3) N (1 + $\beta$ A) (4) $\frac{N}{1+\beta A}$		
60.	Cross-over distortion behaviour is a characteristics of		
	(1) Class – A output stage (2) Class – B output stage		
•	(3) Class – AB output stage (4) Common base output stage		
61.	Poisson's equation is given by		
	(1) $\nabla . \mathbf{D} = 0$ (2) $\nabla^2 \mathbf{V} = 0$		
	(3) $\nabla^2 V = -\frac{\rho}{\epsilon}$ (4) $\nabla^2 V = \frac{\rho}{\epsilon_0}$		
62.	The total flux of a closed surface is equal to the net charge enclosed within the surface. This statement is an expression of		
*	(1) Divergence Theorem (2) Gauss's Law		
	(3) Faraday Law (4) Maxwells equations		
63.	The divergence of a vector $\overline{A} = x \hat{a}x + y \hat{a}y + z \hat{a}z$ is		
	(1) 0 (2) $\frac{1}{3}$		
	(3) 1 (4) 3		
64.	Which of the following expression is true for a perfect dielectric		
	(1) $\sigma \gg w \in$ (2) $\sigma = w \in$		
	(3) $\sigma \ll w \in$ (4) $\sigma = \sqrt{w \in}$		

PHD-EE-2018-Electronics & Communication Engineering-Code-B

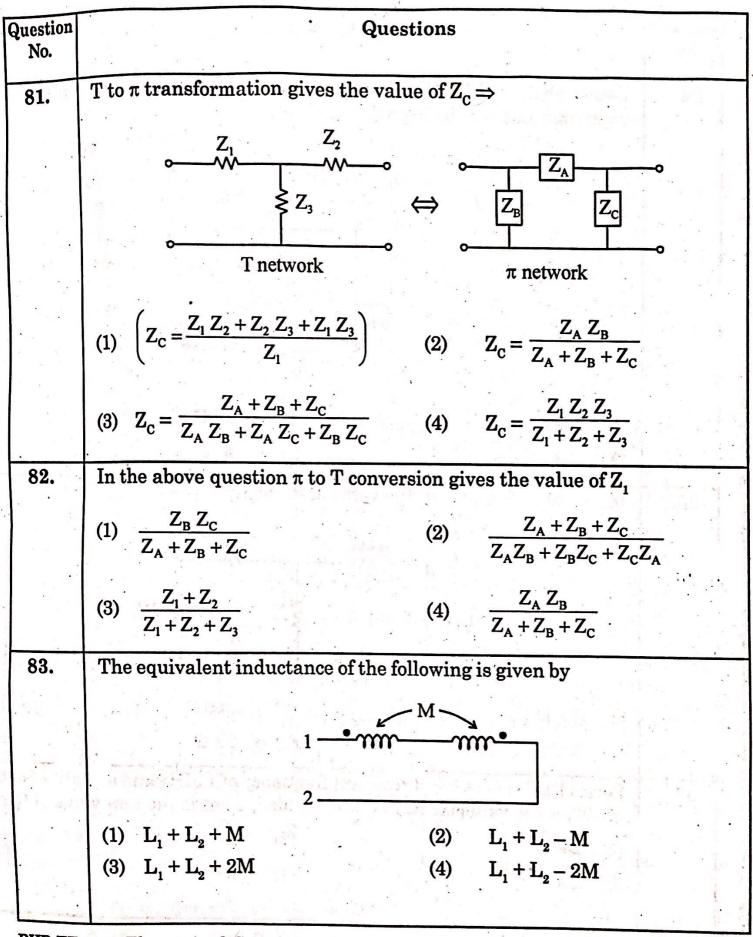
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Question No.	Questions
65.	Given that $\sigma = 38 \text{ m S/m} \& \mu_r = 1$ for aluminium, the skin depth at a frequency of 2 MHz would be equal to
i de la composition de la comp	(1) $64.5 \text{ nm}$ (2) $64.5 \mu \text{m}$ (3) $57.7 \text{ nm}$ (4) $57.77 \mu \text{m}$
66.	The power density of solar radiation at a place is 1.2 <sup>kW</sup> / <sub>m<sup>2</sup></sub> . The approximate value of electric field corresponding to the incident solar power is given by (1) 950 V/m (3) 450 V/m (4) 475 V/m
67.	A plane wave in air impinges at 45° on a loss less dielectric. The transmitted wave propagates at an angle 30° with respect to the normal. The value of dielectric constant of the aielectric is (1) 2.5 (2) 2.0
	(1) 2.5       (2) 2.0         (3) 3.0       (4) 4.0
68.	
<b>68.</b> <b>69.</b>	(1) 2.5 (3) 3.0 (4) 4.0 A plane wave travelling in a free space is incident normally on a medium having $\epsilon_r = 4.0$ . The fraction of power transmitted in to the medium given by (1) $\frac{8}{9}$ (2) $\frac{1}{2}$ (3) $\frac{1}{3}$ (4) $\frac{5}{6}$ A metallic waveguide can be considered as a
	(1) 2.5 (3) 3.0 (4) 4.0 A plane wave travelling in a free space is incident normally on a medium having $\epsilon_r = 4.0$ . The fraction of power transmitted in to the medium given by (1) $\frac{8}{9}$ (2) $\frac{1}{2}$ (3) $\frac{1}{3}$ (4) $\frac{5}{6}$

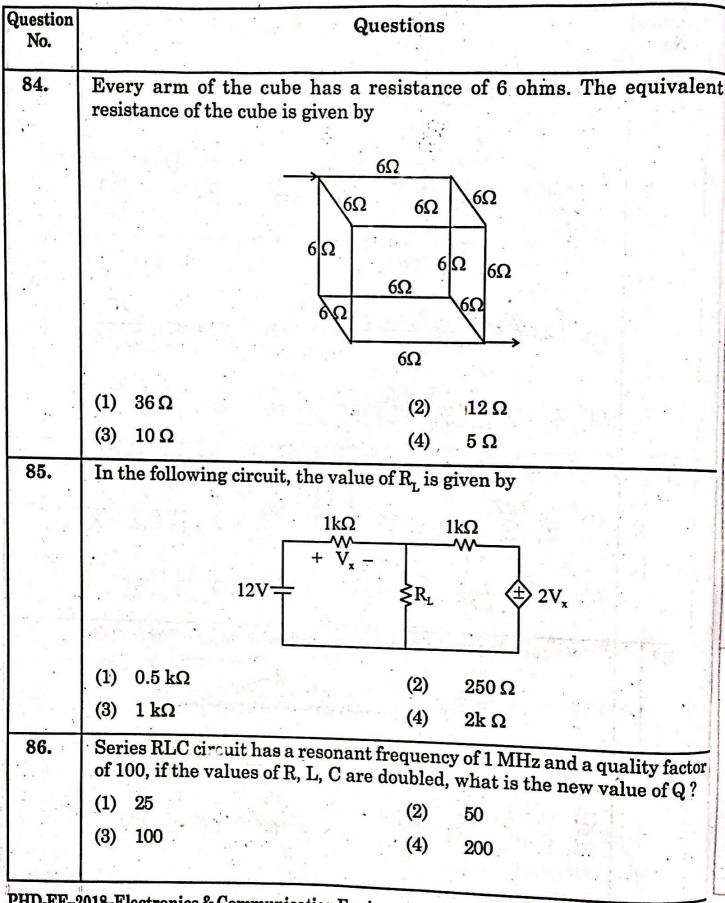
Question No.	Questions	
70.	A 10 GHz wave is propagating in a waveguide having a wall separation of 4 cm. The largest number of half waves of electric intensity possible in the waveguide is	
	(1) 1 (2) 3	
	(3) 2 (4) 4	
71.	The region of convergence of z-transform of the sequence	
	$\left[\frac{5}{6}\right]^n u(n) - \left[\frac{6}{5}\right]^n u(-n-1) \text{ is}$	
	(1) $ z  < \frac{5}{6}$ (2) $ z  > \frac{5}{6}$	
	(3) $\frac{5}{6} <  z  < \frac{6}{5}$ (4) $\frac{6}{5} <  z  < \infty$	
72.	The power saving in case of SSB/SC signal as compared to a standard AM signal for modulation index = 0.5 is	
	(1) 94.4 % (2) 23.2 %	
	(3) 56.7 % (4) 75 %	
73.	Which of the following suffer (s) from the threshold effect	
en en k	(1) AM detection using envelope detection	
-1	(2) AM detection using synchronous detection	
	(3) FM detection using a discriminator	
	(4) SSB detection with synchronous detection	
74.	A sinusoidal wave of amplitude 10 V and frequency 1kHz is applied to an FM generator having a frequency sensitivity constant of 40 Hz/V, the frequency deviation is	
	(1) 100 Hz (2) 200 Hz	
•	(3) 400 Hz (4) 500 Hz	

PHD-EE-2018-Electronics & Communication Engineering-Code-B

Question No.	Questions
75.	In a VSB system, modulating frequency of 3 MHz results in a sideband power of 25 W. If the carrier power is 100 W, the depth of modulation is
	(1) 25% (2) 50%
	(3) 75% (4) 100%
76.	An FM signal is represented by $v(t) = 15 \cos [10^8 \pi t + 6 \sin 2\pi \times 10^3 t]$ . The maximum phase deviation in radians are
	(1) 5 (2) 8
	(3) 6 (4) 9
77.	PLL can be used to demodulate
	(1) PAM signals (2) FM signals
	(3) PCM (4) DSBSC
78.	PAM signals can be detected by using
	(1) ADC (2) Integrator
	(3) Band pass filter (4) High pass filter
79.	The input to a coherent detector is DSBSC signal plus Noise, the noise at the detector output is given by
	(1) In phase component (2) Quadrature component
	(3) Zero (4) Envelope
80.	A Hilbert transformer is a
	(1) Non linear system (2) Non-causel and
 21 21	<ul> <li>(2) Non-causal system</li> <li>(3) Time-varying system</li> <li>(4) Low pass system</li> </ul>



