SET-"X"

(Total No. of Printed Pages: 33)

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(PHD/URS-EE-DECEMBER-2022)



ELECTRICAL ENGINEERING

Sr. No.

Time: 14 Hours Total Que		tions: 100	Max. Marks: 100	
Roll No.	(in figure)		(in words)	
Name:		Date of Birth:_		
Father's Name:	C CANDERS AND A STATE OF THE STATE	_ Mother's Name:		
Date of Examination:				
(Signature of the candid	ate)	(Signat	ure of the Invigilator)	

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

All questions are compulsory.

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.

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 and D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination Candidates may raise valid objection/complaint in any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University Website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case will be considered.

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MUST NOT be ticked in the Question booklet.

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.

Use only Black or Blue BALL POINT PEN of good quality in the OMR Answer-7.

Sheet.

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Set-X Code-A

Set-X Code-A

Question No.	Questions	noiseaug
& miple	Which rule is used to find the Direction of force acting on the	current
oocians	carrying conductor placed in a magnetic field?	
	(1) Fleming's Right-Hand Rule	i ngayri sa s
	(1) Littlet A (2) the second of (A - Lattlet (1)	
	(2) Fleming's Left-Hand Rule	
	(3) Cork Screw Rule not si not supe latine relib reenil A	1.8
	(4) Either Fleming's Left-Hand Rule or Flemings Right-Ha	and Rul
	(both are applicable) $A = \{(1, 1, 1, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,$	
2.	While applying KCL to "A.C. circuits", the 'sum' considered is	
t) eato ((1) Algebraic sum i lo ancitona de recentados redites este la Algebraic sum i lo ancitonada este recentados este la Algebraic sum i lo ancitonada este recentados este la Algebraic sum i lo ancitonada este recentados este recentados este la Algebraic sum i lo ancitonada este recentados	
a	(2) sum of peak values in the means are reduction belond of	6,
	(3) phasor sum (2) radio interference due to coronal adai e consumbai (4)	
¥9.	(4) sum of average quantities sacron of each each respondent	
3.	Given $M = $ system matrix & $I = $ identity matrix, then eigen values	of M are
	(1) solutions λ of mod of $(\lambda I - M) = 0$	
	(2) solutions λ of mod of (λ I-M) nabequal tasel and tasel (2)	
	(3) solutions λ of $(\lambda I - M) = 0$	DZDER DER
chan th	The second secon	Line
-		

Question No.	Questions	noireau)
100 4 700	A is system matrix, then for a continuous time system, the State T. Matrix is defined as	
	(3) $L(sI - A)^{-1}$ (4) $(sI - A)^{-1}$	
5.	A linear differential equation is the one which	1
	The bundled-conductor arrangement in transmission lines reduces (1) inductance of the line (2) radio interference due to corona (3) power loss due to corona	5
	(1) inductance of the line (2) radio interference due to corona (8)	S

Question No.	Questions
eo. 8.	When applied to A.C. circuits, which statement is true for Superposition Theorem?
agaetic	(1) It applies to linear circuits only and algebraic sums of partial responses (in response to individual sources) has to be considered.
a gnetic	(2) It applies to linear circuits only and phasor sums of partial responses (in response to individual sources) has to be considered.
	(3) It applies to linear as well as non-linear circuits.(4) It applies to non-linear circuits.
SL) 9. 54	Given a Thevenin equivalent of a complex circuit as $V_{TH} = 18.34 \text{ V}$ and $R_{TH} = 9.5 \Omega$, then the Norton Equivalent can be directly deduced as:
warb na	(1) $I_N = 1.93A$ and $R_N = 9.5\Omega$. (2) $I_N = 1.73.85A$ and $R_N = 1.93\Omega$.
	 (3) I_N = 1.93A and R_N = 1.93Ω. (4) Norton equivalent can not be directly deduced without having access to the given complex network.
10.	According to dot-convention, a dot is placed at the terminals which are
	(1) instantaneously of the opposite polarity on the basis of mutual inductance alone.
beege s	(2) instantaneously of the opposite polarity on the basis of self-inductance alone.
	(3) instantaneously of the same polarity on the basis of mutual inductance
	(4) instantaneously of the same polarity on the basis of self-inductance alone.

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(3)



Question No.	Questions
go 11.	Considering that L denotes the length of the magnetic path, then inductance of a coil is given by
spenoq	(1) N/S where $S = L/\mu A$ is identified as the reluctance of the magnetic path and od at an (assured as the reluctance of the magnetic
epenore ,	(2) N^2/S where $S = L/\mu A$ is identified as the reluctance of the magnetic path.
	(3) N^2/S where $S = L/\mu A$ is identified as the reactance of the coil.
nd R _{ru}	(4) N/S ² where S = L/ μ A is identified as the reluctance of the magnetic path. The villent of the magnetic path. The villent of the magnetic path.
	A 230 V a.c. source has internal impedance of $2 + j2\Omega$. What load can draw and dissipate the maximum power from this source? (1) $\sqrt{2^2+2^2}$ Ω resistor
ich are	10. According to dot-con entire a dot is placed at the terminals with (3) 12 Ω inductor
nutual	-(4) 2-j2Ω capacitive load aggo and to visio single stant (1)
0013.01	For a 4-pole, 3-ph induction motor having 4% slip at full load, if the speed is 720 r.p.m., then supply freq. is
	(1) 50 Hz. (2) 25 Hz.
ctance	(3) 100 Hz. ad ent no variation (4) 16.67 Hz.
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sense: (1) It relieves only distribution line (prior to the load) from much react current, thus reducing the I²R losses in distribution line, but no effort on transmission line losses. (2) It relieves the transmission line (prior to the load) from much react current, thus reducing the I²R losses in transmission line, but no effort on distribution line losses. (3) It relieves the transmission/distribution line (between sending and load) from much reactive current, but has no effect on I²R loss in transmission/distribution line, as reactive current causes no loss (4) It relieves the transmission/distribution line (between the send end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because the prior of the resulting and so is the flux.	Question No.	Questions
 (1) It relieves only distribution line (prior to the load) from much react current, thus reducing the I²R losses in distribution line, but no effort on transmission line losses. (2) It relieves the transmission line (prior to the load) from much react current, thus reducing the I²R losses in transmission line, but no effort on distribution line losses. (3) It relieves the transmission/distribution line (between sending and load) from much reactive current, but has no effect on I²R loss in transmission/distribution line, as reactive current causes no loss. (4) It relieves the transmission/distribution line (between the send end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because of the load across the h.v. side is a small fraction of the relieved applied across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the reliev	14.	Power factor correction / improvement apparatus is useful in the following
 (1) It relieves only distribution line (prior to the load) from much react current, thus reducing the I²R losses in distribution line, but no effort on transmission line losses. (2) It relieves the transmission line (prior to the load) from much react current, thus reducing the I²R losses in transmission line, but no effort on distribution line losses. (3) It relieves the transmission/distribution line (between sending and load) from much reactive current, but has no effect on I²R loss in transmission/distribution line, as reactive current causes no loss. (4) It relieves the transmission/distribution line (between the send end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because of the load across the h.v. side is a small fraction of the relieved applied across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the relieved across the h.v. side is a small fraction of the reliev		sense: Service production as a service correct and values sense (1) continue to supply same voltage under all loading condition
current, thus reducing the I ² R losses in distribution line, but no effort on transmission line losses. (2) It relieves the transmission line (prior to the load) from much react current, thus reducing the I ² R losses in transmission line, but no effort on distribution line losses. (3) It relieves the transmission/distribution line (between sending and load) from much reactive current, but has no effect on I ² R loss in transmission/distribution line, as reactive current causes no loss end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because the sending applied across the h.v. side is a small fraction of the results.		
(2) It relieves the transmission line (prior to the load) from much react current, thus reducing the I²R losses in transmission line, but no effect on distribution line losses. (3) It relieves the transmission/distribution line (between sending and load) from much reactive current, but has no effect on I²R los in transmission/distribution line, as reactive current causes no los (4) It relieves the transmission/distribution line (between the send end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, becau	are oper	current, thus reducing the I ² R losses in distribution line, but no effect
current, thus reducing the I ² R losses in transmission line, but no effect on distribution line losses. (3) It relieves the transmission/distribution line (between sending and load) from much reactive current, but has no effect on I ² R loss in transmission/distribution line, as reactive current causes no loss end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because the distribution line.		on transmission line losses.
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(3) It relieves the transmission/distribution line (between sending and load) from much reactive current, but has no effect on I ² R los in transmission/distribution line, as reactive current causes no los end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because the sending distribution line.	CHI LA	current, thus reducing the I2R losses in transmission line, but no effect
and load) from much reactive current, but has no effect on I²R los in transmission/distribution line, as reactive current causes no los (4) It relieves the transmission/distribution line (between the send end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during short circuit test, because of the transmission are negligible during th	1.40	on distribution line losses.
and load) from much reactive current, but has no effect on I²R los in transmission/distribution line, as reactive current causes no los (4) It relieves the transmission/distribution line (between the send end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because of the transmission of the result of		(3) It relieves the transmission/distribution line (between sending end
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(4) It relieves the transmission/distribution line (between the send and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, because the losses of a transformer are negligible during short circuit test, and the losses of a transformer are negligible during short circuit test, and the losses of a transformer are negligible during short circuit test, and the l		in transmission/distribution line, as reactive current causes no losses
end and the load) from much reactive current, thus reducing the losses in the transmission/distribution line. 15. Iron losses of a transformer are negligible during short circuit test, because the local state of the result of		and the state of t
15. Iron losses of a transformer are negligible during short circuit test, because of a transformer are negligible during short circuit test, because of the result of the	18630	(4) It relieves the transmission distribution and (see the lead) from much reactive current, thus reducing the I ²
15. Iron losses of a transformer are negligible during short circuit test, because of a transformer are negligible during short circuit test, because of the result of the	Lower	
(1) voltage applied across the h.v. side is a small fraction of the re		IOSSES IN THE TRANSMISSION CONTROL OF THE PROPERTY OF THE PROP
(1) voltage applied across the h.v. side is a small fraction of the re	15.	Iron losses of a transformer are negligible during short circuit test, because
(1) voltage applied across the n.v. side is a small fraction of the re-		de semino estration con de la constitución de la co
		(1) voltage applied across the h.v. side is a small fraction of the rate
of the again and and arrived from the continuous arrived again according to the	T 19133	
在中国 人名英格兰 医二乙二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二	111 3011 60	17 th the process this premium and the contraction of the process of the contraction
		The state of the s
(4) the input voltage is full but input power is not adequate that is		
meet Cu losses and iron losses	1 1 1 1 1 1 1	

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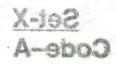


Question No.	
niw 16 01	An ideal current source will: worden vacable report to work to work
	(1) continue to supply same voltage under all loading conditions.
h reactiv t no effec	(2) have its terminal voltage become zero when terminals are open
	circuited. sessol enil noissimenani ne
h reactiv	(3) continue to supply same current no matter what load is put in serie
t no effec	current, thus reducing the I'ff losses in transmittativene, bu
3	(4) supply zero current if its terminals are short-circuited.
ole guibi 14880 17 41	Copper losses of a transformer are negligible during open circuit test
no losses	becausevijunarda jaha noibminterblaofasiini agut ni
e sendin	(1) the currents in both the primary and the secondary are very less.
1 1	(2) the input voltage is not sufficient. losses in the transmission/distribution and included a
t, becaus	(3) iron core becomes fully saturated, hence hardly any losses. (4) the current in the open circuited secondary only is very less.
18.	Two cables, each of length 1 km, with insulation resistances R, and R
2,8, \$	respectively, are properly joined end to end, then insulation resistance of the resultant two km long cable is
.oldigi	(1) $R_1 + R_2$ resolvent because (2) $R_1 - R_2$ resolvent (8)
en eite	(3) $(R_1R_2)/(R_1+R_2)$ (4) $2R_1R_2$ (5)

uestion No.	Questions	Question No.
19.	Why are intersheaths used in cables? Harrang at aboid to alwy[]	.22
	(1) To provide protection against moisture, current and voltage	surges.
el a	(2) To improve the insulation level of the cable.	
	(3) To minimize the stress. (3) the thyristor switches against a stress.	
.ehse	(4) To provide proper stress distribution. we rotatively entry	
20.	A long transmission line has	23.
	(1) R and C due to conductor resistance and due to air acting as i	nsulator
	but no L. the sales of the Cabbler.	
	(2) R, L and C and higher receiving end voltage than sending en	d voltage
	due to Ferranti effect.	10
tol nent	(3) Rand L but no C.	1714/10/
	(4) lower receiving end voltage than sending end voltage due to effect.	Ferrant
21.	In the context of domestic and industrial premises and for tran	nsmissio
reat es	lines, which set of voltages are correct?	1.128
tearral	(1) Domestic / industrial: 230 V and 440 V. Transmission line 66 kV, 132 kV, 440 kV.	s : 33 kV
	(2) Domestic / industrial: 230 V and 400 V. Transmission line	1
romerci)	66 kV, 132 kV, 440 kV.	a Martinesocci
	(3) Domestic / industrial: 230 V and 400 V. Transmission line	s : 33 kV
de of a		ous accommoton
	(4) Domestic / industrial: 230 V and 440 V. Transmission line 66 kV, 132 kV, 400 kV.	s : 33 kV
THE TAX BY	the manufacture of the state of	1 8 KE

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Question No.	Questions
22.	Flywheel diode is generally used to protect
aurges.	(1) the thyristor switches against the current due to resonance.
	(2) the thyristor switches against the current due to resistive loads.
	(3) the thyristor switches against the temperature changes.
	(4) the thyristor switches against the current due to inductive loads.
23.	If Laplace transform of a signal $y(t)$ is $Y(s) = 1 / {s(s-1)}$, then its fine
reulater	(i) Rand Cducto conductor resistance and due to air. asi enlav
	(1) 11 decide as grant and (2) 0
l voltage	(3) (1) Infinity
24.	In a transformer, if maximum efficiency occurs at a certain load, then for
Ferrant	loads lower than this, core loss P_c is related to copper loss P_{cu} as
	(1) $P_c = P_{cu}$. (2) $P_c < P_{cu}$.
and the second	(3) $P_c > P_{cu}$. (4) $P_c = P_{cu}/2$.
25.	In power system analysis, the per unit system has advantage that
Val 88 :	calculations are simplified because quantities expressed
	(1) don't change when they are referred from one side of
V1 68:	SAN TO STAN TO THE TAXABLE PARTY OF A STAN THE S
	· · · · · · · · · · · · · · · · · · ·
: 88 kV	LILLY ogniv and 400 V Transmission lines
	the state values when they are referred from
Value	Partition to the property of t
	they are referred from
PHD/U	transformer to the other. RS-EE-DEC-2022(Electrical English)



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Question No.	Questions	Question No.
26. 3	non-causal system's output depends upon anax.has seloq adT	.08
minato	(1) are factors of the network function student inesert of	
	2) present and past inputs.	ritten.
	3) are critical complex frequencies of the network.	
and the same of th	4) future inputs.	de M
27.	Pransfer Function is defined as	
	1) ratio of output to input, given that the initial conditions are	zero.
	2) ratio of Laplace transform of output to Laplace transform o	f input,
8085 to	given that the system is LTI and relaxed.	
	3) ratio of change of output to change in input, given that the	initia
	1 60) to increase not armature current air power and in	
edges to	4) ratio of change of output to change in input, given that the	e initial
%P.	conditions are zero and system can be linear or non-linear.	
bri 28.	n switching applications, CE configuration is preferred because	2500
	1) it requires only one power supply. The language of the supply of the language of the langua	fallend.
	2) it has negligible I croad square in of Laugie to three a si (1)	
- w	3) it requires low voltage or low current.	
. after s	(4) it has high input impedance.	32.
29.	Fransistor amplifier configuration capable of both a voltage and a	curren
	gain more than unity is	
	(1) common base. (2) common collector.	CORP. NC.
	(T) is propagative entity to be propagative trapping.	

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Question No.	Questions
30.	The poles and zeroes of a network function matawalana leaues and A .35
	(1) are factors of the network function numerator and denominate
	respectively.
	(2) are critical complex frequencies of the network.
	(3) are the scale factors of the network.
Pros	(4) both participate in determining its stability.
31.	(2) ratio of Laplace transform of output to langis CLIOH ofT
	secondard given that the gygreen is it and telested.
aiini s	(1) is an input signal to 8085 whereby a fast peripheral asks 8085 relinquish control of its buses.
e initia	(2) is an i/p signal to 8085 whereby a slow peripheral acknowledges 8085 about control of its buses. Due 0192 916 anothing
	(3) is an output signal from 8085 asking other peripherals to hold on a wait. Viggas reword one ying earlings it. (1)
1 3 1 2	(4) is a control signal to interrupt the microprocessor
32.	For microprocessor 8085, the Stack pointer contents are
a grine i	(1) incremented by 1 (2) decrees
	(3) incremented by 2 (4) decremented by 2
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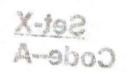
some intermediate some state the first formatte sometimes some (10)

principal and the formal and the formal and the second and the sec

Question No.	Questions	to the output
33.	 (1) affects more than one bits of port C. (2) sets or resets one bit in port C and control word is also wriport C. (3) also affects the I/O operations of ports A and B. (4) does not affects the I/O operations of ports A and B. 	
34.	The effect of increasing load on a synchronous motor running will excitation is	No. of the last
35.	As per usual configuration and specification, an auto-transfel Laboratory connected to a 220 V mains supply can produce (1) output voltage ranging from 0 to 220 V. (2) output voltage ranging from 5V to less than 220V. (3) output voltage ranging from 0 to 270V. (4) output voltage ranging from 220 to 270V.	ormer in

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Questi No.	Questions Rolling
36.	Which of the following conditions need not be met by alternators world in parallel? (1) Terminal voltage of each machine must be the same. (2) The machines must have equal ratings.
	(3) Machines must have the same phase sequence.
	(4) Alternators must operate at the same frequency.
37. i.	Salient pole rotors of large diameter alternators have short axial leng
	(1) it saves a lot of copper in stator winding. (2) number of armature conductors in the conductors in
	(2) number of armature conductors held in the large circumference state being very large, they need not be large to the large circumference state.
	(3) it saves a lot of copper in rotor winding
	(4) number of armature conductors half
i rome	(4) number of armature conductors held in the large circumference roto being very large, they need not be long to produce the same voltage
38.	TI CACIDALIGII IS DOID CONSTANT L. 111
	(1) it will supply greater portion of the
Į.	(2) its power factor would be decreased.
	(3) its rotor will fall back in phase with respect to the
	4) its excitation will fluctuate.
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Question No.		Question No.
39.	The purpose of commutator in a D.C. motor is	
	(1) To convert D.C. into rectified A.C.	
	(2) To give a high starting torque.	
	(3) To convert A.C. into D.C., else without commutator, it would	give A.C.
	(4) To convert alternating torque into unidirectional torque, as	without
	commutator in place, the armature would develop alternatin	g torque.
40.	If torque angle of a 4-pole synchronous motor is 8 degree (electronous motor)	rical), its
	value in mechanical degrees is	
da.	(1) 0.5 six efficience are (2) 2 notoubness to	
portions	(3) 4 1 7 7 ft bank 1988 d Vibro (4) 16 mm ciosu di Secon do (4)	
41.	The ACSR conductor stands for, is used to, and	l is used
27/5/88 3674	(1) Aluminium Conductor Steel Reinforced, reduce weight of the	e line, in
	distribution lines.	serendi.
	(2) Aluminium Core Steel Reinforced, reduce line losses, in trans	smission
	lines. (2) total current equals the white of branch eterrane	
	(3) Aluminium Conductor Steel Reinforced, reduce ohmic line lo	sses and
d circui	corona loss, in transmission lines.	for merch
	(4) Aluminium Conductor Steel Reinforced, reduce ohmic line los	sses and
Mishishis	corona loss, in house wiring.	lame tai

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Question No.	Questions	-88
42.	Due to "Early Effect", the value of	154
	(1) Both Alpha (α) and Beta (β) decreases.	William Indian
	(2) α decreases and β increases.	
dve A.C	(3) α increases and β decreases.) Τομίο Α Ιτένμος οΤ (8).	
wishow	(4) both α and β increases. appropriate result travers cT (4)	
9475. 43.	Skin effect in Electrical Engineering refers to	
ical), its	(1) increase in receiving end voltage. Log A is log signs support 11	40.
	(2) increase in resistance of successive inner annular cylinders (p of a conductor.	ortions
	(3) decrease in resistance of successive inner annular cylinders (pe	ortions
is used	of a conductor.	41.
ai 44.	Choose the most correct for series circuits only: If there are two cases in a circuit, they are said to be connected in series if	or more
noiseiui	(1) all carry the same value of current.	
	(2) total current equals the sum of branch current	
	(2) solar carrent equals the sum of branch currents.	
bessed	 (2) total current equals the sum of branch currents. (3) sum of potential drops across all resistors forming a closed equals the e.m.f. applied across the circuit. (4) The resistors are connected in an end-to-end chain so that cleaving one resistor enters the next in the content of the content	circuit



Question No.	Questions
45. h	In an A.C. transmission line, result of proximity effect is:
	(1) when adjacent conductors carry currents in the same direction, the currents flowing through them get concentrated at the conductor's farthest side.
	(2) when currents flowing through adjacent conductors flow in same
	directions, the currents get concentrated in the nearest side of both
	conductors. Conductors and the motor and the conductors.
180	(3) to reduce the line losses.
	(4) more pronounced but it happens in D.C. transmission as well.
46.	Proximity effect
	(1) Increases with conductor diameter and frequency of a.c. current.
	(2) decreases with conductor diameter and frequency of a.c. current.
	(3) decreases the effective resistance and power loss of transmission line.
petively	(4) Both (1) and (3): and the sensitive stones) bas J. H.H.
47.	With nothing stated about whether the supply switch is easily accessible
	or not, suppose you suddenly come across a colleague who is stuck to live wires in a sub-station, then your first action would be to
	(1) switch off the supply.
Grans s	(2) immediately call for medical assistance.
	(3) pull him away from the live wires by grasping his clothes.
	(4) start artificial breathing straightway.

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Question No.	Questions 1 am f. E. dep	ends upor
48.	In a synchronous motor, the magnitude of back e.m.f. E, dep	
am sa iti Itod lo s	(2) both speed and stator flux. well protoudines theorems discontinuous and another mode. (3) speed of the motor. (4) load on the motor.	
49.	A tuned circuit responds	
dasa	(2) only to one particular frequency. (3) best at one particular frequency. (4) to one frequency plus its harmonics.	.34
50.	If R, L and C denote resistance, inductance and capacitance resp then the quantity RC has the same dimensions as that of	
wil oo ku	(1) L/R (2) R/L (3) RC/L ad blue who had be still (4) (L/RC noise and all still stil	
51.	When key is closed in an RC circuit with $R=10\Omega$, $C=4 \mu F$, the dissipated is 18×10^{-6} , the initial charge on the capacitor must be . (1) $576 \mu C$ (2) $4 \mu C$	energy
	(3) 25 μC (4) 12 μC	

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Question No.	Questions
52.	Terms of lowest degree in the numerator and denominator of a driving point function may
	(2) differ in degree by at the most one.
13830.7	(3) differ in degree by at the most two lad fiel edt ni secres (8) (4) never be of the same degree.
53.	One of the necessary conditions for a Transfer function $N(s) = P(s) / Q(s)$ is a matter of the property of t
entive	(1) polynomial P(s) may have terms missing between the terms of lowest and highest degree.
	(2) real part of poles must be positive. (3) if real part of pole is zero, that pole must be repeated.
60	(4) degree of P(s) has to be more than zero.
54.	In a.c. machines, the wattless lagging component of current is responsible for
bne :	(1) production of electric field. (2) production of magnetic field.
para primary national states and the states of the states	(3) production of heat. (4) production of non-sinusoidal field.
No. of the last of	Am (4) Am (8)

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Questions		0
Non-minimum phase system hast.merreb taewol in am	tioi tioi	- 22
(1) poles in the right half s-plane.	(I)	
(2) poles and zeroes in the left half s-plane.	(2).	
(3) zeroes in the left half s-plane: at the vd eargeb ai reflich	(8)	
(4) zeroes in the right half s-plane.	(4)	
[: 1		.83
For constant ω_n , the contours of root s in the complex s-plane	are	•••••
	h neg	gative
real part of poles must be positive and the second	201	
(2) straight lines parallel to the imaxis		
(2) straight lines parallel to the j _ω axis. If real part of pole is zero, that pole must be repeated	(8)	
 (2) straight lines parallel to the j_ω axis. betager ad taum alog tent orax at alog to trag learly. (3) circles of radius ω_n. circles of radius ω_n	(8) (4) h neg	ative
 (2) straight lines parallel to the jω axis. (3) circles of radius ω_n. (4) straight lines through the origin at an angle θ = cos⁻¹(ω_n) with real axis. For a series resistive circuit, with R1 = 10 KΩ 1 m. All and the parallel of the paralle	(S) (A) h neg	
 (2) straight lines parallel to the jω axis. bette question and tent of the straight lines through the origin at an angle θ = cos⁻¹(ω_n) with real axis. (4) straight lines through the origin at an angle θ = cos⁻¹(ω_n) with real axis. For a series resistive circuit, with R1 = 10 KΩ, 1W; R2 = 10 KΩ, R3 = 250 KΩ, ¼W, the current must not exceed	(S) (A) h neg	
	 Non-minimum phase system has	 Non-minimum phase system has

Question No.	Questions	No.
58.	[0 4 16]	.19
	(1) 4 HOI (2) Francisco Ho OI (1) (2) 2 Ho Sel (4)	
setal of	(3) 1 le copper of rectangular x-section has resistance of 1 (6) either 3 or none of the above respectivity twice that of copper sevolute above resistavity twice the copper sevolute above resistavity the copper sevolute ab	-10
59.	For the impedance of a capacitor C,	
eact on	 (3) the pole is at ∞ and zero is at 0. The pole is at ∞ and zero is at ∞. (4) the pole is at ∞ and zero is at ∞. 	.58
60.	 The main advantage of Initial Value Theorem is that it gives	ermine
ed, the	determine F(s) formally. (3) final value of time-domain solution f(t) without having to det f(t) formally.	
And the state of t	(4) initial value of time-domain solution f(t) but one has to determ formally.	ine f(t)



Question No.	Quest.
61.	An R-L circuit has steady state current of 10 mA when supplied from 1 battery. The time Constant of the R-L circuit is 0.01 sec. Its inductance
	(1) 10 µH. (2) 10 H
S. Sections	(3) 1.25 mH (4) 1.25 H
62.	A strip of copper of rectangular x-section has resistance of 2Ω . A metal resistivity twice that of copper is coated on its upper surface to a thickneed at the copper strip. The resistance of composite strip is
	(1) 4/3 Ω . (2) 3/4 Ω . (3) the property of
	(2) the pole is at 0 and zero is at Ω . (2) the pole is at 0 and zero is at Ω .
onimend	Which one of the following bridges can be used to measure dielectric los of a capacitor? (1) Heaviside Campbell bridge. (2) Aderson bridge. (3) Schering bridge. (4) Owen bridge. (4) Owen bridge.
64.	For a D.C. shunt generator, if pole flux of and speed are both doubled, the
tji en n	(2) reduced to half. (3) doubled. (4) four times
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Question No.	Questions	rodealy.
65.	The phenomenon of 'creeping' occurs in	.83
	(1) energy meters (2) watt meters	3516-7
	(3) power factor meters (4) frequency meters (5)	ry law
66.	A PMMC instrument has a full scale deflection of 100 μA a	nd a coi
gir gotir	resistance of 1 K Ω . Shunt resistance to convert the instrument ammeter with full scale deflection of 100 mA is	t into an
ame.	(1) show high resis Ωr11.0 (2) ntarily and then a vΩ 101. (1)	tanity.
onsisiano	(2) show low resist Ω 100.1 m(4) and back of $(\Omega 1001_{11})$ (6)	
67.	In case of extrinsic semi-conductor de su lie de svom don (E)	
3.76.	(1) no. of holes is exactly equal to no. of electrons.	nd a cod
ven er kenner er er	 (2) either holes or electrons will be more in number. (3) no. of electrons is always more than no. of holes. 	The state of the s
go no	(4) no. of holes is always more than no. of electrons.	
	If the length of a conductor is tripled and the diameter is also then its resistance is	tripled,
	(1) 1/9th of the original resistance.	
	(2) 2/3rd of the original resistance.	avar ob
gradobi	(3) 1/3rd of the original resistance.	
	(4) not changed at all.	

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(21)

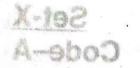
Set-X Code-A

uestion No.	Questions
69.	By making no. of rotor slots prime to the no. of stator slots, in an Induction Motor, the chances of which of the following are reduced
00 a 00 70.	If an Ohmmeter is connected to an uncharged good 0.05 µ F capacitor, the reading should an analysis of the delication of the reading should an analysis of the delication of the reading should an analysis of the delication of the state of t
	(1) show high resistance momentarily and then a very low resistance.(2) show low resistance momentarily and back off to a very high resistance.
43.	 (3) not move at all, i.e., show no reading (as if capacitor not connected). (4) go quickly to 200 Ω approx., and remain there
71.	Regarding an electric field, which statement is not true? (1) unit field intensity is the exertion of a force of one newton on a charge of one coulomb.
tripled.	(2) electric field intensity is a vector quantity. (3) electric field intensity at a point is numerically equal to the force exerted upon a positive charge placed at that point. (4) electric field is defined at a point in space at which an electric charge experiences a force. (5) IRS-EE-DEC-2022(Electrical Engines.

cal Engineering) Code-A

Question No.	Questions	gorrane@
72.	 (1) also called collector follower and its voltage gain is close to (2) also called emitter follower and its voltage gain is (approx. 0.01). (3) also called emitter follower and its voltage gain is v (approx. 100). (4) also called emitter follower and its voltage gain is close 	unity. very low very high
73.	Negative feedback in an amplifier results in	Very No.
74.	Speed of a synchronous motor in its operating (& load) range is described by	T.TT

COLD IN THE EXPLORATION OF COLD CHARLES AND A THE TOPOLOGICAL



Question No.	
75.	For a series RLC resonant circuit, which statement is true?
anity.	a C) can be more than a
rol ves	total supply voltage.
	(2) it has the maximum impedance.
ato yas	(3) it does current magnification. I setting believe only
	(4) the susceptance of the circuit is minimum.
76.	For the Time Constant of an R-L series circuit, which statement is true?
	(1) the time constant for R-L circuit is R/L seconds.
	(2) the step response reaches the final value if the initial rate of response
	(2) increased distortion and noise factorbeniatniam ai
	(3) the step response reaches 60% of final value in T secs at the actual
Topo Control	rate of rise.
30FTEC	(4) the step response (current) reaches 99% after elapse of one time constant.
77.	An ideal voltage amplifier should have
1	(1) zero R _{in} and zero R _{out} .
anova a	(2) infinite R, and zero R
0.7 - 7/11.1	(2) infinite R_{in} and zero R_{out} . (3) zero R_{in} and infinite R_{out} .
	(4) infinite R _{in} and infinite R _{out} .