PHD-EE-2018-Electronics & Communication Engineering-Code-B



PHD-EE-2018-Electronics & Communication Engineering-Code-B

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### Code-B

Question No.	Question snoitesugQuestions - No.
nm ± 5% nect <b>78</b> i	91. Three resistances $R_1 = 37$ ohm $\pm 5\%$ , $R_2 = 75$ ohm $\pm 5\%$ , $R_3 = 50$ o rances resistances $R_1 = 37$ ohm $\pm 5\%$ , $R_2 = 75$ ohm $\pm 5\%$ , $R_3 = 50$ ohm $\pm 5\%$ , $R_4 = 50$ ohm $\pm 5\%$ , $R_5 = 12$ , $\Omega_1 = 12$ , $\Omega_2 = 12$ , $\Omega_1 = 12$ , $\Omega_2 = 12$ , $\Omega_2 = 12$ , $\Omega_2 = 12$ , $\Omega_2 = 12$ , $\Omega_3 = 12$ , $\Omega_4 = 12$ , $\Omega_5 = 12$ , $\Omega_1 = 12$ , $\Omega_2 = 12$ , $\Omega_2 = 12$ , $\Omega_3 = 12$ , $\Omega_4 = 12$ , $\Omega_5 $
	frequency is series
	(1) $\pm 5\%$ $\frac{101}{2}$ $\frac{101}{2}$ (2) $\pm 7.5\%$ (3) $\pm 3.5\%$ $\frac{101}{\pi}$ (2) (4) $\pm 8.10\%$
o rotaies	92. A 160 $\pm$ 078 (4) $\pm$ 016 (6) $\pm$ 078 (6) $\pm$ 079 (7) $\pm$ 071 (7) (7) (7) (7) (7) (7) (7) (7) (7) (7)
	For a 2-port network to be reciprocal, following is true 0021
	(1) $Z_{11} = Z_{22}$ and $Y_{11} = Y_{22}$ (2) $Y_{21} = Y_{12} \& h_{21} = h_{12}$
	(3) $AD = BC = 0$ (4) (4) $AB = CD = 0$ (8) (8)
-89.	93. Normal probability curve i denoted by
(4) (4)	C
	(1) $\frac{1}{\sigma\sqrt{2\pi}} \frac{\varepsilon_{\alpha}}{R} \exp\left(x^{2} \right) \frac{1}{2\sigma^{2}} \frac{\varepsilon_{\alpha}}{1} \frac{1}{\xi} \frac{1}{\sigma\sqrt{2\pi}} e^{x^{2}2\sigma^{2}}$
	20
(	(3) $\frac{1}{\sigma\sqrt{2\pi}} \exp\left(-x^2/2\sigma^2\right)$ (4) (5) (5) (7) $\frac{1}{\sigma\sqrt{2\pi}} \exp\left(x^2/2\sigma\right)$ (7) (7) (7) (7) $\frac{1}{\sigma\sqrt{2\pi}} \exp\left(x^2/2\sigma\right)$ (7) (7) (7) $\frac{1}{\sigma\sqrt{2\pi}} \exp\left(x^2/2\sigma\right)$ (7) (7) $\frac{1}{\sigma\sqrt{2\pi}} \exp\left(x^2/2\sigma\right)$ (7) (7) $\frac{1}{\sigma\sqrt{2\pi}} \exp\left(x^2/2\sigma\right)$ (7) $\frac{1}{\sigma\sqrt{2\pi}} $
	94. Relative state error may be defined as <b>FIGE (6)</b>
.00 Error	If the scattering matrix [S] of a two port network i
79 - 202 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404 - 404	$[S] = \begin{bmatrix} 0.2 \angle 0^{\circ} & 0.9 \angle 90^{\circ} \\ 0.1 \angle 90^{\circ} \end{bmatrix} \text{ then the network is } [S] = \begin{bmatrix} 0.2 \angle 0^{\circ} & 0.9 \angle 90^{\circ} \\ 0.9 \angle 90^{\circ} & 0.1 \angle 90^{\circ} \end{bmatrix}$
	(1) Iossies but non reciprocal (2) true value + Absolute Error true value (2) true value (2)
	(3) lossy but reciprocal (4) neither lossy nor reciprocal

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( (17)

Question No.	Questions
91.	Three resistances $R_1 = 37$ ohm $\pm 5\%$ , $R_2 = 75$ ohm $\pm 5\%$ , $R_3 = 50$ ohm $\pm 5\%$ Determine the value of series resistance error if they are connected in series
	(1) $\pm 5\%$ (2) $\pm 7.5\%$
	(3) $\pm 3.5\%$ (4) $\pm 8.10\%$
92.	A 160 $\pm 0\%$ PF capacitor, an inductor of 160 $\mu$ H and a resistor of 1200 $\pm 10 \Omega$ are connected in series. The value of resonant frequency is
	(1) 1000 kHz (2) 100 kHz
t Jacob y Jacob y Jacob	(3) 1.1 MHz (4) 0.9 MHz
93.	Normal probability curve i , denoted by
	(1) $\frac{1}{\sigma\sqrt{2\pi}} \exp(x^2/2\sigma^2)$ (2) $\frac{1}{\sigma\sqrt{2\pi}} e^{x/2\sigma^2}$
	(3) $\frac{1}{\sigma\sqrt{2\pi}} \exp(-x^2/2\sigma^2)$ (4) $\frac{1}{\sigma\sqrt{2\pi}} \exp(x^3/2\sigma^3)$
94.	Relative static error may be defined as
· · · · · · · · · · · · · · · · · · ·	(1) $\frac{\text{true value}}{\text{Absolute Error}}$ (2) $\frac{\text{true value} - \text{Absolute Error}}{\text{true value}}$
2000 - 10 - 10 - 10	(3) $\frac{\text{Absolute Error}}{\text{true value + Absolute Error}}$ (4) $\frac{\text{Absolute Error}}{\text{true value}}$
28. (p. ) 1	

(18)

uestion No.			Question	ns		noi reaj - eM	
95.	Stat	ic sensitivity at an op	perating point	is gi	iven by		1.000
	1974		d ta jevro e sa i	ae ik	autodeparts	95 1 39	
	(1)	infinitesimal change in	the output		· · · · · · · · · · · · · · · · · · ·		1
17,119	(1)	infinitesimal change in	n the input	X 478	is a linguray	(I) (I)	
	SAC NO.						
Call Manuf Assessed		infinitesimal change in	the input		and the second	S*C.	1. 9 W. H
	(2)	infinitesimal change in	and a second sec	1.58	1956 Rue 201. 1 6	368	
·		Jour LC		, ·			•
	(-)	true value			\$710' 01.	(n.)	
	(3)	Absolute value	×		in redefiers i	(3)	1.00
Company and a	· manufi line deser	advantant to a second second of the	an a san an a	1	an a	and marks and and	
		Absolute value	14091	517	io and a and de	12 1 1691	
A	(4)	true value		212	atted apolo 4		
	•						
96.	The	input impedance of	a cathode ray	osci	lloscope is of t	he order of	1
96.	Enrich St. 14	n an ann ann an gur ann a' seann a' seann. Tallach	and the second		and a second	he order of	
96.	The (1)	input impedance of 10 Ω	and the second	osci 2)	lloscope is of t Mega ohms	he order of	Same and a second
96.	(1)	n an ann ann an gur ann a' seann a' seann. Tallach	(2	2)	and a second		and a second and
96.	Enrich St. 14	10 Ω	(2		Mega ohms		and the second second second
96. 97.	(1) (3) The	10 $\Omega$ Kilo ohms e mean deviation $\overline{D}$ is	(2 (4	2) 4)	Mega ohms fraction of 1	ohms	of
×	(1) (3) The	10 Ω Kilo ohms	(2 (4	2) 4)	Mega ohms fraction of 1	ohms	of
×	(1) (3) The	10 $\Omega$ Kilo ohms e mean deviation $\overline{D}$ is	(2 (4	2) 4)	Mega ohms fraction of 1	ohms	of
×	(1) (3) The read	10 $\Omega$ Kilo ohms e mean deviation $\overline{D}$ is	(2 (4 in terms of dev	2) 4) viati	Mega ohms fraction of 1	ohms	of
×	(1) (3) The	10 $\Omega$ Kilo ohms e mean deviation $\overline{D}$ is	(2 (4 in terms of dev	2) 4)	Mega ohms fraction of 1	ohms	of
×	(1) (3) The read	10 $\Omega$ Kilo ohms e mean deviation $\overline{D}$ is	(2 (4 in terms of dev	2) 4) viati	Mega ohms fraction of 1	ohms	of
×	(1) (3) The read (1)	$10 \Omega$ Kilo ohms e mean deviation $\overline{D}$ is dings is $\frac{\sum  d }{n}$	(2 -(4 in terms of dev (2	2) 4) viati 2)	Mega ohms fraction of 1	ohms	of
×	(1) (3) The read	10 $\Omega$ Kilo ohms mean deviation $\overline{D}$ is dings is $\sum  d $ n	(2 -(4 in terms of dev (2	2) 4) viati	Mega ohms fraction of 1 ions from the $r$ $\sqrt{\sum d^2/n}$	ohms	of
×	(1) (3) The read (1)	$10 \Omega$ Kilo ohms e mean deviation $\overline{D}$ is dings is $\frac{\sum  d }{n}$	(2 -(4 in terms of dev (2	2) 4) viati 2)	Mega ohms fraction of 1 ions from the $r$ $\sqrt{\sum d^2/n}$	ohms	of
×	(1) (3) The read (1)	$10 \Omega$ Kilo ohms e mean deviation $\overline{D}$ is dings is $\frac{\sum  d }{n}$	(2 -(4 in terms of dev (2	2) 4) viati 2)	Mega ohms fraction of 1 ions from the $r$ $\sqrt{\sum d^2/n}$	ohms	of

(19)

1

Question No.	•	<b>Questions</b>	estions			Questio No.
98.	The	vd novig ei taioq gaiter transfer function of a system	oqo an tu is G (s) :	$=\frac{100 e^{-st}}{s(s+10)}$ , th	itată ae system	95, 1
	(1)	te output	nange in th	infinitesimal cl		
	(3)	has a transportation lag	(4) t ni egand	adt fo enoN infinitesimal cl	e above	
99.	808	6 microprocessor has address	bus of the	infinitesimal cl	(5)	
	(1)	16 bits	(2)	24 bits		
	(3)	20 bits	(1)	Qhita	(8)	
100. 10 reb	(1)	6 has a bus cycle of at least 4 clock periods	(2)	Absolute value Absolute value <b>approved a solo 2</b> Absolute value	iods)	.96
State Links of Male Streen Capital	(1)	6 has a bus cycle of at least	(2)	Absolute value	iods) ese r ent	.96.
der of	(1) 0(3)	6 has a bus cycle of at least 4 clock periods 3 clock periods 10 er ogcoson you short an emdo sysM (2) 1 to noitosti (b)	(2) 5 to son	Absolute value <b>2.clock-per</b> <b>2.clock-per</b> <b>1.clo ohme</b> Kilo ohme	iods) ese The 1 (1) (3)	.96.
der of	(1) 0(3)	6 has a bus cycle of at least 4 clock periods 3 clock periods 1 io er equipacities yer ebodites ando ageM (2)	(2) 5 to son	Absolute value <b>2.clock-per</b> <b>2.clock-per</b> <b>1.clo ohme</b> Kilo ohme	(A) ese The The (1) (3)	96. 97.
der of	(1) 0(3)	6 has a bus cycle of at least 4 clock periods 3 clock periods 10 er ogcoson you short an emdo sysM (2) 1 to noitosti (b)	(2) 5 to son	Absolute value req. doolog Mt-fo-eno Input impeda 10 Ω Kilo ohms mean deviati	(4) iods ese The 1 (1) (3) (3) The 1 read	
der of	(1) 0(3)	6 has a bus cycle of at least 4 clock periods 3 clock periods (2) Mega ohma (4) fraction of 1 (4) fractions from the	(2) 5 to son	Absolute value reg. dollars Absolute value Absolute value Absolute value Absolute value Absolute value Milo ohme Mean deviati	iods) ese The T (1) (3) The 1 readi readi (1)	

Code C	ESTION BOOKLET BEFORE TIME OR UNTIL (M.Phil/Ph.D/URS-EE-201 Electronics & Communication Engineering	8) Sr. Nd. 00003
Time : 1¼ Hours Roll No.	Max. Marks : 100 (in figure)	Total Questions : 100
Name :	Father's Name :	(in words)
Mother's Name :	Date of Examination	ion:
(Signature of the cand	lidate) (Sig	noture of the T

(Set-"X")

CANDIDATES MUST READ THE FOLLOWING INFORMATION/ INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

- 1. All questions are compulsory.
- 2. The candidates must return the Question book-let as well as OMR answer-sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 4. Question Booklet along with answer key of all the A, B, C, D code will be got uploaded on the University website after the conduct of Entrance Examination. In case there is any discrepancy in the Question Booklet / Answer Key, the same may be brought to the notice of the Controller of Examination in writing / through E.Mail within 24 hours of uploading the same on the University Website. Thereafter, no complaint in any case, will be considered
- 5. The candidate MUST NOT do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question book-let itself. Answers MUST NOT be ticked in the Question book-let.
- 6. There will be no Negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
- 7. Use only Black or Blue <u>BALL POINT PEN</u> of good quality in the OMR Answer-Sheet.
- 8. BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE BOOK-LET. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER STARTING OF THE EXAMINATION.