The Control of State of the Sta

Question No.	Questions	Queetlon
78.91	If a dielectric slab of 5mm and relative permittivity of 6 is inset the plates of an air capacitor with plate separation of 8 mm, it is	s capacitance
79.	For a circuit to be least selective,	4) (4
	 its effective resistance must be very small. its bandwidth should be large. its Q-factor must be very large. its Q-factor must be very small. 	T88 1, s. 2 - (4) Parall posts mate down
.08 losed l	Given that P is a constant, the Laplace transform of a ramp (1) 1/s². (2) 2P/s³.	8)
il 9520	(3) P/s ² . The left are the to egg (4) P/s. the sequence of a linear time-inverse of a linear time-inverse.	-
Al. db/dec e_due i	 are related by: (1) one is the inverse of the other and vice-versa. (2) Laplace transform of Transfer Function gives the Important of the system. (3) inverse Laplace transform of Transfer Function gives 	oulse Respon

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F	Question		Control (State of the Control of the Control	and the second	Questio	ns		ا ئىدىدە)	ia eal	ıal t	o tł	ie 87
110		The closed line integral of magnetic field intensity is equal to the second sec										
		(1) ra	te of chan	nge of capa	acitance.				aomfi			
				nge of indu			,be	(ad t	imos	(5) [
		(3) ra	e of chan	ige of mag	netic flux	k ^{iojo} sl	g yd	ased ected	teore unail	(d))	
-		(4) cu	rrent enc	losed.	lective, .	83 CE	ol od	of tir	orio i	3 10		.01
A.	Ration	(1) neg	gative tim	ne rate of o	change of	f magr	etic	flux l	nkin	g the	he clo	osed li
51		(1) neg(2) neg(3) pos	gative time	ne rate of c	change of change of hange of	f magr	netic i	flux l	nking king king nking	the the	the clo	sed lin
	noites eve ingr 84.	(1) neg (2) neg (3) pos (4) pos Bode plo from a c	gative time	ne rate of control of the rate of control of	change of change of hange of mitude p	f magr	netic fier field fillow	flux lind lind sa si	nking hking	the the che c	clocklos	sed line
tot	noites eve ingr 84.	(1) neg (2) neg (3) pos (4) pos Bode pla from a c double (a)	gative time gative time itive time of (asymptorner free of multiple	ne rate of come ra	change of change of hange of mitude processing and meters. Resu	f magnerate felectrical formation for the sets a ling	ric fied decided and the slope	d lines a si	nking king ope ope of ope of ope of	the the che c	clocklos	sed line

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Question No.	Questions	olteen ()				
85.	 Open-loop gain K at any point s₀ on the root locus is given by (1) ratio of (product of phasor lengths from s₀ to open-loop product of phasor lengths from s₀ to open-loop zeros). (2) ratio of (phasor sum of lengths from s₀ to open-loop poles) to sum of lengths from s₀ to open-loop zeros). (3) cos θ where θ is the angle from -ve real axis to the line from to s₀. (4) ratio of (product of phasor lengths from s₀ to open-loop zeros). 	oles) to (phasor m origin				
86.	In a Routh-Hurwitz array, the first column elements are: 1, 1, ϵ , $2-(4/\epsilon)$ and 4. How many roots have positive real parts? (Here, ϵ is a small positive number replacing 0 in first column to overcome R-H test break down). (1) 1 (2) 2					
87.	 (3) 3 Nyquist stability criterion of closed-loop system is by open-loop polar plot's	zeros of				

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uestion	Questions	48
No.	Phase lag compensator acts as a	
poles)	Gordencies and lead as	
o (phas		
	(2) lead at low of a most arrest to selog good nego of a most adagned to mine (3) low pass filter. s good nego of a most adagned to mine (4) high pass filter. sv- most algan end at 0 erector 3 soo. (8)	
na orig		
89.	A chopper can	
69.	(1) raise the D.C. voltage.	98
2-(4)	(2). I lower the D.C. voltage. sare as a sare with a such a sare as a sare with the A.C. voltage.	
down).	(3) raise of lower the A.C. voluge is in 0 pripal ger sed musa	
	(4) raise or lower the D.C. voltage.	and the second
90.	Is a MOSFET connected or disconnected in the circuit when pow	ver is
เจารณ์ต	and why? deal meleva and based losed to definite willides a settlem is b.	
ewos l	(1) No, because transient voltages caused by inductive kickback as effects may exceed $V_{GS(max)}$ and thus wipe out the MOSFET.	nd otl
d Mgrr	(2) Yes, it is advisable to connect or disconnect MOSFET in the when power is on, as it is safe to do so.	e circ
elde	(3) No, because steady state voltages may spoil the MOSFET.	
	(4) No, because lightening voltages may spoil the MOSFET.	14912
TITO/II	RS-EE-DEC-2022(Electrical Engineering) Code-A	, 188



Question No.	Questions
ed taue in the	The term SPWM in Power Electronics stands for "" used in inverters. With this, the inverter generates "". (1) "Single phase wide modulation" "an AC output voltage from an DC input with the help of switching circuits to reproduce a sine wave by generating one / more square voltage pulses per half cycle".
hich a	(2) "Sinusoidal pulse width modulation" "an AC output voltage from a
	generating single square voltage pulse per half cycle". (4) "Sinusoidal pulse width modulation" "an AC output voltage from a DC input with the help of switching circuits to reproduce a sine wave by generating modulation index square voltage pulses per half cycle."
92.	The Z-transform of a sampled signal / function kTe ^{-akT} is

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Question No.	Questions
93.	Shanon's sampling theorem states that
Off na	signal tracks of age "correlation split see
va eve by	(2) To completely reconstruct a signal, the frequency at which it must sampled is half the freq. of the lowest frequency component in the signal.
Econ a	(3) For complete reconstruction of a signal, the frequency at which signal must be sampled is twice the freq. of the highest frequence component in the signal.
an DC wave by	(4) For complete reconstruction of a signal, the frequency at which signal must be sampled is half the freq. of the highest frequence component in the signal.
94.	Steady state errors can be completely eliminated (made zero) by
s mon s	1) Integral (I) control action.
waya day	2) Derivative (D) control action.
ifevele.	The state of the s
(3) Proportional (P) control action. 4) Proportional-Derivative (P-D) control action.
95. Z	ero sequence component in three phase - 1
	Infinite (2) Zero (3) line voltage / 3 (4) line voltage / $\sqrt{3}$
ID/UR	S-EE-DEC-2022(Electrical Engineering) Code-A



Question No.	Questions
96.	Transposition is used in ""; and its purpose is to
ialnosr	 (1) "distribution line"; ensure inductances of all phases as different and similarly capacitances of all phases as different. (2) "distribution line"; make inductances of all phases as same and similarly capacitances of
	all phases as same. (3) "long transmission line"; ensure inductances of all phases as different and similarly capacitances of all phases as different. (4) "long transmission line"; make inductances of all phases as same and similarly capacitances of all phases as same.
97.	Is it safe to open circuit the secondary of a Current Transformer (C.T.) while its primary is energized? Reason why? (1) No. Reason: it will generate dangerously high voltage, as its primary is connected in series with the load, thus its primary current is not a reflection of its secondary current.
84.11.	 (2) Yes. Reason: it will generate normal voltage, as its primary current is a reflection of its secondary current. (3) No. Reason: it will generate dangerously high voltage, as its primary current is a reflection of its secondary current. (4) Yes, as there is no secondary current, so there will be only magnetizing current in the primary, so it is safe.

X-te8 A-abo0

Question No.	Questions
98.	A stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has a stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has a stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has a stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has a stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has a stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has a stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has a stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has a stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has a stationary listage
nilarly	frequency in 1500 II. the mention! frequency will be
10.890/6	(1) data is insufficient (2) 22.5 KHz. (3) 2500 Hz. (4) 900 Hz.
99.	Which diode does not show a negative resistance region in its \
viariy Lacore	characteristics? (1) tunnel diode. (2) Gunn diode. (3) zener diode. (4) none of the above.
100.	Relative limiting error adds in the second all second a
(.1:0)	(1) All of the following cases.
397	case of division of two quantities.
a jon ei	(4) case of difference of two quantities.
	reflection of its second
	reflection of its secondary current reflection of its secondary current
nmary	(3) No. Reason: it will construct dencertally high voltage, as its p
рипли	RS-EE-DEC-2022(Electrical Engineering) Code-A
TID/UI	CS-EE-DEC-2022(Electrical Engine

SET-"X"

(Total No. of Printed Pages: 33)

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(PHD/URS-EE-DECEMBER-2022)

ELECTRICAL ENGINEERING

Sr. No.

Time: 11/4 Hours	Total Question	ıs:100	Max. Marks . 100
Roll No.	(in figure)	**	(in words)
Name:	the second control of	Date of Birth:	
Father's Name :	70 , 50 0 7 1 E 1-05 - 11	Mother's Name:	3. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10
Date of Examination:			
(Signature of the candi	date)	(Signature	of the Invigilator)

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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.

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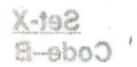
MUST NOT be ticked in the Question booklet. Transport of the properties Of Milk

There will be no negative marking. Each correct answer will be awarded 6. one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.

Use only Black or Blue BALL POINT PEN of good quality in the OMR Answer-7. a was but get a grandward on

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.





uestion No.	Questions	restion No.
erdin :	The ACSR conductor stands for, is used to, ar	nd is used
	sisters in a circuit, they are said to be connected in series.if	28 -11 12 12
	(1) Aluminium Conductor Steel Reinforced, reduce weight of	the line, ir
	(otal current equals the sum of branch.sanil-noitudirtaib (1)	(2)
circuit	(2) Aluminium Core Steel Reinforced, reduce line losses, in tra	nsmissio
	equals the e.m.f. applied across the circuit	
inent	(3) Aluminium Conductor Steel Reinforced, reduce ohmic line	losses and
	corona loss, in transmission lines.	tell is usua
	(4) Aluminium Conductor Steel Reinforced reduce obmic line	losses and
8.	corona loss, in house wiring.	the line to
2.	Due to "Early Effect", the value of	(1)
Arrest Land	(1) Both Alpha (α) and Beta (β) decreases.	reactive to
omes	(2) α decreases and β increases. It griwoff atnother and	(2)
f both	(3) α increases and β decreases.	however see
	(4) both α and β increases.	
	and reader the metallerial bank and analysis to the second and the	(Byron a an
3.	Skin effect in Electrical Engineering refers to	(4)
	(1) increase in receiving end voltage.	
	(2) increase in resistance of successive inner annular cylinder	s (portion
	of a conductor diameter and increases with conductor	A. C. C. C.
.31	(3) decrease in resistance of successive inner annular cylinder	s (portion
1	of a conductor.	(6)
and the second second	(4) a bad dermatological symptom for a transformer.	(4)
1	ikt in independ in die eine grande in der eine geginne gestillige greibertet fan	

(2) The results to restrict new or some section of the section of



Question No.	Questions
344.1	Choose the most correct for series circuits only: If there are two or more Resistors in a circuit, they are said to be connected in series if
ni ,əni	(1) all carry the same value of current. (2) total current equals the sum of branch currents.
noiseil	(3) sum of potential drops across all resistors forming a closed circuit equals the e.m.f. applied across the circuit.(4) The resistors are connected in an end-to-end chain so that current
	leaving one resistor enters the next in the chain.
5.	 In an A.C. transmission line, result of proximity effect is: (1) when adjacent conductors carry currents in the same direction, the currents flowing through them get concentrated at the conductor's farthest side. (2) when currents flowing through adjacent conductors flow in same directions, the currents get concentrated in the nearest side of both conductors. (3) to reduce the line losses.
5.	 (3) to reduce the line losses. (4) more pronounced but it happens in D.C. transmission as well.
(anni)	Proximity effect

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respective control of the design of the second the second of a common and

Question No.	Questions	notiteous No.
cts T ely,	With nothing stated about whether the supply switch is easily action not, suppose you suddenly come across a colleague who is study wires in a sub-station, then your first action would be to	1
	(1) switch off the supply.	1
	(2) immediately call for medical assistance.	11.
37.7.35	(3) pull him away from the live wires by grasping his clothes.	Augustania e
9 ff0 -f	(4) start artificial breathing straightway was a horizontal and	resuble
8.	In a synchronous motor, the magnitude of back e.m.f. $\mathbf{E_b}$ depends	
orot si	(3) electric field intensity at a point is quantified with the court with	
	(1) d.c. excitation only.	lacsel.
charge	(2) both speed and stator flux.	
	(3) speed of the motor.	-
	(4) load on the motor.	.51
	A tuned circuit responds	alor Cyrol
9.	A tuned circuit responds	
	(1) to all audio frequencies.	
rigid k	(2) only to one particular frequency. 1911ing bells only	
	(3) best at one particular frequency.	
ninty.	(4) to one frequency plus its harmonics.	
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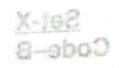
(II) to all sende designations

Set-X Code-B

No.	Questions
	If R, L and C denote resistance, inductance and capacitance respectively
to live	
	(1) L/R of sed bloow notice said arrow red notices due sed sedire (2) R/L
	(3) RC/L (2) KL (4) L/RC (5) RC/L (1) L/RC
11.	Regarding an electric field, which statement is not true?
Consciolar Sim	(8) unit field intensity is the exertion of a force of one newton on
	charge of one coulomb. Again the manage of the charge of one coulomb.
ioqu sl	(2) electric field intensity is a vector quantity.
	(3) electric field intensity at a point is numerically equal to the force exerted upon a positive charge placed at that point.
	(4) electric field is defined at a point in space at which an electric charg experiences a force.
12.	Common-collector transistor amplifier is
	(1) also called collector follower and its voltage gain is close to unity.
6.	(2) also called emitter follower and its voltage gain is very lov (approx. 0.01).
	 (3) also called emitter follower and its voltage gain is very high (4) also called emitter follower and its walk
	(4) also called emitter follower and its voltage gain is close to unity.

and grame & Str.

a sufficient a reconnect of the state of the



Question No.	Questions	nostien No.
13.	Negative feedback in an amplifier results in	16.
	(1) decreased bandwidth a reconstant for Inalance emit ent (1)	
semode	(2) increased distortion and noise factor.	
	(3) increased voltage gain.	
inulos Nil	(4) decreased voltage gain.	
14.	Speed of a synchronous motor in its operating (& load) range is co	orrectly
	described by	
	(1) it depends on the magnitude of the applied voltage.(2) it is independent of the frequency of the supply.	J.J.
	(3) it is directly proportional to freq. of applied voltage and in	J.
	(4) it varies directly proportional to the no. of poles.	opsivily
15.	For a series RLC resonant circuit, which statement is true?	18.
SOCIE N	(1) the voltages across individual elements (L or C) can be more	than the
Court Materials (Court of Australia)	total supply voltage.	ave l
pped 201	(2) it has the maximum impedance.	nver \
and the second s	(3) it does current magnification.	eries and a
	(4) the susceptance of the circuit is minimum.	de Carr
	Entre of the supplementation of the state of)

admired engages seather gover

uestion No.	Questions
16.	For the Time Constant of an R-L series circuit, which statement is true?
	(1) the time constant for R-L circuit is R/L seconds.
	(2) the step response reaches the final value if the initial rate of respons
	is maintained.
	(3) the step response reaches 60% of final value in T secs at the actual rate of rise.
r.egly	(4) the step response (current) reaches 99% after elapse of one time constant.
17.	An ideal voltage amplifier should have
The state of the s	(1) zero R _{in} and zero R _{out'lification} .
visere	(2) infinite R and zero R peri at lancillagord vitoemb at it (8) infinite R and zero R (vidual elements (L or C) can be more than the
	(3) zero R _{in} and infinite R _{out} .
36.	(4) infinite R and infinite R which statement is true for Superposition
18.	If a dielectric slab of 5mm and relative permittivity of 6 is inserted between
ed) nu	the plates of an air capacitor with plate separation of 8 mm, its capacitance
	isresponse to individual sources) has to before dered
	(1) almost doubled.
	(2) almost halved to individual sources) has to be considered
	(3)) decreased by a factor of 6/8 a non-linear circuits
	(4) unamedeo to non-linear circuits.
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Question No.	Questions	prentimas No.
19.	For a circuit to be least selective,	200
¥6.	(3) its Q-factor must be very large.(4) its Q-factor must be very small.	
20.	Given that P is a constant, the Laplace transform of a ramp function	
in the	(1) 1/s² part at a some constant (2) 2P/s³. (3) P/s² part at a some constant (4) P/s; v same constant (2) of the constant (3) properties a some constant (4) properties (4	race e o
21.	The term SPWM in Power Electronics stands for "" inverters. With this, the inverter generates "".	ised in
s doid Tape	(1) "Single phase wide modulation" "an AC output voltage from input with the help of switching circuits to reproduce a sine was generating one / more square voltage pulses per half cycle".	
nch a	(2) "Sinusoidal pulse width modulation" "an AC output voltage from input with the help of switching circuits to reproduce a sine vegenerating one / more square voltage pulses per half cycle".	vave by
	(3) "Single pulse width modulation" "an AC output voltage from input with the help of switching circuits to reproduce a sine of generating single square voltage pulse per half cycle".	vave by
	(4) "Sinusoidal pulse width modulation" "an AC output voltage from input with the help of switching circuits to reproduce a sine voltage.	
	generating modulation index square voltage pulses per half c	

engines which are the the medical extension of the state of the proportion of the water where the

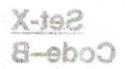
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Question No.	Questions
22.	The Z-transform of a sampled signal / function kTe ^{-akT} is
23.	Shanon's sampling theorem states that
BI To II	(1) To completely reconstruct a signal, the frequency at which it must be
	sampled is twice the freq. of the lowest frequency component in the signal.
	(2) To completely reconstruct a signal, the frequency at which it must be
m-l Bas	sampled is half the freq. of the lowest frequency component in the
31.0	invertors. With this the history general Sores bins dit W. arojievoi
an DC	(3) For complete reconstruction of a signal, the frequency at which a
vd ava	signal must be sampled is twice the freq. of the highest frequency component in the signal.
n a DC	(4) For complete reconstruction of a signal the fundamental
18.	component in the signal
24.	Steady state errors can be completely eliminated (made zero) by
YU 57E	(1) Integral (I) control action.
DO s n	(2) Derivative (D) control action
ave by	The state of the s
".el:	(a) Proportional (P) control action
	(4) Proportional-Derivative (P-D) control action.
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2.1.	Company of the second s
	and the second by have proud and with



Question No.	Questions
25. 3	Zero sequence component in three phase voltage of delta is
26.	Transposition is used in ""; and its purpose is to
.V ati o	(2) "distribution line"; make inductances of all phases as same and similarly capacitances of
	all phases as same. (3) "long transmission line"; ensure inductances of all phases as different and similarly
X 3 .	capacitances of all phases as different. (4) "long transmission line"; make inductances of all phases as same and similarly capacitances of
27.	all phases as same. Is it safe to open circuit the secondary of a Current Transformer (C.T.)
Mercon	 while its primary is energized? Reason why? (1) No. Reason: it will generate dangerously high voltage, as its primary is connected in series with the load, thus its primary current is not a reflection of its secondary current.
	(2) Yes. Reason: it will generate normal voltage, as its primary current is a reflection of its secondary current.
R. Har	(3) No. Reason: it will generate dangerously high voltage, as its primary current is a reflection of its secondary current.
luA ba	(4) Yes, as there is no secondary current, so there will be only magnetizing current in the primary, so it is safe.

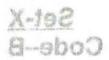


Question No.	Questions
28.	A stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has 3 horizontal maximum values and 5 vertical maximum values. If horizontal frequency is 1500 Hz, the vertical frequency will be
laslin	(1) data is insufficient (2) 22.5 KHz. (3) 2500 Hz. 16 28 28 28 (4) 900 Hz.
29.	Which diode does not show a negative resistance region in its V-characteristics? (1) tunnel diode. (2) Gunn diode. (3) zener diode. (4) none of the above.
30.	Relative limiting error adds in the: (1) All of the following cases. (2) case of division of two quantities. (3) case of sum of two quantities. (4) case of difference of two quantities.
31.	Which rule is used to find the Direction of force acting on the current- carrying conductor placed in a magnetic field?

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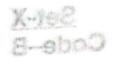
Question No.	Questions	noiment/
32.	While applying KCL to "A.C. circuits", the 'sum' considered is	:06
	(1) Algebraic sum (2) sum of peak values sum of peak values sum of peak values sum sum sum sum sum sum sum sum sum su	
33.	Given M = system matrix & I = identity matrix, then eigen values (1) solutions λ of mod of $(\lambda I + M) = 0$ con $0 - 1$ Hellang s to 1	of M are :
全 位	 (2) solutions λ of mod of (λ I-M) (3) solutions λ of (λ I-M) = 0 (4) solutions λ of (λ I-M) = 0 where 0 is a null matrix 	uch em
34. than th	If L means Laplace Transform & L ⁻¹ means Inverse Laplace Transform & system matrix, then for a continuous time system, the State of Matrix is defined as	Fransition
oitieogr	(1) $L^{-1}(sI - A)^{-1}$ (2) $L^{-1}(sI - A)$ (3) $L(sI - A)^{-1}$ (4) $(sI - A)^{-1}$.88
35.	A linear differential equation is the one which	
ean 35.	A linear differential equation is the one which	

one of the syrae weather while the Author Pourth



Questio No.	Questions	T. AVII
es all	The bundled-conductor arrangement in transmission lines reduc	es
36.		
	(2) sum of peak values	
	(2) radio interference due to corona	
	(3) power loss due to corona seithment egereve to mus (b)	
f Mer	(4) all of the above	100
37.	For a parallel R-L-C resonant circuit, which statement is true?	
	(1) it has zero power factor. (M la) lo bom to A enotitulos (E)	
	(2) it has the least impedance.	
EA _O	(4) solutions \(\chi of (\(\chi \) = 0 where 0 is a null matrix \(\chi \)	
erroles	(3) it does current magnification.	34.
tiener	(4) The voltage across in 'ividual elements (L or C) can be more total supply voltage	
38.	When applied to A.C. circuits, which statement is true for Super Theorem?	positio
	(1) It applies to linear circuits only and algebraic sums of partial re (in response to individual sources) has to be considered.	
	(2) It applies to linear circuits only and phasor sums of partial re (in response to individual sources) has to be considered.	sponse
ents w ne, gin	(3) It applies to linear as well as non-linear circuits. (4) It applies to non-linear circuits	
	(4) It applies to non-linear circuits.	
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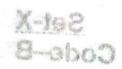
processing against their annual to the Congression of their



Question No.	Questions	inolasum Neg.
39.	Given a Thevenin equivalent of a complex circuit as $V_{TH} = 18.34 \text{ V}$ = 9.5Ω , then the Norton Equivalent can be directly deduced as:	
	(1) $I_N = 1.93A$ and $R_N = 9.5\Omega$. So and the velocity of the results (1))
	(2) $I_N = 1.73.85 A$ and $R_N = 1.93 \Omega$. and the velocity is a result of the second	
	(3) $I_N = 1.93A$ and $R_N = 1.93\Omega$ and and the value region is with $T_N = 1.93A$	0
possession era a resident	(4) Norton equivalent can not be directly deduced without havi- to the given complex network.	
40.	According to dot-convention, a dot is placed at the terminals w	vhich are
laswol	(1) instantaneously of the opposite polarity on the basis of	A STATE OF THE PARTY OF THE PAR
73.	inductance alone.	and the
	(2) instantaneously of the opposite polarity on the basis of self-in alone.	ductance
	(3) instantaneously of the same polarity on the basis of mutual in	ductance
nidiem	alone. (4) instantaneously of the same polarity on the basis of self-in	ALTERNATION CONTRACTOR
- region	alone.	i mongringend
41.	When key is closed in an RC circuit with $R=10\Omega$, $C=4\mu F$, the dissipated is 18×10^{-6} , the initial charge on the capacitor must be (1) $576\mu C$ (2) $4\mu C$	
1	something the state of the stat	9 1

(13)

When key in alored in an RC appropriation with R 100, C" 4 pt P. the energy



Question No.	Questions	norte po
42.	Terms of lowest degree in the numerator and denominator of a	driving
	point function may	
	(1) differ in degree by at the most zero. = 28 bas A88 I = 1 (1)	
	(2) differ in degree by at the most one. A bas Ada St. 1 = 1 (2)	
	(3) differ in degree by at the most two. I = 37 brow ADD 1 = 1 (8)	
893357.	Control of the Contro	
43.	One of the necessary conditions for a Transfer function $N(s) = P(s)$	(O(a) ia
ch are	According to dot-convention, a dot is placed at the leronicald are	(s) Is
	(1) polynomial P(s) may have terms missing between the terms of	
nutual	to and highest degree question of the companies of	lowest
respondent	(2) real part of poles must be maritime anola sometoubus	
ctance	(2) if real part of pole is zero, that pole must be repeated.	
clance	(4) degree of P(s) has to be more than zero.	
44.	In a c machines the mattle 1	All I to
ctance	for	nsible
	(1) production of electric field.	Hara, Saigt
energy	(2) production of magnetic field.	41.
	(3) production of magnetic field. (3) production of heat.	
	(4) production of non-sinusoidal field.	
	Du ag 100 1	
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Question No.	Questions holiveur
45.	Non-minimum phase system has
	(1) poles in the right half's plane.
And the second s	(2) poles and zeroes in the left half s-plane.
	(3) zeroes in the left half s-plane.
·	(4) zeroes in the right half s-plane.
46.	For constant ω_n , the contours of roots in the complex s-plane are
	(1) straight lines through the origin at an angle $\theta = \cos^{-1}(\zeta)$ with negative
53,	real axis. (2) straight lines parallel to the j_{ω} axis j_{ω} axis j_{ω} axis j_{ω} axis j_{ω}
	The main advantage of Initial Value The ω suitable advantage of Initial Value The ω suitable (6).
301.5714	(4) straight lines through the origin at an angle $\theta = \cos^{-1}(\omega_n)$ with negative real axis.
47.	For a series resistive circuit, with R1 = 10 K Ω , 1W; R2 = 10 K Ω , ¼W; and
94110793	R3 = 250 K Ω , ¼W, the current must not exceed
ouse f(t)	(1) 100 mA (2) 5 mA (3) mortule of time-domain equation (4) but one to determ (4)
	(3) 2 mA (4) 1 mA VISITIO

(15)

Control was Rt 10 Rt. 1W P2 - 10 Kt.



uestion No.	Questions	To a second
63	The second diade is seen to be properly and the second and the sec	.0.2
48.	The rank of the matrix 0 3 12 is	1
	in the horizon said the 4-10	
	(1) 4the thyristor a manuscraph at the tour course in the ended (5)	12
		distri
the property of the particular	(2) 2 and the fine of the second (E)	1
63.	(3) language transform of a signal visits Yis: - 3- 3 (4-)	
	(4) either 3 or none of the above	
49.	For the impedance of a capacitor C,	46.
e e e q d e 2 v e;	(1) the note is at 0 and zero is at 0	_
eville	(2) the pole is at 0 and zero is at ∞ .	Ame and
	(2) the pole is at 0 and zero is at 0.	8
	(3) the pole is at ∞ and zero is at 0.	
	(4) the pole is at ∞ and zero is at ∞ .	
50.	The main advantage of Initial Value Theorem is that it gives	a.e. to
6.6	(1) initial value of time-domain solution f(t) without having to de	termin
sgative	f(t) formally.	1 1 1
	(2) initial value of frequency-domain solution E(2)	aving
V; and	determine F(s) formally.	a vine
	(3) final value of time-domain solution f(t) without having to de	
	i(t) iormany.	supple of
	(4) initial value of time-domain solution f(t) but one has to deter	
	formally.	mine f(
NIES OF	IDC DE DEC 9000/EL-4-11 LE	Pink Paradi
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	page and the same of the same	2017年度

Question No.	Questions	Residen
51.	An R-L circuit has steady state current of 10 mA when supplied battery. The time Constant of the R-L circuit is 0.01 sec. Its in the constant of the R-L circuit is 0.01 sec. Its in the	nductance is
lios-a ta	(3) 1.25 mH (4) 1.25 H (5) (4) 1.25 H	A .88
52.	A strip of copper of rectangular x-section has resistance of 2Ω resistivity twice that of copper is coated on its upper surface to equal to that of copper strip. The resistance of composite strictly $4/3 \Omega$.	a thickness p is
	(3) $3/2 \Omega$. (4) 6Ω .	MI PERMIT
53.	Which one of the following bridges can be used to measure di of a capacitor?	
63	(1) Heaviside Campbell bridge.	Adhark mess
	(2) Aderson bridge.	Mar ess kv
balgini	(3) Schering bridge. (4) Owen bridge.	
54.	For a D.C. shunt generator, if pole flux of and speed are both generated e.m.f. will be	doubled, the

", sergion generation of pulls lives of many spread and booth doubteres the

X-te2 Gode-B

Question No.	Questions
70 55. 0	The phenomenon of 'creeping' occurs in
	(3) power factor meters (4) frequency meters
56.	A PMMC instrument has a full scale deflection of 100 μ A and a coil resistance of 1 K Ω . Shunt resistance to convert the instrument into an
esemédia	ammeter with full scale deflection of 100 mA is
5000.	(1) 101 Ω uncondenses (2) 0.11 Ω .
	(3) 1001 Ω. (4) 1.001 Ω.
57.	In case of extrinsic semi-conductor
bed plat	(1) no. of holes is exactly equal to no. of electrons.
	(2) either holes or electrons will be more in number.
	(3) no. of electrons is always more than no. of holes.
	(4) no. of holes is always more than no. of electrons.
58.	If the length of a conductor is tripled and the diameter is also tripled then its resistance is
sied, the	(1) 1/9th of the original resistance.
	(2) 2/3rd of the original resistance.
	(3) 1/3rd of the original resistance.
	(4) not changed at all.

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Questions
By making no. of rotor slots prime to the no. of stator slots, in an Induction Motor, the chances of which of the following are reduced
If an Ohmmeter is connected to an uncharged good 0.05 μ F capacitor, the reading should
(1) show high resistance momentarily and then a very low resistance.(2) show low resistance momentarily and back off to a very high resistance.
 (3) not move at all, i.e., show no reading (as if capacitor not connected). (4) go quickly to 200 Ω approx., and remain there
In the context of domestic and industrial premises and for transmission
lines, which set of voltages are correct? (1) Domestic / industrial: 230 V and 440 V. Transmission lines: 33 kV, 66 kV, 132 kV, 440 kV.
(2) Domestic / industrial: 230 V and 400 V. Transmission lines: 33 kV, 66 kV, 132 kV, 440 kV.
(3) Domestic / industrial: 230 V and 400 V. Transmission lines: 33 kV, 66 kV, 132 kV, 400 kV.
(4) Domestic / industrial: 230 V and 440 V. Transmission lines: 33 kV, 66 kV, 132 kV, 400 kV.

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The state of the continuous and continuous of the continuous states of the continuous states and the continuous states and the continuous states are continuous states are continuous states are continuous states and the continuous states are continuou

Question No.	4
62.	Flywheel diode is generally used to protect
ed 63.	If Laplace transform of a signal $y(t)$ is $Y(s) = 1 / \{s(s-1)\}$, then its final value is
moe. stance	(1) and the second of the seco
64. .(hsipe	In a transformer, if maximum efficiency occurs at a certain load, then for loads lower than this, core loss P_c is related to copper loss P_{cu} as
nission	(3) $P_c > P_{cu}$. The property of a sign (4) $P_c = P_{cu}/2$. The property of the property
. 65.	In power system analysis, the per unit system has advantage that calculations are simplified because quantities expressed
V188	(2) are improved when they are referred from one side of a transformer
33 k.V	(3) change to moderate values when the
Val 88	 (3) change to moderate values when they are referred from one side of a transformer to the other. (4) change to low values when they are referred from one side of a transformer to the other.



Question No.	Questions	Russian			
66.	A non-causal system's output depends upon				
roisainn	(1) present inputs only to all to with a state of the (1)			
	(2) present and past inputs.				
	(3) does not depend upon inputs.) =====			
	(4) future inputs.	346.3 - 4			
67.	Transfer Function is defined as	e militari isa			
ndiffe.	(1) ratio of output to input, given that the initial conditions	are zero.			
fuctano	(2) ratio of Laplace transform of output to Laplace transfor				
	given that the system is LTI and relaxed.	1.19			
nagneti	(3) ratio of change of output to change in input, given that	the initial			
West 1	conditions are zero and system is Linear Time Invariant	the initial			
nagneti	(4) ratio of change of output to change in input, given that conditions are zero and system can be linear or non-linear	ir.			
		CIRCUMIT THE			
68.	In switching applications, CE configuration is preferred becau	use			
.1800	(1) it requires only one power supply.	Cop and recipied.			
Henned	 (1) it requires only one power supply. (2) it has negligible T_{CEO}. 	Unling and			
	The state of the s				
load ca	(3) it requires low voltage of low currents. (4) it has high input impedance.	n Albert marind			
69.	Transistor amplifier configuration capable of both a voltage a	nd a curren			
	the writer is not a sent to the first the firs	IT BUTTE			
3.5a.	(2) common collector.	S.F. Walter			
3,00%	(1) common base. (2) common of the above	NASC 2			

136 an desire but of heart many analyments.