Question No.	encontration Q	uestions	
1.	Poisson's equation is given by	1.4.10.20	an and share a manager of
911 <u>1</u> 111	(1) $\nabla .\mathbf{D} = 0$	(2)	$\nabla^2 \mathbf{V} = 0$
	$\nabla^2 V = -\frac{\rho}{\epsilon}$	(4)	$\nabla^2 \mathbf{V} = \mathbf{V}_{\mathbf{e}_0}$
2.	The total flux of a closed surfa within the surface. This stateme		
	(1) Divergence Theorem	(2)	Gauss's Law
	(3) Faraday Law	(4)	Maxwells equations
3.	The divergence of a vector $\overline{A} = x$	âx + y ây +	-zâz is
	(1) 0.	(2)	$\frac{1}{3}$
	(3) 1 1	(4)	3 CRAC MINE 1
4.	Which of the following expressio	n is true	for a perfect dielectric
-91011-49	(1) σ≫w∈	(2)	σ=we
	(3) σ< <we< td=""><td>(4)</td><td><math>\sigma = \sqrt{w \epsilon}</math></td></we<>	(4)	$\sigma = \sqrt{w \epsilon}$
5.	Given that $\sigma = 38 \text{ m S/m } \& \mu_r$ frequency of 2 MHz would be equ		uminium, the skin depth at a
der op.	(1) 64.5 nm	(2)	64.5 μm
	(3) 57.7 nm	(4)	57.77 μm
6.	The power density of solar rad approximate value of electric fie power is given by (1) 950 V/m		
	(3) 450 V/m	(4)	475 V/m

(1)

Code-C

Question No.		Questions	
7.	A plane wave in air impinges at wave propagates at an angle 30 dielectric constant of the dielectric	)° with resp	e less dielectric. The transmitted bect to the normal. The value of
	(1) 2.5	(2)	2.0
	(3) 3.0	(4)	4.0
8.	A plane wave travelling in a free having $\in_r = 4.0$ . The fraction of given by	ee space is i of power tra	ncident normally on a medium ansmitted in to the medium is
	(1)  8/9	(2)	1/2
	(3) $\frac{1}{3}$	(4)	5/6
9.	A metallic waveguide can be co	nsidered as	3a
- je r	(1) low pass filter	(2)	high pass filter
	(3) band pass filter	(4)	band reject filter
10.			
10.	4 cm. The largest number of h		
10.	4 cm. The largest number of h the waveguide is		
10.	<ul> <li>4 cm. The largest number of h the waveguide is</li> <li>(1) 1</li> <li>(3) 2</li> <li>For a common base BJT, havin</li> </ul>	alf waves of (2) (4) $\overline{g I_a = 5 \text{ mA}}$	of electric intensity possible in 3
	<ul> <li>4 cm. The largest number of h the waveguide is</li> <li>(1) 1</li> <li>(3) 2</li> <li>For a common base BJT, havin mV is applied between the base</li> </ul>	alf waves of (2) (4) $\overline{g I_a = 5 \text{ mA}}$	of electric intensity possible in 3 4 and $\alpha = 0.97$ an AC signal of 5
	<ul> <li>4 cm. The largest number of h the waveguide is</li> <li>(1) 1</li> <li>(3) 2</li> <li>For a common base BJT, havin mV is applied between the ba impedance is given by</li> </ul>	alf waves of (2) (4) $g I_e = 5 mA$ se and the	of electric intensity possible in 3 4 and $\alpha = 0.97$ an AC signal of 5 emitter terminals. The input
	<ul> <li>4 cm. The largest number of h the waveguide is</li> <li>(1) 1</li> <li>(3) 2</li> <li>For a common base BJT, havin mV is applied between the ba impedance is given by</li> <li>(1) 5.2 Ω</li> </ul>	alf waves of (2) (4) $g I_e = 5 mA$ se and the (2) (4)	of electric intensity possible in 3 4 and $\alpha = 0.97$ an AC signal of 5 emitter terminals. The input $6 \Omega$ $6.7 \Omega$
11.	<ul> <li>4 cm. The largest number of h the waveguide is</li> <li>(1) 1</li> <li>(3) 2</li> <li>For a common base BJT, havin mV is applied between the baimpedance is given by</li> <li>(1) 5.2 Ω</li> <li>(3) 4.9 Ω</li> </ul>	alf waves of (2) (4) $g I_e = 5 mA$ se and the (2) (4)	and $\alpha = 0.97$ an AC signal of 5 emitter terminals. The input $6 \Omega$ $6.7 \Omega$

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Question No.	Questions
13.	If the source resistance, the output resistance of emitter follower using the simplified hybrid model would be
	(1) $\frac{h_{ie} + R_s}{1 + h_{fe}}$ (2) $\frac{h_{ie} + R_s}{h_{fe}}$
	(3) $R_{g} + \frac{1}{h_{oe}}$ (4) $\frac{1}{h_{oe}}$
14.	The ripple factor is given by
	(1) $\sqrt{\left(\frac{I_{rms}}{I_{dc}}\right)^2 - 1}$ (2) $\left(1 - \sqrt{\frac{I_{rms}}{I_d}}\right)^2$
	$( V I_d )$
	(3) $\frac{I_{rms}}{I_{dc}}$ (4) $\frac{I_{dc}}{I_{rms}}$
15.	Following circuits is given by :
	$ \begin{array}{c} \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} $
5	(1) Bridge rectifier (2) Ring modulator
a 10	(3) Frequency discriminator (4) Voltage doubler
16.	For a transistor amplifier to be inherently stable against thermal ru away, the condition is
a daga sa	(1) $V_{CE} > \frac{V_{CC}}{2}$ (2) $V_{CE} < \frac{V_{CC}}{2}$
19	reaction is versile if the second standard and a second to the second second second second second second second
	(3) $V_{CE} = \frac{V_{CC}}{2}$ (4) $V_{CE} = 1.5 V_{CC}$

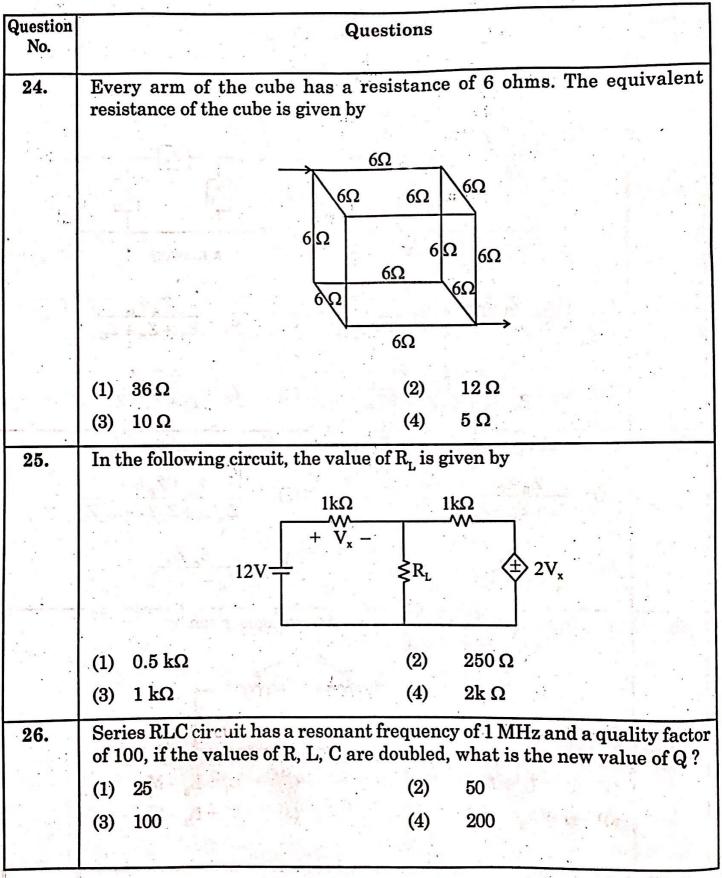
(3)

Question No.	Q	uestions
17.	For the circuit given the value of	f.V., is:
		is out the set of the
1	ſ	8V
	Ş	31.2
	L K	2 kΩ
	승규는 이 가슴을 가지 못했다. 훌 날	-10V
n in prov		V <sub>out</sub>
	(v <sub>B</sub>	$_{\rm BE} = 0.7 {\rm V}$
	(1) +5.14 V	(2) $-6.14$ V
	(3) -5.14 V	(4) +6.14 V
N		
18.	The gain of a transistor ar plifie	r falls at high frequency due to the
18.		r falls at high frequency due to the device
18.	(1) internal capacitance of the o	device
18.	<ol> <li>(1) internal capacitance of the of</li> <li>(2) coupling capacitor at the injust</li> </ol>	device
18.	<ol> <li>(1) internal capacitance of the o</li> <li>(2) coupling capacitor at the inj</li> <li>(3) skin effect</li> </ol>	device put
	<ol> <li>internal capacitance of the o</li> <li>coupling capacitor at the inj</li> <li>skin effect</li> <li>coupling capacitor at the ou</li> </ol>	device put itput
18.	<ol> <li>(1) internal capacitance of the o</li> <li>(2) coupling capacitor at the inj</li> <li>(3) skin effect</li> </ol>	device put itput
	<ul> <li>(1) internal capacitance of the original capacitor at the input (2) coupling capacitor at the input (3) skin effect</li> <li>(4) coupling capacitor at the out of the effect of negative feedback of N</li> </ul>	device put atput on Noise is
	<ol> <li>internal capacitance of the o</li> <li>coupling capacitor at the inj</li> <li>skin effect</li> <li>coupling capacitor at the ou</li> </ol>	device put itput
	(1) internal capacitance of the original capacitor at the input of the original skin effect (3) skin effect (4) coupling capacitor at the out The effect of negative feedback of the original statement of the original statem	device put atput on Noise is (2) N $(1 - \beta A)$ N
	<ul> <li>(1) internal capacitance of the original capacitor at the input (2) coupling capacitor at the input (3) skin effect</li> <li>(4) coupling capacitor at the out of the effect of negative feedback of N</li> </ul>	device put atput on Noise is
	(1) internal capacitance of the original capacitor at the input of the original skin effect (3) skin effect (4) coupling capacitor at the out The effect of negative feedback of the original statement of the original statem	device put atput on Noise is (2) N (1 - $\beta$ A) (4) $\frac{N}{1+\beta A}$
19.	(1) internal capacitance of the of (2) coupling capacitor at the inp (3) skin effect (4) coupling capacitor at the out The effect of negative feedback of (1) $\frac{N}{1-\beta A}$ (3) N (1 + $\beta A$ )	device put atput on Noise is (2) N (1 - $\beta$ A) (4) $\frac{N}{1+\beta A}$

uestion No.	Questions
21.	T to $\pi$ transformation gives the value of $Z_c \Rightarrow$
·	$ \begin{array}{ccc} Z_1 & Z_2 \\ \circ & & & & \\ \end{array} \\ \circ & & & & \\ \end{array} $
	$z_{3} \Leftrightarrow Z_{B} Z_{C}$
	$\begin{array}{c} \bullet \\ T \text{ network} \end{array} \circ \begin{array}{c} \bullet \\ \pi \text{ network} \end{array} \circ \\ \end{array}$
	(1) $\left(Z_{c} = \frac{Z_{1}Z_{2} + Z_{2}Z_{3} + Z_{1}Z_{3}}{Z_{1}}\right)$ (2) $Z_{c} = \frac{Z_{A}Z_{B}}{Z_{A} + Z_{B} + Z_{C}}$
	(3) $Z_{c} = \frac{Z_{A} + Z_{B} + Z_{C}}{Z_{A} Z_{B} + Z_{A} Z_{C} + Z_{B} Z_{C}}$ (4) $Z_{c} = \frac{Z_{1} Z_{2} Z_{3}}{Z_{1} + Z_{2} + Z_{3}}$
22.	In the above question $\pi$ to T conversion gives the value of $Z_1$
	(1) $\frac{Z_B Z_C}{Z_A + Z_B + Z_C}$ (2) $\frac{Z_A + Z_B + Z_C}{Z_A Z_B + Z_B Z_C + Z_C Z_A}$
	(3) $\frac{Z_1 + Z_2}{Z_1 + Z_2 + Z_3}$ (4) $\frac{Z_A Z_B}{Z_A + Z_B + Z_C}$
23.	The equivalent inductance of the following is given by
1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	
	(1) $L_1 + L_2 + M$ (2) $L_1 + L_2 - M$
	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
	(4) $L_1 + L_2 - 2M$