Question No.	Questies
770.	The poles and zeroes of a network function and because it denominated
L. C.	1 Continumerator and delioninate
	I was a second of the second o
	(1) vrespectivelyed across the h.v.siae is a
	(2) voltage and so is the flux. (2) are critical complex frequencies of the network. (2) supply is short-circuited.
	(3) are the scale factors of the network. (3) iron core becomes fully saturated, thus losses become negligible.
.0168	(4) both participate in determining its stability adequate that is ma
¹¹ 71. 70	meet Cu losses and iron losses Considering that L denotes the length of the magnetic path, then inductan
76.	Aof a coil is given by the willim the system is the system of the system
o inita	(1) N/S where S ≡ L/μ A is identified as the reluctance of the magnetic part of the magneti
	(2) N^2/S where $S = L/\mu \Lambda$ is identified as the reluctance of the magnet
	(3) cpathoue to supply same current no matter what load is put in serie
	(3) N^2/S where $S = L/\mu A$ is identified as the reactance of the coil.
	11) It is writered as the volume
77.	because Justing wol to was the regulation open circuit tes
72.	A 230 V a.c. source has internal impedance as
rruo A	(Z) The input voicage is not surfacional and source
- Crack transfer and	(1) $\sqrt{2^2+2^2}$ Ω resistor (2) 2 Ω resist
Supplied Water Property Comments	(3) j2 Q inductor the open circ(4) e2 s i 2 Ω capacitive load less. RS-EE-DEC-2022 (Electrical Engineering) Code-B ((22)
HD/U]	RS-EE-DEC-2022 (Electrical Engineering)

The second is a second of the second second

Questions Question No. For a 4-pole, 3-ph induction motor having 4% slip at full load, if the speed 73. is 720 r.p.m., then supply freq. is (1) 50 Hz. (2) 25 Hz. (d) does not depend upon inputs well sold so on bus emetlov (4) 16.67 Hz. roofs a vinque (2) 100 Hz. (3)iron core becomes fully saturated, thus losses becom Power factor correction / improvement apparatus is useful in the following 74. Stoutput 25 haput given that the hiller teem into a late ze ro. ratio of Laplace transform of output to Laplace transform of input, It relieves only distribution line (prior to the load) from much reactive current, thus reducing the I2R losses in distribution line, but no effect on transmission line losses. tem is Linear Time Invariant have its terminal voltage become zero when (4) Fatio of change of soutput to change in in It relieves the transmission line (prior to the load) from much reactive current, thus reducing the I2R losses in transmission line, but no ofiguration is preferred because effect on distribution line losses. Supply zero current of the terrande agestaores adque It relieves the transmission/distribution line (between sending end (3) and load) from much reactive current, but has no effect on I2R losses in transmission/distribution line, as reactive current causes no losses. (1) the currents in both the primary and the security are (4) It relieves the transmission/distribution line (between the sending 69. end and the load) from much reactive current, thus reducing the I2R (1) losses in the transmission/distribution line. PHD/URS-EE-DEC-2022(Electrical Engineering) Code-B

uestion No.	Questions
75.	Iron losses of a transformer are negligible during short circuit test, because (1) voltage applied across the h.v. side is a small fraction of the rate voltage and so is the flux. (2) supply is short-circuited.
	 (3) iron core becomes fully saturated, thus losses become negligible. (4) the input voltage is full but input power is not adequate that is manneet Cu losses and iron losses
76.	An ideal current source will: (1) continue to supply same voltage under all loading conditions. (2) have its terminal voltage become zero when terminals are oper circuited. (3) continue to supply same current no matter what load is put in serie with it. (4) supply zero current if its terminals are short-circuited.
PHD	A STATE OF THE PARTY OF THE PAR

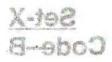
Question No.	Questions	nodženuk) od
78.	Two cables, each of length 1 km, with insulation resistances R_1 respectively, are properly joined end to end, then insulation resist the resultant two km long cable is	
sponse	(1) $R_1 + R_2$ (2) $R_1 - R_2$ (3) $(R_1R_2)/(R_1 + R_2)$ (4) $2R_1R_2$	
79.	Why are intersheaths used in cables? (1) To provide protection against moisture, current and voltage	surges.
	(2) To improve the insulation level of the cable. (3) To minimize the stress. (4) To provide proper stress distribution.	.28 .c. (s.t.s.)
80.	A long transmission line has	sulator;
86 sed line	(2) R, L and C and higher receiving end voltage than sending end due to Ferranti effect.	l voltage
ed line.		
east be	(4) lower receiving end voltage than sending end voltage due to effect.	rerranti



Question No.	Questions
.9 81 0.6	Transfer Function and Impulse Response of a linear time-invariant system
ance of	are related by: are properly joined end to end, then: yd harder ere
	(1) one is the inverse of the other and vice-versa.
and the second	(2) Laplace transform of Transfer Function gives the Impulse Response of the system.
	g gs (b) (g g) (g g) (g)
	(3) inverse Laplace transform of Transfer Function gives the Impulse Response of the system.
eurges.	(4) they are not related to each other of the order of (1)
82.	The closed line integral of magnetic field intensity is equal to the
	(1) rate of change of capacitance.
	(2) rate of change of inductance. (4)
	(3) rate of change of magnetic flux.
sulator;	(1) R and C due to constuctor resistance and decire acting (2)
83.	The closed line integral of electric field intensity is equal to the
	(1) negative time rate of change of magnetic flux linking the closed line.
	(2) negative time rate of change of electric field linking the closed line.
Perranti	(3) positive time rate of change of magnetic flux linking the closed line
	(4) positive time rate of change of electric field linking the closed line.

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S.	CALLY SEL	00	And a

Question No.	Questions
o aon a	Bode plot (asymptotic magnitude part) follows a slope of -20 db/decade from a corner frequency ω_1 and meets a higher corner freq. ω_2 due to a double (of multiplicity 2) zero. Resulting slope after ω_2 is
	(1) -60 db / decade. (2) 20 db / decade.
led trigi	(3) 40 db / decade. (4) 0 db / decade. (5)
85.	Open-loop gain K at any point so on the root locus is given by
•	(1) ratio of (product of phasor lengths from s ₀ to open-loop poles) to (product of phasor lengths from s ₀ to open-loop zeros).
	(2) ratio of (phasor sum of lengths from s ₀ to open-loop poles) to (phasor sum of lengths from s ₀ to open-loop zeros).
	(3) $\cos \theta$ where θ is the angle from –ve real axis to the line from origin to s_0 .
	(4) ratio of (product of phasor lengths from s ₀ to open-loop zeros) to (product of phasor lengths from s ₀ to open-loop poles).
86.	In a Routh-Hurwitz array, the first column elements are: 1, 1, ϵ , 2–(4/ ϵ) and 4. How many roots have positive real parts? (Here, ϵ is a small positive number replacing 0 in first column to overcome R-H test break down).
	(1) 1 (2) 2 (3) 3 (4) Nil (4) Nil (5) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7



Question No.	Questions by open-loop system's
due to a	Nyquist stability criterion of closed-loop system is by open-loop system's polar plot's
	poles of open-loop unstable system.
1 . ********	(3) non-encirclement of (-1+j0) point, if open-loop system is stable.
poles) t	(1) ratio of (product of phasor lengths from s. to open loop (1) (4) both (2) and (3). (a) both (2) and (3). (b) copen loop series from s. to open loop zeros)
88.	Phase lag compensator acts as a rossing) to out at (2)
	(1) lag at low frequencies and lead at high frequencies.
igrio m	(2) lead at low frequencies and lag at high frequencies.
geros) t	(3) low pass filter. quel-nage of a much address result to southern to bits (A)
	(4) (high pass filter of a more and not rough to busine (4)
89.	A chopper can and the state of
ndisog H down).	
	(2) lower the D.C. voltage.
	(3) raise or lower the A.C. voltage.
general constants of the second	(4) raise or lower the D.C. voltage.
PHDA	JRS-EE-DEC-2022(Electrical Engineering) Code-B

uestion No.	Questions	nestion
90.	Is a MOSFET connected or disconnected in the circuit when power and why? One of the circuit when power and why?	
onto ne	effects may exceed V _{GS(max)} and thus wipe out the MOSFET.	nd other
	(2) Yes, it is advisable to connect or disconnect MOSFET in the when power is on, as it is safe to do so.	
	(3) No, because steady state voltages may spoil the MOSFET.	
lauron	(4) No, because lightening voltages may spoil the MOSFET.	94.
91.	excitation is	el ar jagan
	(1) is an input signal to 8085 whereby a fast peripheral asks relinquish control of its buses.	
	(2) is an i/p signal to 8085 whereby a slow peripheral acknowle 8085 about control of its buses.	dges to
ni 29.	(3) is an output signal from 8085 asking other peripherals to hold	l on and
14. ·	(4) is a control signal to interrupt the microprocessor.	undig
92.	For microprocessor 8085, the Stack pointer contents are	
PHD/U	(3) incremented by 2 (4) decremented by 2	and stor

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Set-X Code-B

uestion No.	Questions Questions ABSR control word for 8255 annualb. to betaennos THEROM s at
1.8en	ABSR control word for 8255 annualb.no believed Sydw bas
	(1) affects more than one bits of port C.
d other	(1) affects more than one bits of port C. na shaddling also written on the standard stand word is also written on the standard word is also written on (2) sets or resets one bit in port C and control word is also written on the standard word is also written on (2) and control word is also written on the standard word is also written on (2) and control word is also writen (2) and control word is also wr
eircuit	(2) Yes, it is advisable to connect or disconnect MOSFET in the when power is on, as it is sale to do so. (3) Also A strong to so it is sale to do so. (3) Also A strong to so it is sale to do so. (3) Also A strong to so it is sale to do so.
	(3) also affects the I/O operations of ports A and B. (4) does not affects the I/O operations of ports A and B.
94.	The effect of increasing load on a synchronous motor running with norm
	excitation is Ihe HOLD signal
8085 to	(1) to increase armature current but decrease power factor.
dges to	(3) to decrease armature current but increase power factor. (4) to decrease both armature current and power factor.
bив по 95.	As per usual configuration and specification, an auto-transformer in
30	Laboratory connected to a 220 V mains supply can produce
after a	(2) output voltage ranging from 5V to less than 220V. The standard of the stan
	(2) decremented by 1
	2 do namamadou (4)
PHD/	URSEE DEC-2022(Electrical Engineering) Code-Berry (8)

Question No.	' Questions	nostion No.
96.	Which of the following conditions need not be met by alternators w	vorking
a programme of the	(1) To convert D.C. into rectified A.C.	
and the second s	(1) Terminal voltage of each machine must be the same. Output Output Description Description Output Description Desc	
e A.C.	(2) The machines must have equal ratings. (3) To convert A.C. into D.C., else without commutator, it would give	
ithout	(3) Machines must have the same phase sequence. (4) To convert alternating torque into unidirectional torque, as w	
-9tipro	(4) Alternators must operate at the same frequency, mmoo	
e.97(Le	Salient pole rotors of large diameter alternators have short axial mainly because at see 1990 learned and a large diameter alternators have short axial	length
	(1) it saves a lot of copper in stator winding.	
	(2) number of armature conductors held in the large circumference	stator
	being very large, they need not be long to produce the same v	oltage.
	(3) it saves a lot of copper in rotor winding.	
	(4) number of armature conductors held in the large circumference	e rotor
	being very large, they need not be long to produce the same v	oltage.
98.	If excitation is held constant, but the steam supply of an alternator, r in parallel with another identical alternator, is increased, then	unning
	(1) it will supply greater portion of the load.	e dispersion
	(2) its power factor would be decreased.	
- 43	(3) its rotor will fall back in phase with respect to the other mach	ine.
	(4) its excitation will fluctuate.	n htg gree.

uestion No.	Questions Questi
99.	The purpose of commutator in a D.C. motor is
	(1) To convert D.C. into rectified A.C.
	spaces temps when commutator, it would give his
	(4) To convert alternating torque into unidirectional torque, as without commutator in place, the armature would develop alternating torque
100. 9	If torque angle of a 4-pole synchronous motor is 8 degree (electrical), its value in mechanical degrees is
	(1) it saves a lot of copper ig s(2) or winding.
stator	(2) number of armature cold (4) is held in the large circum (2)
bliage.	being very large, they need not be long to produce the same v
	(3) it saves a lot of copper in rotor winding.
.ognno	(4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature conductors held in the large circumference (4) number of armature circumference (4) number of armature circumference (4) number of armature (4) number of
Equuu	98. If excitation is held constant, but the steam supply of an alternator, a 98. If excitation is nother identical abstract, as increased, then
	(1) it will supply greater purtion or the road.
ime.	William balling the rotor will fall balling the rotor at its rotor at
PHD/L	RS-EE-DEC-2022(Electrical Engineering) Code-B SHUNGH

Question No.	Questions
1.	In the context of domestic and industrial premises and for transmission lines, which set of voltages are correct?
	(1) Domestic / industrial: 230 V and 440 V. Transmission lines: 33 kV, 66 kV, 132 kV, 440 kV.
	(2) Domestic / industrial: 230 V and 400 V. Transmission lines: 33 kV, 66 kV, 132 kV, 440 kV.
	(3) Domestic / industrial: 230 V and 400 V. Transmission lines: 33 kV, 66 kV, 132 kV, 400 kV.
	(4) Domestic / industrial : 230 V and 440 V. Transmission lines : 33 kV, 66 kV, 132 kV, 400 kV.
2.	Flywheel diode is generally used to protect
	(1) the thyristor switches against the current due to resonance.
	(2) the thyristor switches against the current due to resistive loads.
	(3) the thyristor switches against the temperature changes.
	(4) the thyristor switches against the current due to inductive loads.
3.	If Laplace transform of a signal $y(t)$ is $Y(s) = 1 / (s(s-1))$, then its final
,	value is
	(1) -1 (2) 0
	(3) 1 (4) Infinity
4. I	n a transformer, if maximum efficiency occurs at a certain load, then for
1	oads lower than this, core loss P_c is related to copper loss P_{cu} as
1	TO TO
	1) $P_c = P_{cU}$. (2) $P_c < P_{cU}$. 3) $P_c > P_{cU}$. (4) $P_c = P_{cU}/2$.

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Questio No.	Questions
5.	 In power system analysis, the per unit system has advantage that calculations are simplified because quantities expressed as per-unit
	A non-causal system's output depends upon
	conditions are zero and system is Linear Time Invariant

Question No.	Questions
8.	In switching applications, CE configuration is preferred because
	(4) it has high input impedance.
9.	Transistor amplifier configuration capable of both a voltage and a current gain more than unity is
10.	The poles and zeroes of a network function
	(3) are the scale factors of the network. (4) both participate in determining its stability.
11.	When key is closed in an RC circuit with $R=10\Omega$, $C=4\mu$ F, the energy dissipated is 18×10^{-6} , the initial charge on the capacitor must be
	(1) $576 \mu C$ (2) $4 \mu C$
1	(3) 25 μC (4) 12 μC

Set-X Code-C

Quest No.	
12	Terms of lowest degree in the numerator and denominator of a drivin point function may
	(1) differ in degree by at the most zero.
	(2) differ in degree by at the most one.
	(3) differ in degree by at the most two.
	(4) never be of the same degree.
13.	One of the necessary conditions for a Transfer function $N(s) = P(s) / Q(s)$ i
	(1) polynomial P(s) may have terms missing between the terms of lowes and highest degree.
	(2) real part of poles must be positive.
	(3) if real part of pole is zero, that pole must be repeated.
	(4) degree of P(s) has to be more than zero.
14.	In a.c. machines, the wattless lagging component of current is responsible
	(1) production of electric field.
	(2) production of magnetic field.
	(3) production of heat.
	(4) production of non-sinusoidal field.
Dave	in the second of
DIUK	S-EE-DEC-2022(Electrical Engineering) Code-C

Question	Code-C
No.	Questions
15.	Non-minimum phase system has
	(1) poles in the right half s-plane.
	(2) poles and zeroes in the left half s-plane.
	(3) zeroes in the left half s-plane.
	(4) zeroes in the right half s-plane.
16.	For constant ω_n , the contours of root s in the complex s-plane are
	(1) straight lines through the origin at an angle $\theta = \cos^{-1}(\zeta)$ with negative real axis.
	(2) straight lines parallel to the j_{ω} axis.
	(3) circles of radius ω_n .
	(4) straight lines through the origin at an angle $\theta = \cos^{-1}(\omega_n)$ with negative real axis.
17.	For a series resistive circuit, with R1 = 10 K Ω , 1W; R2 = 10 K Ω , ¼W; and R3 = 250 K Ω , ¼W, the current must not exceed
	(1) 100 mA (2) 5 mA
	(3) 2 mA (4) 1 mA company in the continuous forms and the continuous forms

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Questi	on
No.	Questions
18.	The rank of the matrix $\begin{bmatrix} 0 & 1 & 4 \\ 0 & 3 & 12 \\ 0 & 4 & 16 \end{bmatrix}$ is
	(1) 4
	(2) 2
	(3) 1
	(4) either 3 or none of the above
10	
19.	For the impedance of a capacitor C,
	(1) the pole is at 0 and zero is at 0.
	(2) the pole is at 0 and zero is at ∞ .
	(3) the pole is at ∞ and zero is at 0.
	(4) the pole is at ∞ and zero is at ∞ .
20.	The main advantage of Initial Value Theorem is that it gives
	(1) initial value of time-domain solution f(t) without having to determine f(t) formally.
	(2) initial value of frequency-domain solution F(s) without having to determine F(s) formally.
	(3) final value of time-domain solution f(t) without having to determin f(t) formally.
·	4) initial value of time-domain solution f(t) but one has to determine f(formally.

0	Code-C
Question No.	Questions
21.	Transfer Function and Impulse Response of a linear time-invariant system are related by:
	(1) one is the inverse of the other and vice-versa.
	(2) Laplace transform of Transfer Function gives the Impulse Response of the system.
	(3) inverse Laplace transform of Transfer Function gives the Impulse Response of the system.
	(4) they are not related to each other.
22.	The closed line integral of magnetic field intensity is equal to the
	(1) rate of change of capacitance. Sometimes of the control of th
	(2) rate of change of inductance.
	(3) rate of change of magnetic flux.
	(4) current enclosed.
	માં કાલા જાતા જાતા જાતા જાતા કાર્યું કરે કે જે જે મહાલા સુધાર કે માટે કાલ સાથે કાર્યું કાર્યા કાર્યું કાર્યું કાર્યા કાર્યું કાર્યું કાર્યું કાર્યા કાર્યું કાર્યું કાર્યા કાર્ય
23.	The closed line integral of electric field intensity is equal to the
	(1) negative time rate of change of magnetic flux linking the closed line.
	(2) negative time rate of change of electric field linking the closed line.
	(3) positive time rate of change of magnetic flux linking the closed line.
	(4) positive time rate of change of electric field linking the closed line.

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Question No.	Questions
24.	Bode plot (asymptotic magnitude part) follows a slope of -20 db/decade from a corner frequency ω_1 and meets a higher corner freq. ω_2 due to a double (of multiplicity 2) zero. Resulting slope after ω_2 is
,	(1) -60 db / decade. (2) 20 db / decade.
	(3) 40 db / decade. (4) 0 db / decade.
25.	Open-loop gain K at any point so on the root locus is given by
•	(1) ratio of (product of phasor lengths from s ₀ to open-loop poles) to (product of phasor lengths from s ₀ to open-loop zeros).
	(2) ratio of (phasor sum of lengths from s ₀ to open-loop poles) to (phasor sum of lengths from s ₀ to open-loop zeros).
	(3) $\cos \theta$ where θ is the angle from -ve real axis to the line from origin to s_0 .
	(4) ratio of (product of phasor lengths from s ₀ to open-loop zeros) to (product of phasor lengths from s ₀ to open-loop poles).
26.	In a Routh-Hurwitz array, the first column elements are : 1, 1, ϵ , $2-(4/\epsilon)$ and 4. How many roots have positive real parts? (Here, ϵ is a small positive number replacing 0 in first column to overcome R-H test break down).
	(1) 1 (2) 2
,	(3) 3 (4) Nil
4	ം പ്രവരുത്തെ പൂട്ടുതിലായിരുന്ന് സംവാധ കാരത്തിൽ അംഗ്രഹ് വരം പുരുത്തിലെ വരുത്തിലെ വരുത്തിലെ വരുത്തിലെ വരുത്തിലെ

PHD/URS-EE-DEC-2022(Electrical Engineering) Code-C and the compression of the test of the compression

<u>Set-X</u> Code-C

Question	00ue-0
No.	Questions
27.	Nyquist stability criterion of closed-loop system is by open-loop system's polar plot's
	(1) encirclements, in c.c. direction, as are the no. of right half zeros of open-loop system.
	(2) encirclements, in c.c. direction, as many times as are no. of right half poles of open-loop unstable system.
	(3) non-encirclement of (-1+j0) point, if open-loop system is stable.
	(4) both (2) and (3).
28.	Phase lag compensator acts as a
	(1) lag at low frequencies and lead at high frequencies.
	(2) lead at low frequencies and lag at high frequencies.
	(3) low pass filter.
	(4) high pass filter.
29.	Achoppercan
Œχ.	(1) raise the D.C. voltage and lead on things for any
T. S.	(2) lower the D.C. woltage. and have set he are the second
a · · · ·	(3) raise or lower the A.C. voltage.
	(4) raise or lower the D.C. voltage.

PHD/URS-EE-DEC-2022(Electrical Engineering) Code-C
(9)

Question	Questions
30.	 Is a MOSFET connected or disconnected in the circuit when power is on and why? (1) No, because transient voltages caused by inductive kickback and other effects may exceed V_{GS(max)} and thus wipe out the MOSFET. (2) Yes, it is advisable to connect or disconnect MOSFET in the circuit when power is on, as it is safe to do so. (3) No, because steady state voltages may spoil the MOSFET. (4) No, because lightening voltages may spoil the MOSFET.
	Regarding an electric field, which statement is not true? (1) unit field intensity is the exertion of a force of one newton on a charge of one coulomb. 2) electric field intensity is a vector quantity. 3) electric field intensity at a point is numerically equal to the force exerted upon a positive charge placed at that point.
(2) (2) (3) (4)	also called collector follower and its voltage gain is close to unity. also called emitter follower and its voltage gain is very low (approx. 0.01). also called emitter follower and its voltage gain is very high (approx. 100).

PHD/URS-EE-DEC-2022(Electrical Engineering) Code-C

Ougatlan	Code-C
Question No.	Questions
33.	Negative feedback in an amplifier results in
	(1) decreased bandwidth.
	(2) increased distortion and noise factor.
	(3) increased voltage gain.
	(4) decreased voltage gain.
34.	Speed of a synchronous motor in its operating (& load) range is correctly described by
	(1) it depends on the magnitude of the applied voltage.
	(2) it is independent of the frequency of the supply.
	(3) it is directly proportional to freq. of applied voltage and inversely proportional to no. of poles.
	(4) it varies directly proportional to the no. of poles.
35.	For a series RLC resonant circuit, which statement is true?
	the voltages across individual elements (L or C) can be more than the total supply voltage.
	(2) it has the maximum impedance.
	(3) it does current magnification.
	(4) the susceptance of the circuit is minimum.

PHD/URS-EE-DEC-2022(Electrical Engineering) Code-C o incompanies per o spiema i manda dis**(11)**, in lieura cara di ordina di masmolase mandrae ribrama di

Question No.	Questions
36.	For the Time Constant of an R-L series circuit, which statement is true?
	(1) the time constant for R-L circuit is R/L seconds.
	(2) the step response reaches the final value if the initial rate of response is maintained.
	(3) the step response reaches 60% of final value in T secs at the actual rate of rise.
	(4) the step response (current) reaches 99% after elapse of one time constant.
37. A	an ideal voltage amplifier should have
(1	\mathbf{R}_{in} and zero \mathbf{R}_{out} .
(2	infinite R_{in} and zero R_{out} .
(3)	$\mathbf{zero} \ \mathbf{R}_{in} \ \mathbf{and} \ \mathbf{infinite} \ \mathbf{R}_{out}.$
(4)	infinite R_{in} and infinite R_{out} .
8. If a	dielectric slab of 5mm and relative permittivity of 6 is inserted between
the	plates of an air capacitor with plate separation of 8 mm, its capacitance
(1)	almost doubled.
(2)	almost halved.
(3)	decreased by a factor of 6/8.
(4)	unaffected.

(12)

Questio No.	Questions
39.	For a circuit to be least selective,
	(1) its effective resistance must be very small.
	(2) its bandwidth should be large.
	(3) its Q-factor must be very large.
	(4) its Q-factor must be very small.
40.	Given that P is a constant, the Laplace transform of a ramp function Pt is
	(1) $1/s^2$ and galactic specific (2) $2P/s^3$.
.*.	(3) P/s ² . (4) P/s.
41.	Considering that ${f L}$ denotes the length of the magnetic path, then inductance
	of a coil is given by
	(1) N/S where $S = L/\mu A$ is identified as the reluctance of the magnetic
2 B	Chrom path and the second part of the despite on the design part of a respective second of the seco
	(2) N^2/S where $S = L/\mu A$ is identified as the reluctance of the magnetic
	path.
	(3) N^2 / S where $S = L / \mu A$ is identified as the reactance of the coil.
**************************************	(4) N/S^2 where $S = L/\mu A$ is identified as the reluctance of the magnetic
	path.
42.	A 230 V a.c. source has internal impedance of $2+j2\Omega$. What load can draw
	and dissipate the maximum power from this source?
	(1) $\sqrt{2^2+2^2}$ Ω resistor (2) 2Ω resistor
	(3) $i2 \Omega$ inductor (4) $2-j2 \Omega$ capacitive load
	and the second of the second o

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Question No.	Queen
43.	For a 4-pole, 3-ph induction motor having 4% slip at full load, if the speed
	is 720 r.p.m., then supply freq. is
	(1) 50 Hz. (2) 25 Hz.
	(3) 100 Hz. (4) 16.67 Hz.
44.	Power factor correction / improvement apparatus is useful in the following
	sense:
٠,٠.	(1) It relieves only distribution line (prior to the load) from much reactive
	current, thus reducing the I2R losses in distribution line, but no effe
,	on transmission line losses.
	2) It relieves the transmission line (prior to the load) from much reactive
	current, thus reducing the I2R losses in transmission line, but no effe
y gr	on distribution line losses.
(3) It relieves the transmission/distribution line (between sending en
· lufy	and load) from much reactive current, but has no effect on I2R losse
	in transmission/distribution line, as reactive current causes no losse
(4)	It relieves the transmission/distribution line (between the sending
	end and the load) from much reactive current, thus reducing the I2
6	losses in the transmission/distribution line.

Questic No.	Questions
45.	Iron losses of a transformer are negligible during short circuit test, because
	(1) voltage applied across the h.v. side is a small fraction of the rated voltage and so is the flux.
	(2) supply is short-circuited.
	(3) iron core becomes fully saturated, thus losses become negligible.
	(4) the input voltage is full but input power is not adequate that is may meet Cu losses and iron losses
46.	An ideal current source will: (1) continue to supply same voltage under all loading conditions. (2) have its terminal voltage become zero when terminals are open circuited.
	(3) continue to supply same current no matter what load is put in serie with it.
(4) supply zero current if its terminals are short-circuited.
1 - 1	copper losses of a transformer are negligible during open circuit test
(1) the currents in both the primary and the secondary are very less.
(2) the input voltage is not sufficient.
(3)	iron core becomes fully saturated, hence hardly any losses.
(4)	the current in the open circuited secondary only is very less.

Questic No.	Questions
48.	Two cables, each of length 1 km, with insulation resistances R ₁ and prespectively, are properly joined end to end, then insulation resistance the resultant two km long cable is
	(1) $R_1 + R_2$ (2) $R_1 - R_2$
71	(1) $R_1 + R_2$ (2) $R_1 - R_2$ (3) $(R_1R_2)/(R_1+R_2)$ (4) $2R_1R_2$
49,	Why are intersheaths used in cables?
	(1) To provide protection against moisture, current and voltage surges
	(2) To improve the insulation level of the cable.
	(3) To minimize the stress.
*	(4) To provide proper stress distribution.
50.	A long transmission line has
	(1) R and C due to conductor resistance and due to air acting as insulator but no L.
	(2) R, L and C and higher receiving end voltage than sending end voltage due to Ferranti effect.
	(3) R and L but no C.
	(4) lower receiving end voltage than sending end voltage due to Ferrant effect.

Questio No.	Questions
51.	The HOLD signal
	(1) is an input signal to 8085 whereby a fast peripheral asks 8085 to relinquish control of its buses.
	(2) is an i/p signal to 8085 whereby a slow peripheral acknowledges to 8085 about control of its buses.
	(3) is an output signal from 8085 asking other peripherals to hold on and wait.
	(4) is a control signal to interrupt the microprocessor.
	For microprocessor 8085, the Stack pointer contents are after a PUSH instruction execution.
	(1) incremented by 1 (2) decremented by 1
	(3) incremented by 2 (4) decremented by 2
53. A	A BSR control word for 8255
	1) affects more than one bits of port C.
(2) sets or resets one bit in port C and control word is also written or
	port C.
(3	also affects the I/O operations of ports A and B.
(4) does not affects the I/O operations of ports A and B.

Question No.	Questions
54.	The effect of increasing load on a synchronous motor running with normal excitation is
,	(4) to decrease both armature current and power factor.
55.	As per usual configuration and specification, an auto-transformer in a Laboratory connected to a 220 V mains supply can produce
56.	Which of the following conditions need not be met by alternators workin in parallel?
	(1) Terminal voltage of each machine must be the same.
	(2) The machines must have equal ratings.
	(3) Machines must have the same phase sequence.
	(4) Alternators must operate at the same frequency.
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Question No.	Questions					
57.	Salient pole rotors of large diameter alternators have short axial length mainly because					
	(1) it saves a lot of copper in stator winding.					
	(2) number of armature conductors held in the large circumference stator being very large, they need not be long to produce the same voltage.					
	(3) it saves a lot of copper in rotor winding.					
	(4) number of armature conductors held in the large circumference rotor being very large, they need not be long to produce the same voltage.					
58.	If excitation is held constant, but the steam supply of an alternator, running in parallel with another identical alternator, is increased, then					
`	(1) it will supply greater portion of the load.					
	(2) its power factor would be decreased.					
	(3) its rotor will fall back in phase with respect to the other machine.					
	(4) its excitation will fluctuate.					
59.	The purpose of commutator in a D.C. motor is					
	(1) To convert D.C. into rectified A.C.					
	(2) To give a high starting torque.					
	(3) To convert A.C. into D.C., else without commutator, it would give A					
	1. The second of the second mark names of the palaration with the complete the second torque, as with					
	(4) To convert alternating torque into undirectional torque, as well commutator in place, the armature would develop alternating torque					

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No. 60.	(1)) 0.5) 4	angle mechai	of a 4-po	grees 18 .	•••••		, its
	(1)) 0.5) 4	mechai	nical deg	grees 18 .	•••••		
	(3)	4				(2)		
						(2)	2	
	177						16	
61.	I W	hich ru	ıle is u	sed to f	ind the	Dir	rection of force acting on the curr	rent-
	ca	rrying	conduc	tor place	ed in a r	mag	gnetic field?	
	(1)	Flen	ing's R	light-Ha	nd Rule	Droi	maksim dina maksim sa madi man	
	(2)	Flen	ing's L	eft-Han	d Rule			
	(3)	Cork	Screw	Rule				
,	(4)	Eith	er Fler	ning's I	Left-Ha	nd	Rule or Flemings Right-Hand	Rule
				plicable		g Very	on the state of the second of	
62 .	Wh	ile app	lying F	CL to "	A.C. cir	cui	its", the 'sum' considered is	
	(1)	Algel	raic su		and Roger	(2)	sum of peak values	
	(3)	phase	r sum		r. Avender i	(4)	sum of average quantities	
								_
33.	Give	n M =	system	ı matrix	& I = 10	dent	ntity matrix, then eigen values of N	1 are
	(1)	soluti	ons λ (of mod o	of (λ I–N	M) =	= 0	
	(2)	soluti	ns λ (of mod c	of (λ I–ľ	M)	N = M = planes	
	3)	solutio	ons λ c	of (λ I–I	$\mathbf{M})=0$	t "he"		
		, a f e e d ' a				hei	ere 0 is a null matrix	

Quest	
64	If L means Laplace Transform & L ⁻¹ means Inverse Laplace Transform & A is system matrix, then for a continuous time system, the State Transition Matrix is defined as
65.	A linear differential equation is the one which
66.	The bundled-conductor arrangement in transmission lines reduces (1) inductance of the line (2) radio interference due to corona (3) power loss due to corona (4) all of the above
	For a parallel R-L-C resonant circuit, which statement is true? (1) it has zero power factor. (2) it has the least impedance. (3) it does current magnification. (4) The voltage across individual elements (L or C) can be more than the total supply voltage

uestion No.	Questions							
68.	When applied to A.C. circuits, which statement is true for Superposition							
	Theorem?							
	(1) It applies to linear circuits only and algebraic sums of partial responses							
	(in response to individual sources) has to be (2) It applies to linear circuits only and phasor sums of partial responses (in response to individual sources) has to be considered.							
	(3) It applies to linear as well as non-linear circuits.							
	(4) It applies to non-linear circuits.							
69.	Given a Thevenin equivalent of a complex circuit as $V_{TH}=18.34~V$ and $R_{TH}=9.5~\Omega$, then the Norton Equivalent can be directly deduced as:							
	(1) $I_N = 1.93A$ and $R_N = 9.5\Omega$.							
	(2) $I_N = 1.73.85A$ and $R_N = 1.93\Omega$.							
	(3) $I_N = 1.93A$ and $R_N = 1.93\Omega$.							
1	and an advanced without having access							
	(4) Norton equivalent can not be directly deduced without to the given complex network.							
70.	According to dot-convention, a dot is placed at the terminals which are							
	(1) instantaneously of the opposite polarity on the basis of mutu inductance alone.							
	(2) instantaneously of the opposite polarity on the basis of self-inductan							
	alone.							
	(3) instantaneously of the same polarity on the basis of mutual inductar alone.							
	(4) instantaneously of the same polarity on the basis of self-inductary							
1	alone.							