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Question No.	Questions
27.	In a series RLC circuit $R=2k\Omega,\ L=1H,\ C=\frac{1}{400}\ \mu F,$ The resonant frequency is
	(1) $2 \times 10^4$ Hz (2) $\frac{10^4}{\pi}$ Hz
28.	(3) 10 kHz(4) 20π kHzFor a 2-port network to be reciprocal, following is true
65 (Y) (SS	(1) $Z_{11} = Z_{22}$ and $Y_{11} = Y_{22}$ (2) $Y_{21} = Y_{12} \& h_{21} = -h_{12}$ (3) $AD - BC = 0$ (4) $AB - CD = 0$
<b>29.</b>	The network shown behaves like a $1^{\circ} \xrightarrow{C} 1^{\circ} \xrightarrow{R} 2^{\circ} \xrightarrow{0.4} 0^{\circ} 4$
	<ul> <li>(1) High pass filter</li> <li>(2) LPF</li> <li>(3) BPF</li> <li>(4) Band stop filter</li> </ul>
30.	If the scattering matrix [S] of a two port network is $[S] = \begin{bmatrix} 0.2 \angle 0^{\circ} & 0.9 \angle 90^{\circ} \\ 0.9 \angle 90^{\circ} & 0.1 \angle 90^{\circ} \end{bmatrix}$ then the network is (1) lossless and reciprocal (2) lossless but non reciprocal
	(1)Iossiess and recipiocal(2)Iossiess but non recipiocal(3)lossy but reciprocal(4)neither lossy nor reciprocal
31.	8086 has basic no. of instructions         (1) 64       (2) 117         (3) 128       (4) 256

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uestion No.	Questions
<b>32.</b>	The starting address of an interrupt is called (in 8086 Micro processor)(1) stack pointer(2) program counter(3) interrupt output(4) interrupt vector
83.	In 8086 type O interrupt is reserved for(1) single step(2) NMI(3) Interrupt on overflow(4) Divide Error
34.	For a fully controlled single phase converter supplies power to a resistiv load of 10Ω, the input voltage is 230 V, 50 Hz, the value of average output voltage is for $\alpha = 45^{\circ}$
	(1) 276.74V (2) 376.74V (3) 176.74V (4) 76.74V
<b>35.</b>	Consider the circuit shown. What is the minimum width of gate pulse the ensure turn of the thyristor ( $I_L = 4 \text{ mA}$ ). T T 220V 0.2H
ipozed	(1) $2 \mu s$ (3) $6 \mu s$ (4) $8 \mu s$
· · · · · · · · · · · · · · · · · · ·	<u>이 가지 않는 것이 있는 것이 없이 있는 것이 없다. 이 가지 않는 것이 있는 것이 있는 것이 있는 것이 가지 않는 것이 없는 것이 가지 않는 것이 없다. 이 가지 않는 것이 있는 것이 있는 것이 가</u>

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Question No.	Que	stions	B.C. 13, 239
37.	Chopper is used for conversion of	i i st	a the table of En-
	(1) ac to dc	(2)	dc to ac
	(3) ac to ac	(4)	dc to dc
38.	Class 'C' chopper works in the follo	wing qu	adrants
	(1) 1st	(2)	2nd
	(3) 1st & 2nd	(4)	All quadrants
39.	Induction heating is used for	. *	
	(1) Volume heating	(2)	Plastic packing
	(3) Plyboard industry	(4)	Surface heating
40.	For speed control of ac motors foll	owing a	re used
	(1) Cyclo converters	(2)	Choppers
	(3) Rectifiers	(4)	UJT and SCR
41.	The region of convergence of z-tra	nsform	of the sequence
	$\left[\frac{5}{6}\right]^{n} u(n) - \left[\frac{6}{5}\right]^{n} u(-n-1) \text{ is}$		
	(1) $ z  < \frac{5}{6}$	(2)	$ z  > \frac{5}{6}$
	(3) $\frac{5}{6} <  \mathbf{z}  < \frac{6}{5}$	(4)	$\frac{6}{5} <  \mathbf{z}  < \infty$
42.	The power saving in case of SSB/SC signal for modulation index = $0.5$ is		as compared to a standard AN
	(1) 94.4%	(2)	23.2 %
	(3) 56.7%	(4)	75 %

(9)

Question No.	n Questions	
43.	Which of the following suffer (s) from the threshold effect	<b>5</b> 10 10 10 10
	(1) AM detection using envelope detection	<u>s</u> 0-
	(2) AM detection using synchronors detection	
	(3) FM detection using a discriminator	
	(4) SSB detection with synchronous detection	
44.	A sinusoidal wave of amplitude 10 V and frequency 1kHz FM generator having a frequency sensitivity constant of frequency deviation is	is applied to an of 40 Hz/V, the
1	(1) 100 Hz (2) 200 Hz	
	(3) 400 Hz (4) 500 Hz	
45.	In a VSB system, modulating frequency of 3 MHz result power of 25 W. If the carri r power is 100 W, the depth o (1) 25% (2) 50%	s in a sideband f modulation is
46.	An FM signal is represented by $v(t) = 15 \cos [10^8 \pi t + 6 \sin \pi t +$	$12\pi \times 10^3$ t]. The
	(1) 5 (3) 6 (4) 9	
47.	(1)5(3)6(4)9PLL can be used to demodulate	
47.	(1)5(-)(3)6(4)9PLL can be used to demodulate(1)PAM signals(2)(1)PAM signals(2)FM signals	
47.	(1) 5 (3) 6 (4) 9 PLL can be used to demodulate	
<b>47.</b> <b>48.</b>	(1)5(-)(3)6(4)9PLL can be used to demodulate(1)PAM signals(1)PAM signals(2)FM signals	
	(1)5(-)(3)6(4)9PLL can be used to demodulate(1)PAM signals(1)PAM signals(2)FM signals(3)PCM(4)DSBSC	
	(1) 5(-)(3) 6(4) 9PLL can be used to demodulate(1) PAM signals(2) FM signals(3) PCM(4) DSBSCPAM signals can be detected by using	lter

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Question No.	Questions
49.	The input to a coherent detector is DSBSC signal plus Noise, the noise at the detector output is given by
	(1) In phase component (2) Quadrature component
	(3) Zero (4) Envelope
50.	A Hilbert transformer is a
	(1) Non linear system (2) Non-causal system
	(3) Time-varying system (4) Low pass system
51.	The octal equivalent of Hexadecimal number 2E.C1 would be
	(1) 212.602 (2) 56.602
	(3) 56.623 (4) 65.302
52.	The complement of complement of $\overline{A}B + A\overline{B}$ will be
	(1) $AB + \overline{A}\overline{B}$ (2) $\overline{A}B$
	(3) $\overline{A}B + A\overline{B}$ (4) $\overline{A}B \cdot (\overline{A} + B)$
53.	What is minimum number of 2-input NAND gates required to complement a 2-input OR gate
114 1 2	(1) 2 (2) 4
	(3) 3 (4) 5
54.	A basic CMOS two input NAND gate requires
	(1) Two N-channel MOSFETs
· · · · ·	(2) Two N-Channel & two P-channel MOSFETs
	(3) Two P-Channel MOSFETs
	(4) One N-Channel and one P-channel MOSFET
55.	IC 7402 is a - 2 input,
	(1) NAND gate (2) EX-OR gate
	(3) NOR gate (4) OR Gate

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Question No.	Quest	ions	
56.	A decoder is nothing but a DEMUX w	vithou	t
	(1) control inputs	(2)	data input
	(3) enable input	(4)	clock
57.	The size of a PROM needed to implem selection inputs would be	ient a	dual 8 to 1 MUX with commo
	(1) $256 \text{ K} \times 2$	(2)	512 K × 2
	(3) $1024 \text{ K} \times 2$	(4)	128 K × 2
58.	Which one of following is not a synchronic flop	ronou	s input with reference to a fl
	(1) J input in JK flip flop	(2)	R input in RS flip flop
	(3) Preset input in JK flip flop	(4)	D-input in a D flip flop
59.	A counter having a module 3 of 64 sho	uld ha	ave a minimum of
	(1) Six flip flops	(2)	Seven flip flops
	(3) $5 - D - $ flip flops	(4)	64 flip flops
60.	A logic circuit that gives a pulsed way input	veform	at the output for a sinusoid
	(1) Bi stable multivibrator	(2)	Monostable multivibrator
	(3) Astable multivibrator	(4)	Schmitt trigger
61.	The Nyquist rate for message signal	given	by
	$m(t) = 10 \cos 10^3 \pi t \cdot \cos 4 \times 10^3 \pi t$ is	8	
	(1) 10 kHz	(2)	2.5 kHz
	(3) 5 kHz	(4)	2 kHz
62.	Compression in PCM refers to relativ	ve con	apression of
	(1) Lower signal amplitudes	(2)	
	(3) Lower signal frequencies	(4)	Higher signal amplitudes
		(1)	Higher signal frequencies

Question No.		uestions?	
63.	For a bit rate of 8 kbps, the frequencies in a coherent binary	best possi y FSK syst	ble values of the transmitted
1 1 1	(1) 16 kHz and 20 kHz	(2).	20 kHz and 32 kHz
	(3) 20 kHz and 40 kHz	(4)	32 kHz and 40 kHz
64.	Which function displays a string at its end ?	g of text ar	nd append a new line character
	(1) putchar()	(2)	printf()
	(3) puts ()	(4)	put ()
65.	What will be output of the for a [i] = i ++;	llowing co	ode if $i = 10$ and $a[10] = 20$ ;
	(1) a [10] will be 10	(2)	a [11] will be 11
	(3) a [11] will be 10	(4)	None of the above
66.	Following statement is given		
	a = 0;		e en l'hacher d'hacher
с / С	b = (a = 0) ? 2 : 3;		
- Spin and	What will be the value of b	n Markinstra	
	(1) 2	(2)	3
	(3) 0	(4)	1
67.	Find the output for the followin	g C progra	<b>m</b> :
a sheller	main()		
100	$\{ int x = 2, y = 6, z = 6; $	and the state	
f., 11	$\mathbf{x} = \mathbf{y} = \mathbf{z};$	it. Sin	ne cars a north
	printf (" % d", x)		
	(1) 1	(2)	2
	(3) 6	(4)	8

(13)

Question No.	Que	stions	26A	
68.	The data type of the controlling statement of a switch statement can no be of the type :			
	(1) int	(2)	char	
	(3) short	(4)	float	
69.	main(){	1 14 15 V 25	the second by second second	
	Char a [] = "Hello world";			
	print f (" % s", a + 1) ;		a salar dal f	
1.00	· · · · · · · · · · · · · · · · · · ·		and have a serie of the series	
	What is the output of above 'C' pro	gram		
Į.	(1) Compilation Error	(2)	Garbage Output	
	(3) ello World	(4)	hello world	
70.	FORTRAN is a		a share a service a s	
	(1) High level language	(2)	Low level language	
	(3) OOP language	(4)	Machine language	
71.	Three resistances $R_1 = 37$ ohm $\pm 5\%$ Determine the value of series resistences	-	v	
	(1) ± 5%	(2)	± 7.5%	
	(3) ± 3.5%	(4)	± 8.10%	
72.	A 160 $\pm$ 0% PF capacitor, an in 1200 $\pm$ 10 $\Omega$ are connected in serie			
	(1) 1000 kHz	(2)	100 kHz	
	(3) 1.1 MHz	(4)	0.9 MHz	