Quest No	Questions
71	. The ACSR conductor stands for, is used to, and is used
	(1) Aluminium Conductor Steel Reinforced, reduce weight of the line, in distribution lines.
	(2) Aluminium Core Steel Reinforced, reduce line losses, in transmission lines.
	(3) Aluminium Conductor Steel Reinforced, reduce ohmic line losses and corona loss, in transmission lines.
	(4) Aluminium Conductor Steel Reinforced, reduce ohmic line losses and corona loss, in house wiring.
72.	Due to "Early Effect", the value of
	(1) Both Alpha (α) and Beta (β) decreases.
	(2) α decreases and β increases.
	(3) α increases and β decreases.
	(4) both α and β increases.
3.	Skin effect in Electrical Engineering refers to
	(1) increase in receiving end voltage.
Ι.	2) increase in resistance of successive inner annular cylinders (portion of a conductor.
(8	B) decrease in resistance of successive inner annular cylinders (portion
	of a conductor.
,	

Questio No.	Questions
74.	Choose the most correct for series circuits only: If there are two or more Resistors in a circuit, they are said to be connected in series if
75.	 In an A.C. transmission line, result of proximity effect is: (1) when adjacent conductors carry currents in the same direction, the currents flowing through them get concentrated at the conductor's farthest side. (2) when currents flowing through adjacent conductors flow in same directions, the currents get concentrated in the nearest side of both conductors. (3) to reduce the line losses. (4) more pronounced but it happens in D.C. transmission as well.
	Proximity effect

Quest No.	
78.	With nothing stated about whether the supply switch is easily accessible or not, suppose you suddenly come across a colleague who is stuck to live wires in a sub-station, then your first action would be to
79.	A tuned circuit responds
	(1) to all audio frequencies.
	(2) only to one particular frequency.
	(3) best at one particular frequency.
	(4) to one frequency plus its harmonics.

Question No.			Que	stio	ns	,			
80.	If R, L and C denote resistance, inductance and capacitance respectively, then the quantity RC has the same dimensions as that of								
	(1)	L/R		(2)	R/L				
	(3)	RC/L		(4)	L/RC				
81.	The	e term SPWI	M in Power E	lectr	onics star	nds for "	" used in		
, ·			this, the inve						
	(1)	"Single pha	ase wide modu	ılatio	de la come e on" "an A(C output volta	ge from an DC		
	A(1 7	input with	the help of sw	itchi	ng circuit	s to reproduce	a sine wave by		
		generating	one / more sq	uare	voltage p	ulses per half	cycle".		
	(2)	"Sinusoida	l pulse width	mod	lulation" "	an AC output	voltage from		
			vith the help o	fswi		cuits to reprod	luce a sine wav		
			ing one / more				half cycle".		
	(3)	"Single pu	lse width mod	lulat	ion" "an A	C output vol	tage from an D		
		input with	the help of sv	vitcl	ning circui	ts to reproduc	ce a sine wave		
			g single squar						
. •	(4)						ut voltage from		
	(4)	and the second section of	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	As Gud	rate in other an	Allotte for National	eage with a puller with		
		11) w 12 - 1 (11/2 1 1 2 1	ing at the property of the job	ing 1910.	AND REAL WORLD	This is the comment	oduce a sine w		
		by generat	ing modulation	on in	idex squa	re voltage pul	ses per half eye		
	7		real and a second	See Ye	Same & Beerles	100 4 2000 1: 335.00	No. 40		

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Question	Questions										
No.											
82.	The Z-transform of a sampled signal / function kTe-akT is										
	(1) $z / (z-1)$ (2) $Te^{-aT}z / \{(z-e^{-aT})^3\}$										
	(3) $Te^{-aT}z / \{(z-e^{-aT})^2\}$ (4) $Tz / \{(z-1)^2\}$										
83.	Shanon's sampling theorem states that										
~	(1) To completely reconstruct a signal, the frequency at which it must be										
.,	sampled is twice the freq. of the lowest frequency component in the signal.										
	(2) To completely reconstruct a signal, the frequency at which it must be sampled is half the freq. of the lowest frequency component in the										
	signal.										
÷	(3) For complete reconstruction of a signal, the frequency at which a signal must be sampled is twice the freq. of the highest frequency component in the signal.										
	(4) For complete reconstruction of a signal, the frequency at which a										
	signal must be sampled is half the freq. of the highest frequency component in the signal.										
84.	Steady state errors can be completely eliminated (made zero) by										
	(1) Integral (I) control action.										
	(2) Derivative (D) control action.										
	(3) Proportional (P) control action.										
49,0	(4) Proportional-Derivative (P-D) control action.										

Question No.		Que	estio	ns
85.	Zero	sequence component in t	hree	phase voltage of delta is
	1	Infinite		Zero
	(3)	line voltage / 3	(4)	line voltage $/\{\sqrt{3}\}$
86.	Trar	asposition is used in "		"; and its purpose is to
	(1)	"distribution line";		
		capacitances of all phases	all sasc	phases as different and similarly different.
	(2)	"distribution line";		
	4	make inductances of all p all phases as same.	hase	s as same and similarly capacitances of
	(3)	"long transmission line":		
		ensure inductances of	all	phases as different and similarly
		out all phase	s as c	lifferent.
	(4)	"long transmission line":		
		make inductances of all p	hase	s as same and similarly capacitances of
87.		I as baine.		
1	while	e its primary is sparried	secon	ndary of a Current Transformer (C.T.)
5	(1)	No.	: ivea	ason why?
		Reason: it will generate	dang the y cu	gerously high voltage, as its primary is load, thus its primary current is not a rrent.
		Reason: it will generate	norr	nal voltage, as its primary current is a
	(3)	No.		
	(4)	Reason: it will generate current is a reflection of Yes, as there is no seconda current in the primary, s		
DITTO		FF DEC 2002/FI		

Question	Ougstie
No.	Questions
88.	A stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has 3 horizontal maximum values and 5 vertical maximum values. If horizontal frequency is 1500 Hz, the vertical frequency will be
	(1) data is incufficient
	(2) 22.0 1412.
	(3) 2500 Hz. (4) 900 Hz.
89.	Which diode does not show a negative resistance region in its V-I characteristics?
	(1) tunnel diode. (2) Gunn diode.
	(3) zener diode. (4) none of the above.
90.	Relative limiting error adds in the:
	(1) All of the following cases.
	(2) case of division of two quantities.
	(3) case of sum of two quantities.
	(4) case of difference of two quantities.
91.	An R-L circuit has steady state current of 10 mA when supplied from 10V battery. The time Constant of the R-L circuit is 0.01 sec. Its inductance is
	(1) 10 μH. (2) 10 H
	(3) 1.25 mH (4) 1.25 H

Question No.	Questions								
92.	has resistance of 202. A metal of								
	(1) $4/3 \Omega$. (2) $3/4 \Omega$.								
	(3) $3/2 \Omega$. (4) 6Ω .								
93.	Which one of the following bridges can be used to measure dielectric l_{088}								
	of a capacitor?								
	(1) Heaviside Campbell bridge.								
	(2) Aderson bridge.								
	(3) Schering bridge.								
	(4) Owen bridge.								
94.	For a D.C. shunt generator, if pole flux of and speed are both doubled, t generated e.m.f. will be								
	(1) unchanged. (2) reduced to half.								
\$ 1100 A	(3) doubled. (4) four times.								
95.	The phenomenon of 'creeping' occurs in								
	(1) energy meters (2) watt meters								
	(3) power factor meters (4) frequency meters								

Question No.	Questions
96.	A PMMC instrument has a full scale deflection of 100 μ A and a coil resistance of 1 K Ω . Shunt resistance to convert the instrument into an ammeter with full scale deflection of 100 mA is
	(3) 1001Ω . (4) 1.001Ω .
97.	In case of extrinsic semi-conductor
	(1) no. of holes is exactly equal to no. of electrons.
	(2) either holes or electrons will be more in number.
	(3) no. of electrons is always more than no. of holes.
	(4) no. of holes is always more than no. of electrons.
98.	If the length of a conductor is tripled and the diameter is also tripled, then its resistance is
	(1) 1/9th of the original resistance.
	(2) 2/3rd of the original resistance.
	(3) 1/3rd of the original resistance.
	(4) not changed at all.
99.	By making no. of rotor slots prime to the no. of stator slots, in an Induction Motor, the chances of which of the following are reduced
	(1) magnetic locking. (2) jerky starting.
	(3) crawling. (4) low starting torque.

Questions
If an Ohmmeter is connected to an uncharged good 0.05 µF capacitor, the
reading should
(1) show high resistance momentarily and then a very low resistance.
(2) show low resistance momentarily and back off to a very high resistance.
(3) not move at all, i.e., show no reading (as if capacitor not connected).
(4) go quickly to 200Ω approx., and remain there

Question No.	Questions
1.	The term SPWM in Power Electronics stands for "" used in inverters. With this, the inverter generates "".
	(1) "Single phase wide modulation" "an AC output voltage from an DC input with the help of switching circuits to reproduce a sine wave by generating one / more square voltage pulses per half cycle".
	(2) "Sinusoidal pulse width modulation" "an AC output voltage from a DC input with the help of switching circuits to reproduce a sine wave by generating one / more square voltage pulses per half cycle".
	(3) "Single pulse width modulation" "an AC output voltage from an DC input with the help of switching circuits to reproduce a sine wave by
	generating single square voltage pulse per half cycle". (4) "Sinusoidal pulse width modulation" "an AC output voltage from a DC input with the help of switching circuits to reproduce a sine wave begenerating modulation index square voltage pulses per half cycle."
2.	The Z-transform of a sampled signal / function kTe-akT is
	(1) $z/(z-1)$ $Te^{-aT}z/\{(z-e^{-aT})^3\}$
	(1) $z / (z-1)$ (2) $Te^{-aT}z / \{(z-e^{-aT})^3\}$ (3) $Te^{-aT}z / \{(z-e^{-aT})^2\}$ (4) $Tz / \{(z-1)^2\}$
	re element de distriction de la completa de descri

Question No.	Questions
3.	 Shanon's sampling theorem states that
	Steady state errors can be completely eliminated (made zero) by
(Zero sequence component in three phase voltage of delta is

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Question No.	
6.	Transposition is used in ""; and its purpose is to
·	(1) "distribution line"; ensure inductances of all phases as different and similarly capacitances of all phases as different.
	(2) "distribution line"; make inductances of all phases as same and similarly capacitances of all phases as same.
	(3) "long transmission line"; ensure inductances of all phases as different and similarly capacitances of all phases as different.
	(4) "long transmission line"; make inductances of all phases as same and similarly capacitances o all phases as same.
7.	Is it safe to open circuit the secondary of a Current Transformer (C.T.) while its primary is energized? Reason why?
	(1) No. Reason: it will generate dangerously high voltage, as its primary is connected in series with the load, thus its primary current is not a reflection of its secondary current.
	(2) Yes. Reason: it will generate normal voltage, as its primary current is a reflection of its secondary current.
	Reason: it will generate dangerously high voltage, as its primary current is a reflection of its secondary current.
	(4) Yes, as there is no secondary current, so there will be only magnetizing current in the primary, so it is safe.

Question No.	Questions
8.	A stationary Lissajous pattern on a Cathode Ray Oscilloscope (C.R.O.) has 3 horizontal maximum values and 5 vertical maximum values. If horizontal frequency is 1500 Hz, the vertical frequency will be
	(3) 2500 Hz. (4) 900 Hz.
9.	Which diode does not show a negative resistance region in its V-I characteristics?
6 F *	 (1) tunnel diode. (2) Gunn diode. (3) zener diode. (4) none of the above.
	Relative limiting error adds in the: (1) All of the following cases. (2) case of division of two quantities. (3) case of sum of two quantities. (4) case of difference of two quantities.
(wait.

Question	
12.	For microprocessor 8085, the Stack pointer contents are after a PUSH instruction execution.
	(1) incremented by 1 (2) decremented by 1
	(3) incremented by 2 (4) decremented by 2
13.	A BSR control word for 8255
	(1) affects more than one bits of port C.
	(2) sets or resets one bit in port C and control word is also written onto
	(3) also affects the I/O operations of ports A and B.
	(4) does not affects the I/O operations of ports A and B.
14.	The effect of increasing load on a synchronous motor running with normal excitation is
	(1) to increase armature current but decrease power factor.
	(2) to increase bot armature current and power factor.
	(3) to decrease armature current but increase power factor.
	(4) to decrease both armature current and power factor.

Question No.	Questions
15.	As per usual configuration and specification, an auto-transformer in a Laboratory connected to a 220 V mains supply can produce
,	(1) output voltage ranging from 0 to 220 V.
	(2) output voltage ranging from 5V to less than 220V.
) They are	(3) output voltage ranging from 0 to 270V.
	(4) output voltage ranging from 220 to 270V.
16.	Which of the following conditions need not be met by alternators working in parallel?
	(1) Terminal voltage of each machine must be the same.
	(2) The machines must have equal ratings.
	(3) Machines must have the same phase sequence.
	(4) Alternators must operate at the same frequency.
17.	Salient pole rotors of large diameter alternators have short axial lengt mainly because
: : :	(1) it saves a lot of copper in stator winding.
	(2) number of armature conductors held in the large circumference state
	being very large, they need not be long to produce the same voltage
	(3) it saves a lot of copper in rotor winding.
	(4) number of armature conductors held in the large circumference rot being very large, they need not be long to produce the same voltage.

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<u>Set-X</u> Code-D

Question No.	Questions
18.	If excitation is held constant, but the steam supply of an alternator, running in parallel with another identical alternator, is increased, then
	 it will supply greater portion of the load. its power factor would be decreased. its rotor will fall back in phase with respect to the other machine.
,	(4) its excitation will fluctuate.
19.	 The purpose of commutator in a D.C. motor is
20.	If torque angle of a 4-pole synchronous motor is 8 degree (electrical), its
. 12	value in mechanical degrees is
21.	Regarding an electric field, which statement is not true?
	 (1) unit field intensity is the exertion of a force of one newton on a charge of one coulomb. (2) electric field intensity is a vector quantity. (3) electric field intensity at a point is numerically equal to the force
	exerted upon a positive charge placed at that point. (4) electric field is defined at a point in space at which an electric charge experiences a force.

Question No.	Questions
22.	 Common-collector transistor amplifier is
23.	Negative feedback in an amplifier results in
	 (2) increased distortion and noise factor. (3) increased voltage gain. (4) decreased voltage gain.
	Speed of a synchronous motor in its operating (& load) range is correctly described by

Questic No.	Questions
25.	For a series RLC resonant circuit, which statement is true?
	(1) the voltages across individual elements (L or C) can be more than the total supply voltage.
	(2) it has the maximum impedance.
	(3) it does current magnification.
	(4) the susceptance of the circuit is minimum.
26.	For the Time Constant of an R-L series circuit, which statement is true?
	(1) the time constant for R-L circuit is R/L seconds.
	(2) the step response reaches the final value if the initial rate of response is maintained.
	(3) the step response reaches 60% of final value in T secs at the actual rate of rise.
	(4) the step response (current) reaches 99% after elapse of one time constant.
27.	An ideal voltage amplifier should have
	(1) zero R_{in} and zero R_{out} .
	(2) infinite R_{in} and zero R_{out} .
	(3) zero R_{in} and infinite R_{out} .
	(4) infinite R_{in} and infinite R_{out} .

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Question No.	Questions
28.	If a dielectric slab of 5mm and relative permittivity of 6 is inserted between
	the plates of an air capacitor with plate separation of 8 mm, its capacitance
4. 210	is
	(1) almost doubled.
	(2) almost halved.
	(3) decreased by a factor of 6/8.
	(4) unaffected.
29.	For a circuit to be least selective,
	(1) its effective resistance must be very small.
	(2) its bandwidth should be large.
	(3) its Q-factor must be very large.
	(4) its Q-factor must be very small.
30.	Given that P is a constant, the Laplace transform of a ramp function Pt is
J 1	(1) $1/s^2$. (2) $2P/s^3$.
5	(3) P/s^2 . (4) P/s .
31.	In the context of domestic and industrial premises and for transmission
	lines, which set of voltages are correct?
	(1) Domestic / industrial: 230 V and 440 V. Transmission lines: 33 kV 66 kV, 132 kV, 440 kV.
	(2) Domestic / industrial: 230 V and 400 V. Transmission lines: 33 k
	66 kV, 132 kV, 440 kV.
	(3) Domestic / industrial: 230 V and 400 V. Transmission lines: 33 k
	66 kV, 132 kV, 400 kV.
	(4) Domestic / industrial: 230 V and 440 V. Transmission lines: 33 k 66 kV, 132 kV, 400 kV.