Question No.	•	Qı	lestions	000599. 
73.	Nor	mal probability curve is deno	ted by	topic web man an P-1
	(1)	$\frac{1}{\sigma\sqrt{2\pi}} \exp(x^2/2\sigma^2)$	(2)	$\frac{1}{\sigma\sqrt{2\pi}}e^{x/2\sigma^2}$
	(3)	$\frac{1}{\sigma\sqrt{2\pi}}\exp\left(-x^2/2\sigma^2\right)$	(4)	$\frac{1}{\sigma\sqrt{2\pi}} \exp\left(x^3/2\sigma^3\right)$
74.	Rel	ative static error may be defin	ned as	
	(1)	true value Absolute Error	(2)	true value – Absolute Error true value
	(3)	Absolute Error true value + Absolute Error	(4)	Absolute Error true value
75.	Sta	tic sensitivity at an operating	point is g	given by
	(1)	infinitesimal change in the output infinitesimal change in the input	it t	n de la company a company de la company. A company a company a company a company a company a company a company
neme o lao ne conserva	(2)	infinitesimal change in the input infinitesimal change in the output	it	and and a state of a
	(3)	true value Absolute value		novaz, dosla k (23
	(4)	Absolute value true value		ar an
76.	The	input impedance of a cathod	e ray osc	illoscope is of the order of
	(1)	10 Ω	(2)	Mega ohms
$-a - ca^{+}$	(3)	Kilo ohms		

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(15)

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Question No.	Questions
1.01	
77.	The mean deviation $\overline{D}$ in terms of deviations from the mean value of readings is
	(1) $\frac{\sum  \mathbf{d} }{\mathbf{n}}$ (2) $\sqrt{\sum \frac{\mathbf{d}^2}{\mathbf{n}}}$
	(3) $\sum d/n$ (4) $\sqrt{\frac{\sum d^2}{n}}$
	(c) $\sum u n$
78.	The transfer function of a system is G (s) = $\frac{100 e^{-st}}{s(s+10)}$ , the system
	(1) is a linear system (2) is a nonlinear system
	(3) has a transportation lag (4) None of the above
79.	8086 microprocessor has address bus of
	(1) 16 bits (2) 24 bits
	(3) 20 bits (4) 8 bits
80.	8086 has a bus cycle of at least
<b>`</b> *	(1) 4 clock periods (2) 2 clock periods
	(3) 3 clock periods (4) None of these
81.	Current density in a semiconductor material is given by
le r	(1) $J = n \mu_n q/E$ (2) $J = p \mu p q/E$
5	(3) $J = (n \mu_n + p \mu p) \cdot E$ (4) $J = (n \mu_n + p \mu p) / E$

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Question No.	Que	stions	Z Z Z
82.	Fermi Level for a P-type semicondu	ictor is	given by
	(1) $E_F = E_V - KT \ln \frac{N_A}{N_V}$	(2)	$\mathbf{E}_{\mathrm{F}} = -\mathbf{E}_{\mathrm{V}} + \mathrm{KT} \ln \frac{\mathrm{N}_{\mathrm{A}}}{\mathrm{N}_{\mathrm{V}}}$
	(3) $E_F = E_V - K_T \ln \frac{N_A}{N_V}$	(4)	$\mathbf{E}_{\mathbf{F}} = \mathbf{E}_{\mathbf{C}} - \mathbf{K}_{\mathbf{T}}  l \mathbf{n}  \frac{\mathbf{N}_{\mathbf{C}}}{\mathbf{N}_{\mathbf{D}}}$
83.	For conductors the value of Hall co	efficien	t is given by
	$(1)  \mathbf{R}_{\mathrm{H}} = \frac{1}{\mathrm{nq}}$	(2)	$\mathbf{R}_{\mathbf{H}} = \frac{\mathbf{nq}}{\mu_{\mathbf{n}}}$
	$(3)  \mathbf{R}_{\mathrm{H}} = \frac{\mu_{\mathrm{p}}}{\mathrm{nq}}$	(4)	$R_{\rm H} = \frac{n\mu_{\rm n} + p\mu_{\rm p}}{q}$
84.	The band gap energy of Ge at 300 K	is giv	en by
	(1) $\mathbf{E} = 0.705 - 37$	10	Man all the second s
and the second	(1) $E_g = 0.785  eV$	(2)	$E_{g} = 1.121 \text{ eV}$
			$E_g = 1.121 \text{ eV}$ $E_g = 1.212 \text{ eV}$
85.		(4) on, the	E <sub>g</sub> = 1.212 eV injected minority current for
85.	(3) $E_g = 0.7181 \text{ eV}$ Under low level injection assumption	(4) on, the	E <sub>g</sub> = 1.212 eV injected minority current for
85.	(3) $E_g = 0.7181 \text{ eV}$ Under low level injection assumption an extrinsic semiconductor is essentiated as the semiconductor essentiated as the semiconductor essentiated as	(4) on, the cially t	E <sub>g</sub> = 1.212 eV injected minority current for he
85.	<ul> <li>(3) E<sub>g</sub>=0.7181 eV</li> <li>Under low level injection assumpti an extrinsic semiconductor is essent</li> <li>(1) Diffusion current</li> </ul>	(4) on, the cially the (2) (4)	E <sub>g</sub> = 1.212 eV injected minority current for he Drift current Induction current
	<ul> <li>(3) E<sub>g</sub>=0.7181 eV</li> <li>Under low level injection assumption an extrinsic semiconductor is essential (1) Diffusion current</li> <li>(3) Recombination current</li> <li>Ga As has band gap energy of the order</li> </ul>	(4) on, the tially the (2) (4) rder of	E <sub>g</sub> = 1.212 eV injected minority current for he Drift current Induction current
	<ul> <li>(3) E<sub>g</sub>=0.7181 eV</li> <li>Under low level injection assumpti an extrinsic semiconductor is essent</li> <li>(1) Diffusion current</li> <li>(3) Recombination current</li> <li>Ga As has band gap energy of the order</li> </ul>	(4) on, the tially the (2) (4) rder of	E <sub>g</sub> = 1.212 eV injected minority current for he Drift current Induction current
86.	<ul> <li>(3) E<sub>g</sub>=0.7181 eV</li> <li>Under low level injection assumption an extrinsic semiconductor is essential (1) Diffusion current</li> <li>(3) Recombination current</li> <li>Ga As has band gap energy of the original (1) 1.43 eV</li> <li>(3) 2.4 eV</li> </ul>	(4) on, the tially the (2) (4) rder of (2) (4)	E <sub>g</sub> = 1.212 eV injected minority current for he Drift current Induction current 0.7 eV 1.6 eV
86.	<ul> <li>(3) E<sub>g</sub>=0.7181 eV</li> <li>Under low level injection assumpti an extrinsic semiconductor is essent</li> <li>(1) Diffusion current</li> <li>(3) Recombination current</li> <li>Ga As has band gap energy of the or</li> <li>(1) 1.43 eV</li> <li>(2) 9.4 eV</li> </ul>	(4) on, the cially the (2) (4) rder of (2) (4) tion in	E <sub>g</sub> = 1.212 eV injected minority current for he Drift current Induction current 0.7 eV 1.6 eV

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## Code-(

.1

uestion No.	Questions
88.	In the given circuit, the value of collector current is :
	$\alpha = 0.95$
	$= \frac{1}{1} + $
	(1) $0.8 \mathrm{mA}$ (2) $0.9 \mathrm{mA}$
	(3) 0.947 mA (4) 0.847 A
89.	MOSFET can be used as a
	(1) Current controlled capacitor (2) Voltage controlled capacitor
	(3) Current controlled inductor (4) Voltage controlled inductor
90.	The effective channel length of a MOSFET in saturation decreases with the increase in
	(1) Gate voltage (2) Drain voltage
	(3) Source voltage (4) Body voltage
91.	The open loop transfer function of a certain control system is given by $GH = \frac{K}{(S+2)^3}$ for K > 0. For what value of gain factor; K, will the root
and the second	locus of the control system cross the jw-axis.
	(1) 8 (2) 14
	(3) 24 (4) 64
PHD-EF	-2018-Electronics & Communication Engineering-Code-C

1 7.

Question No.	Questions
92.	For the above question, the value of the damping factor ξ for a design value of gain factor equal to 8 ?(1) 0.5(2) 0.3(3) 0.707(4) 0.866
93.	A system has 14 poles and 2-zeroes. Its high frequency asymptote in its magnitude plot will have a slope of
	(1) $-40 \text{ dB/decade}$ (2) $-240 \text{ dB/decade}$
	(3) $-280 \text{ dB/decade}$ (4) $-320 \text{ dB/decade}$
	Bode plot of a stable system is shown in the following figure. The transfer function of the system is : $ \begin{array}{c} g_{ain} \\ (dB) \\ \uparrow \\ \end{array} $ $ \begin{array}{c} 20 \\ (dB) \\ \hline \\ w=1 \\ \end{array} $ $ \begin{array}{c} 20 \\ W=1 \\ \hline \\ w=1 \\ \end{array} $ $ \begin{array}{c} 20 \\ (dB) \\ W=1 \\ \hline \\ W=1 \\ \end{array} $ $ \begin{array}{c} 20 \\ (dB) \\ (dB) \\ W=1 \\ \hline \\ W=1 \\ \end{array} $
	(3) $\frac{1}{S(S+1)}$ (4) $\frac{10}{s(s+1)}$
95.	The state transition matrix represents (1) Forced response of the system
	(2) Free response of the system
	(3) Transient response of the system
	(4) None of these

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uestion No.	Questions
96.	The attenuation of the optical fiber is of the order of
	(1) $0.01  dB/K_m$ (2) $0.2  dB/K_m$
	(3) $20  \mathrm{dB/K_m}$ (4) $-40  \mathrm{dB/K_m}$
97.	The operating frequency corresponding to 1550'nm is
2, 310	(1) 193 THz (2) 19.3 THz
	(3) 100 THz (4) 300 THz
98.	Which of the following operational mode is likely to produce the shorter pulse width
មិនស្វារវិតុំស ក្នុងស្វារវិតិស្វា	(1) Q-switched (2) Cavity dumped
	(3) Quasi-CW (4) Mode Locked
99.	In optical communication systems, zero dispersion wavelength is operation at
	(1) 800 nm (2) 1330 nm
	(3) 1550 nm (4) 1630 nm
100.	In DWDM technology, the separation between the adjacent channels is the order of
	(1) $4-6 \text{ nm}$ (2) $0.8 \text{ nm}$
	(3) 0.1 nm (4) 8–10 nm
	and so were an and a second and a
and the second	

	(Set–"X")
(D	O NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)
	(M.Phil/Ph.D/URS-EE-2018)
Co	de D Electronics & Communication Sr. No100004
Tir	me: 1 <sup>1</sup> / <sub>4</sub> Hours Max. Marks: 100 Total Questions: 100
	l No (in figure) (in words)
No	me : Father's Name :
M	ther's Name : Date of Examination :
1/10	
(Si	gnature of the candidate) (Signature of the Invigilator)
CA IN 1. 2. 3. 4.	Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate. Question Booklet along with answer key of all the A, B, C, D code will be got uploaded on the University website after the conduct of Entrance Examination. In case there is any discrepancy in the Question Booklet / Answer Key, the same may be brought to the notice of the Controller of Examination in writing / through E.Mail within 24 hours of uploading the same on the University Website. Thereafter, no complaint in any case, will be considered
5.	The candidate MUST NOT do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question book-let itself. Answers MUST NOT be ticked in the Question book-let.
6.	There will be no Negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
7.	Use only Black or Blue <u>BALL POINT PEN</u> of good quality in the OMR Answer- Shoet
8.	Sheet. BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE BOOK-LET. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER STARTING OF THE EXAMINATION.

Question No.	Questions
1.	The Nyquist rate for message signal given by
	$m(t) = 10 \cos 10^3 \pi t \cdot \cos 4 \times 10^3 \pi t$ is
	(1) 10 kHz (2) 2.5 kHz
	(3) $5 \mathrm{kHz}$ (4) $-2 \mathrm{kHz}$
2.	Compression in PCM refers to relative compression of
¢	(1) Lower signal amplitudes (2) Higher signal amplitudes
	(3) Lower signal frequencies (4) Higher signal frequencies
3.	For a bit rate of 8 kbps, the best possible values of the transmitted frequencies in a coherent binary FSK system are
	(1) $16 \text{ kHz}$ and $20 \text{ kHz}$ (2) $20 \text{ kHz}$ and $32 \text{ kHz}$
	(3) 20 kHz and 40 kHz (4) 32 kHz and 40 kHz
4.	Which function displays a string of text and append a new line character at its end ?
	(1) putchar () (2) printf ()
-	(3) puts () (4) put ()
5.	What will be output of the following code if i = 10 and a[10] = 20 a [i] = i ++;
	(1) a [10] will be 10 (2) a [11] will be 11
•	(3) a [11] will be 10 (4) None of the above
6.	Following statement is given
	a = 0;
	b = (a = 0) ? 2 : 3;
	What will be the value of b
	(1) 2 (2) 3

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(1)

Question No.	Q	uestions	
7.	Find the output for the following main ()	g C progra	im :
	$\{int x = 2, y = 6, z = 6;$		
	x = y = = z; printf (" % d", x)		
	(1) 1	(2)	2
	(3) 6	(4)	8
8.	The data type of the controlling be of the type :	statement	t of a switch statement can not
	(1) int	(2)	char
	(3) short	(4)	float
9.	main(){		
	Char a [] = "Hello world";		
ni yayar .	print f (" % s", a + 1) ;		
	}		
	What is the output of above 'C' r	orogram	
	(1) Compilation Error	(2)	Garbage Output
	(3) ello World	(4)	hello world
10.	FORTRAN is a		
1	(1) High level language	. (2)	Low lovel law
	(3) OOP language	(4)	Low level language Machine language

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(2)

Question No.	Questions
11.	The open loop transfer function of a certain control system is given by
	$GH = \frac{K}{(S+2)^3}$ for $K > 0$ . For what value of gain factor, K, will the root
	locus of the control system cross the jw-axis.
	(1) 8 (2) 14
	(3) 24 (4) 64
12.	For the above question, the value of the damping factor $\xi$ for a design value of gain factor equal to 8 ?
	(1) 0.5 (2) 0.3
	(3) 0.707 (4) 0.866
13.	A system has 14 poles and 2-zeroes. Its high frequency asymptote in its magnitude plot will have a slope of
	(1) $-40 \text{ dB/decade}$ (2) $-240 \text{ dB/decade}$
	(3) - 280 dB/decade (4) - 320 dB/decade
14.	Bode plot of a stable system is shown in the following figure. The transfer function of the system is :
gi la la	$\begin{array}{c} 20\\ gain\\ (dB) \uparrow \end{array}$ 20 dB/decade
	$w=1 \rightarrow w$
	(1) $\frac{1}{(S+1)}$ (2) $\frac{10}{(S+1)}$
	(1) $\frac{1}{1}$ (2) $\frac{10}{(5+1)}$

(3)

Question No.	Questions
15.	The state transition matrix represents
	(1) Forced response of the system
	(2) Free response of the system
	(3) Transient response of the system
	(4) None of these
16.	The attenuation of the optical fiber is of the order of
	1 (1) 0.01 dB/K
	(3) $20  dB/K_m$ (2) $0.2  dB/K_m$
17.	-40  dB/K
	The operating frequency corresponding to 1550 nm is (1) 193 THz
	(3) $100 \text{ THz}$ (2) $19.3 \text{ THz}$
18.	(4) $300 \text{ TH}_{7}$
10.	Which of the following operational mode is likely to produce the shortes pulse width
	(1) Q-switched
	(3) Quasi-CW
19.	$(4) \qquad Moder T \qquad $
	In optical communication systems, zero dispersion wavelength is operating
. :	(1) 800 nm
	(3) 1550 nm (2) 1330 nm
20.	(4) 1620
	In DWDM technology, the separation between the adjacent channels is of
	(1) $4-6 \text{ nm}$
3	(3) 0.1 nm (2) 0.8 nm
·	(4) 8–10 nm 18-Electronics & Communication Engineering-Code-D

Question No.		Questions	
21.	The octal equivalent of Hexadeo	cimal numb	er 2E.C1 would be
	(1) 212.602	(2)	56.602
	(3) 56.623	(4)	65.302
22.	The complement of complemen	$t \text{ of } \overline{A} B + A$	$\overline{\mathbf{B}}$ will be
	(1) $AB + \overline{A}\overline{B}$	(2)	ĀB
	$(3)  \overline{A}B + A\overline{B}$	(4)	$\overline{A}B.(\overline{A}+B)$
23.	What is minimum number of 2-i a 2-input OR gate	nput NANI	) gates required to complement
	(1) 2	(2)	<b>4</b> ·
	(3) 3	(4)	5
24.	A basic CMOS two input NANI	) gate requi	res
	(1) Two N-channel MOSFETs	, .	
	(2) Two N-Channel & two P-ch	nannel MOS	FETs
	(3) Two P-Channel MOSFETs		
	(4) One N-Channel and one P-	channel MO	OSFET
25.	IC 7402 is a -2 input		
	(1) NAND gate	(9)	EX-OR gate
		(2)	Dir Oli Bato
	(3) NOR gate	(2)	OR Gate
26.		(4)	OR Gate
26.	(3) NOR gate	(4)	OR Gate
26.	<ul> <li>(3) NOR gate</li> <li>A decoder is nothing but a DEN</li> <li>(1) control inputs</li> <li>(3) enable input</li> </ul>	(4) AUX withou (2) (4)	OR Gate it data input clock
26. 27.	<ul> <li>(3) NOR gate</li> <li>A decoder is nothing but a DEN</li> <li>(1) control inputs</li> </ul>	(4) AUX withou (2) (4)	OR Gate it data input clock
	<ul> <li>(3) NOR gate</li> <li>A decoder is nothing but a DEN</li> <li>(1) control inputs</li> <li>(3) enable input</li> <li>The size of a PROM needed to in</li> </ul>	(4) AUX withou (2) (4)	OR Gate it data input clock

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Question No.	Questions				
28.	Which one of following is not a synchronous input with reference to a flip flop				
	(1) J input in JK flip flop (2) R input in RS flip flop				
	(3) Preset input in JK flip flop (4) D-input in a D flip flop				
29.	A counter having a modulus of 64 should have a minimum of				
	(1) Six flip flops (2) Seven flip flops				
	(3) $5 - D - $ flip flops (4) 64 flip flops				
30.	A logic circuit that gives a pulsed waveform at the output for a sinusoidal input				
	(1) Bi stable multivibrator (2) Monostable multivibrator				
	(3) Astable multivibrator (4) Schmitt trigger				
31.	Current density in a semiconductor material is given by				
1	(1) $J = n \mu_n q/E$ (2) $J = p \mu p q/E$				
	(3) $J = (n \mu_n + p \mu p) \cdot E$ (4) $J = (n \mu_n + p \mu p) / E$				
32.	Fermi Level for a P-type semiconductor is given by				
	(1) $E_F = E_V - KT \ln \frac{N_A}{N_V}$ (2) $E_F = -E_V + KT \ln \frac{N_A}{N_V}$				
-	(3) $E_F = E_V - K_T \ln \frac{N_A}{N_V}$ (4) $E_F = E_C - K_T \ln \frac{N_C}{N_D}$				
33.	For conductors the value of Hall coefficient is given by				
	(1) $R_{\rm H} = \frac{1}{nq}$ (2) $R_{\rm H} = \frac{nq}{\mu_{\rm n}}$				
	(3) $R_{H} = \frac{\mu_{p}}{nq}$ (4) $R_{H} = \frac{n\mu_{n} + p\mu_{p}}{q}$				

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Question No.	Question	IS	
34.	The band gap energy of Ge at 300 $\mathring{\mathrm{K}}$ is	given	ı by
	(1) $E_g = 0.785 \text{ eV}$ (2)	)	$E_{g} = 1.121 \text{ eV}$
,	(3) $E_g = 0.7181  eV$ (4	)	$E_{g} = 1.212 \text{ eV}$
35.	Under low level injection assumption, an extrinsic semiconductor is essential		
	(1) Diffusion current (2	)	Drift current
	(3) Recombination current (4	•)	Induction current
36.	Ga As has band gap energy of the orde	r of	
	(1) 1.43 eV (2	2)	0.7 eV
	(3) 2.4 eV (4	4)	1.6 eV
37.	Typical value of impurity concentratio	ņ in a	tunnel diode is
	(1) 1 part in $10^8$ parts (2)	2)	1 part in 10 <sup>3</sup> parts
	(3) 1 PPM (	4)	1 part in 10 parts
38.	In the given circuit, the value of collec	tor c	urrent is :
	α=0.95		
		Ţ	
99	$\underline{l}$	اک لے	$\frac{R_{\rm L}=5k\Omega}{6V}$
2	na secolar para la company		
	이번 2011년 1월 19일 <del>- 2</del> 월 19일		
	(1) 0.8 mA	(2)	0.9 mA
	(3) 0.947 mA	(4)	0.847 A

(7)

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Question No.	Questions
39.	MOSFET can be used as a
	(1) Current controlled capacitor (2) Voltage controlled capacito
·	(3) Current controlled inductor (4) Voltage controlled inductor
40.	The effective channel length of a MOSFET in saturation decreases wit the increase in
	(1) Gate voltage (2) Drain voltage
	(3) Source voltage (4) Body voltage
41.	8086 has basic no. of instructions
	(1) 64 (2) 117
a de prod	(3) 128 (4) 256
42.	The starting address of an interrupt is called (in 8086 Micro processor)
	(1) stack pointer (2) program counter
	(3) interrupt output (4) interrupt vector
43.	In 8086 type O interrupt is reserved for
	(1) single step (2) NMI
	(3) Interrupt on overflow (4) Divide Error
14.	For a fully controlled single phase converter supplies power to a resistive load of 10Ω, the input voltage is 230 V, 50 Hz, the value of average output voltage is for $\alpha = 45^{\circ}$
	(1) $276.74 V$ (2) $376.74 V$
	(3) 176.74V (4) 76.74V

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Question No.	Questions
45.	Consider the circuit shown. What is the minimum width of gate pulse to ensure turn of the thyristor ( $I_L = 4 \text{ mA}$ ).
	220V 0.2H
	(1) 2 μs     (2) 4 μs       (3) 6 μs     (4) 8 μs
46.	Snubber circuit is a(1) RL circuit(2) Purely Resistive(3) Purely inductive(4) R - C circuit
47.	Chopper is used for conversion of(1) ac to dc(2) dc to ac(3) ac to ac(4) dc to dc
<b>48.</b>	Class 'C' chopper works in the following quadrants(1) 1st(2) 2nd(3) 1st & 2nd(4) All quadrants
49.	Induction heating is used for(1) Volume heating(2) Plastic packing(3) Plyboard industry(4) Surface heating
50.	For speed control of ac motors following are used(1) Cyclo converters(2) Choppers(3) Rectifiers(4) UJT and SCR

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## Code-I

Question No.	Questions
51.	The region of convergence of z-transform of the sequence
	$\left[\frac{5}{6}\right]^{n} u(n) - \left[\frac{6}{5}\right]^{n} u(-n-1) \text{ is}$
	(1) $ z  < \frac{5}{6}$ (2) $ z  > \frac{5}{6}$
1) 1 1	(3) $\frac{5}{6} <  z  < \frac{6}{5}$ (4) $\frac{6}{5} <  z  < \infty$
52.	The power saving in case of SSB/SC signal as compared to a standard AI signal for modulation index = $0.5$ is
•	(1) 94.4% (2) 23.2%
•	(3) 56.7% (4) 75%
53.	Which of the following suffer (s) from the threshold effect
	(1) AM detection using envelope detection
. • · • •	(2) AM detection using synchronous detection
	(3) FM detection using a discriminator
	(4) SSB detection with synchronous detection
54.	A sinusoidal wave of amplitude 10 V and frequency 1kHz is applied to a FM generator having a frequency sensitivity constant of 40 Hz/V, the frequency deviation is
	(1) $100 \mathrm{Hz}$ (2) $200 \mathrm{Hz}$
	(3) 400 Hz (4) 500 Hz
55.	In a VSB system, modulating frequency of 3 MHz results in a sideban power of 25 W. If the carrier power is 100 W, the depth of modulation i
	(1) 25% (2) 50%
	(3) 75% (4) 100%

(10)

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Question No.	Que	stions	90), 44 19
56.	An FM signal is represented by v(t) maximum phase deviation in radia		$s [10^8 \pi t + 6 \sin 2\pi \times 10^3 t]$ . The
	(1) 5	(2)	8
	(3) 6	(4)	9
57.	PLL can be used to demodulate	a Martin	8- A
	(1) PAM signals	(2)	FM signals
	(3) PCM	(4)	DSBSC
58.	PAM signals can be detected by usi	ng	
	(1) ADC	(2)	Integrator
	(3) Band pass filter	(4)	High pass filter
59.	The input to a coherent detector is the detector output is given by	DSBSC	signal plus Noise, the noise at
	(1) In phase component	(2)	Quadrature component
	(3) Zero	(4)	Envelope
60.	A Hilbert transformer is a		to a starta ta
	(1) Non linear system	(2)	Non-causal system
	(3) Time-varying system	(4)	Low pass system
61.	Three resistances $R_1 = 37$ ohm $\pm 5\%$ Determine the value of series resiseries	$R_2 = 7$ stance	$5 \text{ ohm } \pm 5\%, \text{R}_3 = 50 \text{ ohm } \pm 5\%,$ error if they are connected in
	(1) ± 5%	(2)	± 7.5%
	(3) ± 3.5%	(4)	± 8.10%
62.	A 160 $\pm 0\%$ PF capacitor, an in	ductor	of 160 $\mu$ H and a resistor of
1	$1200 \pm 10 \Omega$ are connected in series	s. The v	
	(1) 1000 kHz	(2)	100 kHz
1	(3) 1.1 MHz	(4)	0.9 MHz

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Question No.		aro a Qu	estions	artai Ruiti
63.	Nor	mal probability curve is denot	ed by	58. Service Bar
	(1)	$\frac{1}{\sigma\sqrt{2\pi}} \exp\left(x^2 / 2\sigma^2\right)$	(2)	$\frac{1}{\sigma\sqrt{2\pi}}e^{x/2\sigma^2}$
	(3)	$\frac{1}{\sigma\sqrt{2\pi}}\exp\left(-x^{2}/2\sigma^{2}\right)$	(4)	$\frac{1}{\sigma\sqrt{2\pi}} \exp(x^3 / 2\sigma^3)$
64.	Rela	ative static error may be defin	ed as	
	(1)	true value Absolute Error	(2)	true value – Absolute Error true value
i estan	(3)	Absolute Error true value + Absolute Err r	(4)	Absolute Error true value
65.	Stat	tic sensitivity at an operating printing in the system	8	given by
65.	Stat	tic sensitivity at an operating p infinitesimal change in the output infinitesimal change in the input		given by
65.		infinitesimal change in the output		riven by
65.	(1)	infinitesimal change in the output infinitesimal change in the input infinitesimal change in the input		riven by
65.	<ul> <li>(1)</li> <li>(2)</li> <li>(3)</li> <li>(4)</li> </ul>	infinitesimal change in the output infinitesimal change in the input infinitesimal change in the input infinitesimal change in the output true value Absolute value Absolute value true value		<ul> <li>11 Jones Provide States</li> <li>13 Jones Provide States</li> <li>14 Jones Provide States</li> <li>15 Jones Jones Jones Jones</li> <li>16 Jones Provide States</li> <li>17 Jones Provide States</li> <li>18 Jones Provide States</li> <li>19 Jones Provide States</li> <li>19 Jones Provide States</li> <li>10 Jones Provide States</li> <li>11 Jones Provide States</li> <li>12 Jones Provide States</li> <li>13 Jones Provide States</li> <li>14 Jones Provide States</li> <li>15 Jones Provide States</li> <li>15 Jones Provide States</li> <li>16 Jones Provide States</li> <li>17 Jones Provide States</li> <li>18 Jones Provide States</li> <li>18 Jones Provide States</li> <li>19 Jones</li> <li>19 Jones Provide States</li> <li>19 Jones P</li></ul>
65. 66.	<ul> <li>(1)</li> <li>(2)</li> <li>(3)</li> <li>(4)</li> </ul>	infinitesimal change in the output infinitesimal change in the input infinitesimal change in the input infinitesimal change in the output true value Absolute value Absolute value		<ul> <li>11 Jone</li> <li>13 Jone</li> <li>14 Jone</li> <li>15 Jone</li> <li>16 Jone</li> <li>17 Jone</li> <li>17 Jone</li> <li>18 Jone</li> <li>18 Jone</li> <li>19 Jone</li> <li>19 Jone</li> <li>19 Jone</li> <li>10 Jone</li> <li>10 Jone</li> <li>10 Jone</li> <li>11 Jone</li></ul>

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Question No.	Q	uestions	
67.	The mean deviation $\overline{D}$ in terms readings is	of deviat	ions from the mean value of n
	(1) $\frac{\sum  d }{n}$	(2)	$\sqrt{\sum d^2/n}$
	(3) ∑ d/n	(4)	$\sqrt{\sum_{n=1}^{\infty} d^2}$
			ч <b>п</b> 
68.	The transfer function of a system	n is G (s) :	$=\frac{100 e^{-st}}{s(s+10)}, \text{ the system}$
	(1) is a linear system	(2)	is a nonlinear system
	(3) has a transportation lag	(4)	None of the above
69.	8086 microprocessor has address	s bus of	
	(1) 16 bits	(2)	24 bits
	(3) 20 bits	(4)	8 bits
70.	8086 has a bus cycle of at least	1	
•	(1) 4 clock periods	(2)	2 clock periods
	(3) 3 clock periods	(4)	None of these
71.	Poisson's equation is given by	and the s	a the second
	(1) $\nabla .D = 0$	(2)	$\nabla^2 \mathbf{V} = 0$
	$(3)  \nabla^2 \mathbf{V} = -\frac{\rho}{\epsilon}$	(4)	$\nabla^2 \mathbf{V} = \mathbf{V}_{\mathbf{e}_{\theta}}$
72.	The total flux of a closed surfa within the surface. This stateme	ice is equ ent is an e	al to the net charge enclosed xpression of
•	(1) Divergence Theorem	(2)	Gauss's Law
	(3) Faraday Law	(4)	Maxwells equations

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Question No.					Ques	tions		
110.								
73.	The d	iverger	nce of a	vector	$\overline{A} = x \hat{a}x +$	- y ây +	zâz is	
	(1) (					(2)	1/3	
· · · · · ·	(3) 1					(4)	3	
74.	Whic	h of the	followi	ng exp	ression is	s true i	or a perfect dielectric	
•						(2)	σ=we	
	(3) (	<b>5≪</b> w∈				(4)	$\sigma = \sqrt{w \epsilon}$	
75.	Giver	n that o	<del>5</del> = 38	m S/m	$\& \mu_r = 1$	for al	uminium, the skin deptl	h at
				would	be equal			
	(1)	$64.5\mathrm{nm}$	201221			(2)	64.5 μm	
			$\sim \infty$					
76.	(3) The	57.7 nm power	lensity				57.77 μm t a place is 1.2 $kW/m^2$	
76.	(3) The appropowe	57.7 nm power	lensity e value en by			tion a corres	t a place is 1.2 $\frac{kW}{m^2}$	
76.	(3) The appropowe (1)	57.7 nm power oximate er is give	lensity e value en by n			tion a	t a place is 1.2 $\frac{kW}{m^2}$	
76.	<ul> <li>(3)</li> <li>The appropriation of the power of t</li></ul>	57.7 nm power oximate r is giv 950 V/n 450 V/n ne wav	lensity e value en by n n e in air i gates at	of elec mpinge an ang	etric field	tion a corres (2) (4) n a loss th resp	t a place is $1.2 \frac{\text{kW}}{\text{m}^2}$ ponding to the incident 750 V/m	sol
	<ul> <li>(3)</li> <li>The appropriation of the power of t</li></ul>	57.7 nm power oximate r is giv 950 V/n 450 V/n ne wav	lensity e value en by n n e in air i gates at	of elec mpinge an ang	es at 45° o gle 30° wi	tion a corres (2) (4) n a loss th resp	t a place is 1.2 $^{kW}/_{m^2}$ sponding to the incident 750 V/m 475 V/m	sol
	<ul> <li>(3)</li> <li>The appropriation of the power of t</li></ul>	57.7 nm power oximate or is give 950 V/n 450 V/n une wav propage ctric co 2.5 3.0	lensity e value en by n n e in air i gates at	of elec mpinge an ang of the c	es at 45° o gle 30° wi lielectric	tion a corres (2) (4) n a loss th resp is (2) (4)	t a place is 1.2 $kW/m^2$ sponding to the incident 750 V/m 475 V/m less dielectric. The transpect to the normal. The va 2.0 4.0	sol
	<ul> <li>(3)</li> <li>The appropriate of the second second</li></ul>	57.7 nm power oximate or is give 950 V/n 450 V/n ane wav ctric co 2.5 3.0 ane wav	lensity e value en by n e in air i gates at nstant o ve trave	of elec mpinge an ang of the c	es at 45° o gle 30° wi lielectric	tion a corres (2) (4) n a loss th resp is (2) (4) ace is i	t a place is 1.2 $^{kW}/_{m^2}$ sponding to the incident 750 V/m 475 V/m eless dielectric. The transp sect to the normal. The variable	mitt alue
77.	<ul> <li>(3)</li> <li>The appropriate of the second second</li></ul>	57.7 nm power oximate or is give 950 V/n 450 V/n ane wav ctric co 2.5 3.0 ane wav	lensity e value en by n e in air i gates at nstant o ve trave	of elec mpinge an ang of the c	es at 45° o gle 30° wi lielectric	tion a corres (2) (4) n a loss th resp is (2) (4) ace is i	t a place is 1.2 $kW/m^2$ sponding to the incident 750 V/m 475 V/m eless dielectric. The transpect to the normal. The value 2.0 4.0	mitt alue

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Question No.	Questions
79.	A metallic waveguide can be considered as a
	(1) low pass filter (2) high pass filter
	(3) band pass filter (4) band reject filter
80.	A 10 GHz wave is propagating in a waveguide having a wall separation of 4 cm. The largest number of half waves of electric intensity possible in the waveguide is
	(1) 1 (2) 3
	(3) 2 (4) 4
81.	For a common base BJT, having $I_e = 5 \text{ mA}$ and $\alpha = 0.97$ an AC signal of 5 mV is applied between the base and the emitter terminals. The input impedance is given by
	$(1) 5.2 \Omega \qquad (2) 6 \Omega$
•	(3) $4.9 \Omega$ (4) $6.7 \Omega$
82.	The typical value of $h_f$ for common base BJT is(1) $50-250$ (2) $-50$ (3) $-1$ (4) $25$
83.	If the source resistance, the output resistance of emitter follower using the simplified hybrid model would be
	(1) $\frac{h_{ie} + R_s}{1 + h_{fe}}$ (2) $\frac{h_{ie} + R_s}{h_{fe}}$
	(3) $R_{s} + \frac{1}{h_{oe}}$ (4) $\frac{1}{h_{oe}}$
84.	The ripple factor is given by
	(1) $\sqrt{\left(\frac{I_{rms}}{I_{dc}}\right)^2 - 1}$ (2) $\left(1 - \sqrt{\frac{I_{rms}}{I_{d}}}\right)^2$
	(3) $\frac{I_{rms}}{I_{dc}}$ (4) $\frac{I_{dc}}{I_{rms}}$

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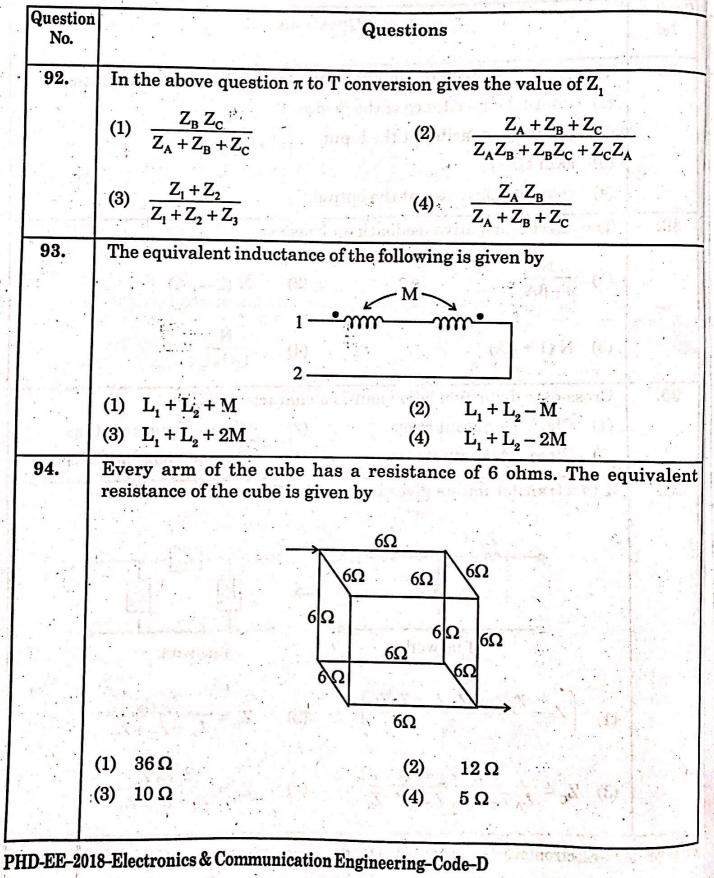
Question No.	Questions
85.	Following circuits is given by : $ \begin{array}{c c} \hline & & & \\ \hline $
86.	For a transistor amplifier to be inherently stable against thermal runaway, the condition is (1) $V_{CE} > \frac{V_{CC}}{2}$ (2) $V_{CE} < \frac{V_{CC}}{2}$ (3) $V_{CE} = \frac{V_{CC}}{2}$ (4) $V_{CE} = 1.5 V_{CC}$
87.	For the circuit given the value of $V_{out}$ is : $ \begin{array}{c}  & 8V \\  & 3 k\Omega \\  &                                  $
	(1) $+5.14$ V (3) $-5.14$ V (4) $+6.14$ V

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Question No.	Questions
88.	The gain of a transistor amplifier falls at high frequency due to the
	(1) internal capacitance of the device
	(2) coupling capacitor at the input
× * *	(3) skin effect
1	(4) coupling capacitor at the output (8)
89.	The effect of negative feedback on Noise is
1.00,000000000	N server as a service construction of investigation of the
	(1) $\frac{N}{1-\beta A}$ (2) N (1 - $\beta A$ )
	(3) N (1 + $\beta$ A) (4) $\frac{N}{1+\beta A}$
90.	Cross-over distortion behaviour is a characteristics of
1	(1) Class – A output stage (2) Class – B output stage
	(3) Class – AB output stage (4) Common base output stage
91.	T to $\pi$ transformation gives the value of $Z_c \Rightarrow$
	$Z_2$
	$ \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \end{array} \end{array} \end{array} \\ \begin{array}{c} \\ \end{array} \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} $
• •	$ \{ Z_3 \qquad \Leftrightarrow \qquad [Z_n] \qquad [Z_c] \qquad ($
· · · ·	$\frac{1}{T \text{ network}} \circ \qquad \frac{1}{\pi \text{ network}} \circ$
	(1) $\left(Z_{c} = \frac{Z_{1}Z_{2} + Z_{2}Z_{3} + Z_{1}Z_{3}}{Z_{1}}\right)$ (2) $Z_{c} = \frac{Z_{A}Z_{B}}{Z_{A} + Z_{B} + Z_{C}}$
	(1) $\begin{pmatrix} Z_{c} = \frac{Z_{c}}{Z_{1}} \end{pmatrix}$ (2) $Z_{c} = \frac{Z_{A} + Z_{B} + Z_{C}}{Z_{A} + Z_{B} + Z_{C}}$
· · · ·	(3) $Z_{c} = \frac{Z_{A} + Z_{B} + Z_{C}}{Z_{A} Z_{B} + Z_{A} Z_{C} + Z_{B} Z_{C}}$ (4) $Z_{c} = \frac{Z_{1} Z_{2} Z_{3}}{Z_{1} + Z_{2} + Z_{3}}$
· · ·	

(17)

Code-I



(18)

Question	Questions				
No.			1 1 mar all 1	99.	
95.	In the following circuit	, the value of $R_L$ is g	given by		
7 B					
a sy s s		lkΩ	1kΩ	1.1	
- BL - 1		$+ V_x -$			
	12V-	- ≥R,	$2V_x$		
	12 V -				
		×	History distant (D)	1	
•	2) LPF	)	KIR Soud Have tes	6. • •	
	(1) 0.5 kΩ	(2)	250 Ω (8)		
	13.	(4)	-2k Ω	001	
denvo.	1. June 1971 1 10	IS WITTER SI	13.42.1.3.42.66 (19.16.1 - 4.4	.005	
96.	Series RLC circuit has of 100, if the values of	a resonant frequenc R, L, C are doubled	cy of 1 MHz and a qual , what is the new valu	ty facto le of Q?	
	(1) 25	(2)	50		
lacorqr	or don bud explete the 18	(4)	200	14. A.	
and the	(3) 100 · · · · · · · · · · · · · · · · · ·	a) a standard	Carst and Joseph Rev		
				- advances - segments	
	and the second sec	v = 0 + 0 + 1	$H C = \frac{1}{m} \mu F$ The	resonar	
97.	In a series RLC circu	it $R = 2k\Omega$ , $L = 11$	H, C = $\frac{1}{400}$ µF, The	resonar	
97.	In a series RLC circu frequency is	it $R = 2k\Omega$ , $L = 11$	H, C = $\frac{1}{400}$ µF, The	resonar	
97.		it $R = 2k\Omega$ , $L = 1$	400	resonar	
97.	frequency is	a an	400	resonar	
97.		it $R = 2k\Omega$ , $L = 11$ (2)	H, C = $\frac{1}{400}$ µF, The $\frac{10^4}{\pi}$ Hz	resonar	
97.	frequency is (1) 2×10 <sup>4</sup> Hz	(2)	$\frac{10^4}{10^4}$ Hz	resonar	
97.	frequency is (1) 2×10 <sup>4</sup> Hz (3) 10 kHz	(2) (4)	$\frac{10^4}{\pi} \text{ Hz}$ $20\pi \text{ kHz}$	resonar	
	frequency is (1) 2×10 <sup>4</sup> Hz (3) 10 kHz	(2) (4)	$\frac{10^4}{\pi} \text{ Hz}$ $20\pi \text{ kHz}$	resonar	
97. 98.	frequency is (1) 2×10 <sup>4</sup> Hz (3) 10 kHz For a 2-port network to	(2) (4) o be reciprocal, follo	$\frac{10^{4}}{\pi} \text{ Hz}$ $20\pi \text{ kHz}$ The powing is true		
	frequency is (1) $2 \times 10^4$ Hz (3) $10 \text{ kHz}$ For a 2-port network to (1) $Z_{11} = Z_{22}$ and $Y_{11} = Z_{11}$	(2) (4) o be reciprocal, follo : Y <sub>22</sub> (2)	$\frac{10^{4}}{\pi} \text{ Hz}$ $20\pi \text{ kHz}$ $\overline{\text{owing is true}}$ $Y_{21} = Y_{12} \& h_{21} = -1$		
	frequency is (1) 2×10 <sup>4</sup> Hz (3) 10 kHz For a 2-port network to	(2) (4) o be reciprocal, follo	$\frac{10^{4}}{\pi} \text{ Hz}$ $20\pi \text{ kHz}$ The powing is true		

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Question No.	Questions
99.	The network shown behaves like a
с. 192	
6 - C	1° <del>−−− (−−−−−−</del> ∞3
	JL ₹R
	20
	(1) High pass filter (2) LPF
	(3) BPF (4) Band stop filter
100.	If the scattering matrix [S] of a two port network
n de made Technique	$[S] = \begin{bmatrix} 0.2 \angle 0^{\circ} & 0.9 \angle 90^{\circ} \\ 0.9 \angle 90^{\circ} & 0.1 \angle 90^{\circ} \end{bmatrix} \text{ then the network is }$
	(1) lossless and reciprocal (2) lossless but non reciprocal
	(3) lossy but reciprocal (4) neither lossy nor reciproca
82 - C % - C	
	and the second
-14 - 17 - 14	
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	PhD/URS Er			
Sr. No.	Set-A	Set-B	Set-C	Set-D
1	A	С	С	С
2	D	A	В	В
3	D	A	D	D
4	D	С	С	С
5	В	A	D	D
6	В	A	A	С
7	В	С	В	A
8	В	В	A	D
9	A	В	В	С
10	С	В	С	A
11	С	В	A	D
12	A	D	В	A
13	A	D	A	В
14	C	С	A	В
15	A	В	D	В
16	A	D	В	В
17	С	D	С	A
18	В	С	A	D
19	В	D	D	В
20	В	A	В	С
21	A	С	A	В
22	В	В	D	С
23	A	D	D	С
24	A	С	D	B
25	D	D	В	С
26	В	С	B	B
27	С	A	В	B
28	A	D	B	C
29	D	С	A	A
30	В	A	С	D
31	В	D	B	C
32,	C ·	A	D	A
33	C .	В	D	Δ
34	B	B	C	C
35	C	B	В	A
36	B	B	D	Δ
37	B	A	D	C
38	C	D	C	В
39	A	B	D	B
40	D	C	A	B
40	C	В	C	
41	B	С		B
43	D	C	A C	D
43	C			D
44		B	С	C
	D	С	D	B
46	A	В	С	D
47	B	B	В	D
48	A	С	В	C
49 50	B C	A D	A	A

j.t.

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## Maharshi Dayanand University Rohtak Deptt. of ......

Sr. No.	Set-A	itrance Exa	Set-C	Set-D
51	D	А	В	С
52	А	В	С	A
53	В	A	С	С
54	В	A	В	С
55	В	D	С	D
56	В	В	В	С
57	A	С	В	В
58	D	A	С	B
59	В	D	A	A
60	C	В	D	A
61	С	С	С	A
62	A	В	В	A
63	C	D	D	C
64	С	C ·	C	D
65	D	D	D	A
66	C	A	C	B
67	B	B	A	A
68	D	A	D	C
69		В	C	C
70	A	C	A	A
71	6	C	A	C
72	B	A	A	B
73	D	C	C	D
74		C	D	C
75	D	D	A	D
76	C	C	B	A
77	A	B	A	B
78	D	B	C	A
70	C	A	C	B
80	A	A	A	С
81	A	A	C	
82	A	D	A	A B
83	C	D	A	1
84	D	D	C	A
85	A	B	A	A
86	B	B		D
87	A	B	A C	B
88	C			С
89	C	B	B	A
90		A C	B	D
90	A		B	В
02	B	A	D	A
	D	A	A	D
93	D	С	В	D
94	С	D	В	D
95	В	A	В	В
96	D	В	В	В
97	D	A	Α.	В
98	С	С	D	В
99	D	С	В	А
100	A	A	С	С

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