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Question No.	Questions
32.	Flywheel diode is generally used to protect
	(1) the thyristor switches against the current due to resonance.
	(2) the thyristor switches against the current due to resistive loads.
	(3) the thyristor switches against the temperature changes.
	(4) the thyristor switches against the current due to inductive loads.
33.	If Laplace transform of a signal $y(t)$ is $Y(s) = 1 / \{s(s-1)\}$, then its final value is
4	(1) -1 (2) 0
	(3) 1 Infinity
34.	In a transformer, if maximum efficiency occurs at a certain load, then for
	loads lower than this, core loss P_c is related to copper loss P_{cu} as
	(1) $P_{c} = P_{cu}$. (2) $P_{c} < P_{cu}$.
of sailer	(3) $P_c > P_{cu}$. The second of the property $P_c = P_{cu}/2$.
35.	In power system analysis, the per unit system has advantage tha
	calculations are simplified because quantities expressed as per-unit
	(1) don't change when they are referred from one side of a transforme
	The set to the other side. The set of the contract of the set of t
	(2) are improved when they are referred from one side of a transformed
	to the other.
	(3) change to moderate values when they are referred from one side of
j.	transformer to the other.
	(4) change to low values when they are referred from one side of transformer to the other.
	The figure of any many of the company matter of the fit of the contract of the contract of

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Questic No.	Questions
36.	A non-causal system's output depends upon
E	(1) present inputs only.
0	(2) present and past inputs.
	(3) does not depend upon inputs.
	(4) future inputs.
37.	Transfer Function is defined as
	(1) ratio of output to input, given that the initial conditions are zero.
	(2) ratio of Laplace transform of output to Laplace transform of input,
	given that the system is LTI and relaxed.
	(3) ratio of change of output to change in input, given that the initial
	conditions are zero and system is Linear Time Invariant
	(4) ratio of change of output to change in input, given that the initial
	conditions are zero and system can be linear or non-linear.
38.	In switching applications, CE configuration is preferred because
- dealers	(1) it requires only one power supply.
**************************************	(2) it has negligible I_{CEO} .
2	(3) it requires low voltage or low current.
	(4) it has high input impedance.
39.	Transistor amplifier configuration capable of both a voltage and a current
5	gain more than unity is
1	(1) common base. (2) common collector.
	(3) common emitter. (4) none of the above.

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Questio	
No.	Questions
40.	The poles and zeroes of a network function
	(1) are factors of the network function numerator and denominator respectively.
	(2) are critical complex frequencies of the network.
	(3) are the scale factors of the network.
	(4) both participate in determining its stability.
41.	An R-L circuit has steady state current of 10 mA when supplied from 10V battery. The time Constant of the R-L circuit is 0.01 sec. Its inductance is
	(1) 10 µH. (2) 10 H
	(3) 1.25 mH (4) 1.25 H
42.	A strip of copper of rectangular x-section has resistance of 2Ω . A metal or resistivity twice that of copper is coated on its upper surface to a thickness equal to that of copper strip. The resistance of composite strip is
	(1) $4/3 \Omega$. (2) $3/4 \Omega$.
	(3) $3/2 \Omega$. (4) 6Ω .
43.	Which one of the following bridges can be used to measure dielectric loss of a capacitor?
	(1) Heaviside Campbell bridge.
	(2) Aderson bridge.
	(3) Schering bridge.
	(4) Owen bridge.

Question No.	Questions
44.	For a D.C. shunt generator, if pole flux of and speed are both doubled, the
	generated e.m.f. will be
	(1) unchanged. (2) reduced to half.
	(3) doubled. (4) four times.
45.	The phenomenon of 'creeping' occurs in
	(1) energy meters (2) watt meters
	(3) power factor meters (4) frequency meters
	The state of the s
46.	A PMMC instrument has a full scale deflection of 100 μA and a coiresistance of 1 KΩ. Shunt resistance to convert the instrument into a ammeter with full scale deflection of 100 mA is
46.	resistance of 1 K Ω . Shunt resistance to convert the instrument into a ammeter with full scale deflection of 100 mA is
47.	resistance of 1 K Ω . Shunt resistance to convert the instrument into an ammeter with full scale deflection of 100 mA is

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Question No.	Questions
48.	If the length of a conductor is tripled and the diameter is also tripled, then
	its resistance is
	(1) 1/9th of the original resistance.
	(2) 2/3rd of the original resistance.
	(3) 1/3rd of the original resistance.
	(4) not changed at all. There is a particular transfer of the constraint of the cons
49.	By making no. of rotor slots prime to the no. of stator slots, in an Induction Motor, the chances of which of the following are reduced
	- Author and them on the main the constant the policy and the transport
	(1) magnetic locking. (2) jerky starting.
	(3) crawling. (4) low starting torque.
50.	If an Ohmmeter is connected to an uncharged good 0.05 μ F capacitor, the reading should
	(1) show high resistance momentarily and then a very low resistance.
ļ	(2) show low resistance momentarily and back off to a very high resistance.
	(3) not move at all, i.e., show no reading (as if capacitor not connected).
	(4) go quickly to 200Ω approx., and remain there

Question No.	Questions
a 51.	Transfer Function and Impulse Response of a linear time-invariant system
	are related by:
	(1) one is the inverse of the other and vice-versa.
	(2) Laplace transform of Transfer Function gives the Impulse Response
	of the system
	(3) inverse Laplace transform of Transfer Function gives the Impulse
	Response of the system.
	(4) they are not related to each other.
52.	The closed line integral of magnetic field intensity is equal to the
	(1) rate of change of capacitance.
	(1) Take of change of capacitance.
	(2) rate of change of inductance.
	e de la companio del companio de la companio della
	(3) rate of change of magnetic flux.
	(4) current enclosed.
53.	The closed line integral of electric field intensity is equal to the
	•
	(1) negative time rate of change of magnetic flux linking the closed line
	(2) negative time rate of change of all the
	(2) negative time rate of change of electric field linking the closed line.
	(3) positive time rate of change of many 1:
	(3) positive time rate of change of magnetic flux linking the closed line
	(4) positive time rate of change of electric field linking the closed line. RS-EE-DEC-2022(Electrical Electrical Electri
4D/III	RS-EE-DEC-2022(Electrical E

Question No.	Questions
54.	Bode plot (asymptotic magnitude part) follows a slope of -20 db/decade from a corner frequency ω_1 and meets a higher corner freq. ω_2 due to a double (of multiplicity 2) zero. Resulting slope after ω_2 is
	(1) -60 db / decade. (2) 20 db / decade.
	(3) 40 db / decade. (4) 0 db / decade.
55.	 Open-loop gain K at any point s₀ on the root locus is given by
56.	(product of phasor lengths from s ₀ to open-loop poles).
	In a Routh-Hurwitz array, the first column elements are: 1, 1, ε , $2-(4/\varepsilon)$ and 4. How many roots have positive real parts? (Here, ε is a small positive number replacing 0 in first column to overcome R-H test break down).
	(1) 1 (2) 2
	(3) 3 (4) Nil

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Questic No.	Questions
57.	Nyquist stability criterion of closed-loop system is by open-loop system's polar plot's
	(1) encirclements, in c.c. direction, as are the no. of right half zeros of open-loop system.
	(2) encirclements, in c.c. direction, as many times as are no. of right half poles of open-loop unstable system.
	 (3) non-encirclement of (-1+j0) point, if open-loop system is stable. (4) both (2) and (3).
58.	Phase lag compensator acts as a
	(1) lag at low frequencies and lead
	(1) lag at low frequencies and lead at high frequencies.(2) lead at low frequencies.
	requencies and lag at high frequencies.
	pass mer.
	(4) high pass filter.
59.	A chopper can
1	(1) raise the D.C. voltage.
	2) lower the D.C. voltage.
	3) raise or lower the A.C. voltage.
- 1	raise or lower the D.C. voltage. S-EE-DEC-2022(Electrical Engine

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Question No.	Questions
60.	Is a MOSFET connected or disconnected in the circuit when power is on and why?
	(1) No, because transient voltages caused by inductive kickback and other effects may exceed $V_{\rm GS(max)}$ and thus wipe out the MOSFET.
	(2) Yes, it is advisable to connect or disconnect MOSFET in the circuit when power is on, as it is safe to do so.
	(3) No, because steady state voltages may spoil the MOSFET.
	(4) No, because lightening voltages may spoil the MOSFET.
61.	The ACSR conductor stands for, is used to, and is used
	(1) Aluminium Conductor Steel Reinforced, reduce weight of the line, in distribution lines.
	(2) Aluminium Core Steel Reinforced, reduce line losses, in transmission lines.
	(3) Aluminium Conductor Steel Reinforced, reduce ohmic line losses and corona loss, in transmission lines.
	(4) Aluminium Conductor Steel Reinforced, reduce ohmic line losses and corona loss, in house wiring.
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Question No.	Questions
62.	Due to "Early Effect", the value of
	(1) Both Alpha (α) and Beta (β) decreases.
	(2) α decreases and β increases.
	(3) α increases and β decreases.
	(4) both α and β increases.
63.	Skin effect in Electrical Engineering refers to
	(1) increase in receiving end voltage.
	(2) increase in resistance of successive inner annular cylinders (portions) of a conductor.
	(3) decrease in resistance of successive inner annular cylinders (portions) of a conductor.
	(4) a bad dermatological symptom for a transformer.
64.	Choose the most correct for series circuits only: If there are two or more Resistors in a circuit, they are said to be connected in series if
	(1) all carry the same value of current.
	(2) total current equals the sum of branch currents.
	(3) sum of potential drops across all resistors forming a closed circuit equals the e.m.f. applied across the circuit.
	(4) The resistors are connected in an end-to-end chain so that current leaving one resistor enters the next in the chain.

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Question No.	Questions
65.	In an A.C. transmission line, result of proximity effect is:
	(1) when adjacent conductors carry currents in the same direction, the currents flowing through them get concentrated at the conductor's farthest side.
	(2) when currents flowing through adjacent conductors flow in same directions, the currents get concentrated in the nearest side of both conductors.
	(3) to reduce the line losses.
	(4) more pronounced but it happens in D.C. transmission as well.
66.	Proximity effect
	(1) Increases with conductor diameter and frequency of a.c. current.
	(2) decreases with conductor diameter and frequency of a.c. current.
	(3) decreases the effective resistance and power loss of transmission line.
	(4) Both (1) and (3).
67.	With nothing stated about whether the supply switch is easily accessible or not, suppose you suddenly come across a colleague who is stuck to live wires in a sub-station, then your first action would be to
	(1) switch off the supply.
	(2) immediately call for medical assistance.
	(3) pull him away from the live wires by grasping his clothes.
	(4) start artificial breathing straightway.

No.	Questions
68.	In a synchronous motor, the magnitude of back e.m.f. E, depends upon
	(1) d.c. excitation only.
	(2) both speed and stator flux.
	(3) speed of the motor.
	(4) load on the motor.
69.	A tuned circuit responds
	(1) to all audio frequencies.
	(2) only to one particular frequency.
	(3) best at one particular frequency.
	(4) to one frequency plus its harmonics.
70.	If R, L and C denote resistance, inductance and capacitance respectively,
	then the quantity RC has the same dimensions as that of
	(1) L/R (2) R/L
	(3) RC/L (4) L/RC
71.	When key is closed in an RC circuit with R = 10Ω , C = 4 μ F, the energy
	dissipated is 18×10 ⁻⁶ , the initial charge on the capacitor must be
	(1) 576 μC (2) 4 μC
	(3) 25 µC (4) 12 µC

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Question No.	Code-D
72.	Terms of least
	Terms of lowest degree in the numerator and denominator of a driving point function may
	(2) differ in degree by at the most zero.
	(3) differ in degree by at the most two. (4) never be of the same degree.
73.	One of the necessary conditions for a Transfer function N(s) = P(s) / Q(s) is
	(1) polynomial P(s) may have terms missing between the terms of lowest and highest degree.
	(2) real part of poles must be positive.
	(3) if real part of pole is zero, that pole must be repeated.
	(4) degree of P(s) has to be more than zero.
74.	In a.c. machines, the wattless lagging component of current is responsible for
	(1) production of electric field.
	(2) production of magnetic field.
	(3) production of heat.
	(4) production of non-sinusoidal field.
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Questic No.	Questions
75.	Non-minimum phase system has
\$. 0 1	(1) poles in the right half s-plane.
	(2) poles and zeroes in the left half s-plane.
	(3) zeroes in the left half s-plane.
	(4) zeroes in the right half s-plane.
76.	For constant ω_n , the contours of root s in the complex s-plane are
	(1) straight lines through the origin at an angle $\theta = \cos^{-1}(\zeta)$ with negative real axis.
	(2) straight lines parallel to the j_{ω} axis.
	(3) circles of radius ω_n .
,	(4) straight lines through the origin at an angle $\theta = \cos^{-1}(\omega_n)$ with negative real axis.
77.	For a series resistive circuit, with R1 = $10~{\rm K}\Omega$, $1W$; R2 = $10~{\rm K}\Omega$, ${}^{1}\!\!\!/W$; and R3 = $250~{\rm K}\Omega$, ${}^{1}\!\!\!/W$, the current must not exceed
	(1) 100 mA (2) 5 mA
	(3) 2 mA (4) 1 mA

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Question No.	Questions
78.	The rank of the matrix $\begin{bmatrix} 0 & 1 & 4 \\ 0 & 3 & 12 \\ 0 & 4 & 16 \end{bmatrix}$ is
	 (1) 4 (2) 2 (3) 1 (4) either 3 or none of the above
79.	 For the impedance of a capacitor C,
80.	 The main advantage of Initial Value Theorem is that it gives

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	ction Questions	
	questions	
	Which rule is used to find the Direction of force acting on the c carrying conductor placed in a magnetic field?	urrent-
.	(1) Fleming's Right-Hand Rule	ale or Flemings Right-Hand Rule
	(2) Fleming's Left-Hand Rule	
	(3) Cork Screw Rule	
	(4) Either Fleming's Left-Hand Rule or Flemings Right-Han	nd Rule
	(both are applicable)	- 1
82.	While applying KCL to "A.C. circuits", the 'sum' considered is	
	(1) Algebraic sum	
	(2) sum of peak values	
	(3) phasor sum	
	4) sum of average quantities	
83,	iven $M = $ system matrix & $I = $ identity matrix, then eigen values	- 6 3 4
1	and the state of t	oi wi ar
	solutions λ of mod of $(\lambda I - M) = 0$	
(2	solutions λ of mod of $(\lambda I-M)$	
(3	solutions λ of $(\lambda I-M)=0$	
(4)	solutions λ of $(\lambda I-M) = 0$ where 0 is a null matrix	

Questio No.	Code-D
84.	Questions
	If L means Laplace Transform & L ⁻¹ means Inverse Laplace Transform & A is system matrix, then for a continuous time system, the State Transition Matrix is defined as
85.	(3) $L(sI - A)^{-1}$ (4) $(sI - A)^{-1}$
65.	A linear differential equation is the one which
	are either constants or are functions of independent variable, time(t
86.	The bundled-conductor arrangement in transmission lines reduces
F 0	(1) inductance of the line
	(2) radio interference due to corona
	(3) power loss due to corona
	(4) all of the above
87.	For a parallel R-L-C resonant circuit, which statement is true?
	(1) it has zero power factor.
	(2) it has the least impedance.
	(3) it does current magnification.
	(4) The voltage across individual elements (L or C) can be more than total supply voltage
- 1	

Questio No.	Questions
88.	When applied to A.C. circuits, which statement is true for Superposition Theorem?
	 It applies to linear circuits only and algebraic sums of partial responses (in response to individual sources) has to be considered. It applies to linear circuits only and phasor sums of partial responses (in response to individual sources) has to be considered. It applies to linear as well as non-linear circuits. It applies to non-linear circuits.
89.	Given a Thevenin equivalent of a complex circuit as $V_{TH} = 18.34$ V and $R_{TH} = 9.5 \Omega$, then the Norton Equivalent can be directly deduced as: (1) $I_N = 1.93$ A and $R_N = 9.5 \Omega$. (2) $I_N = 1.73.85$ A and $R_N = 1.93 \Omega$. (3) $I_N = 1.93$ A and $R_N = 1.93 \Omega$.
	(4) Norton equivalent can not be directly deduced without having access to the given complex network.
	According to dot-convention, a dot is placed at the terminals which are also inductance alone.
	2) instantaneously of the opposite polarity on the basis of self-inductance alone.
	3) instantaneously of the same polarity on the basis of mutual inductance alone.
	 instantaneously of the same polarity on the basis of self-inductance alone.

Question No.	Code-D
91.	Questions
34.	Considering that L denotes the length of the magnetic path, then inductance of a coil is given by
	(1) N/S where $S = L/\mu A$ is identified as the reluctance of the magnetic path
	(2) N^2/S where $S = L/\mu A$ is identified as the reluctance of the magnetic path.
	(3) N^2 / S where $S = L / \mu A$ is identified as the reactance of the coil.
	(4) N/S^2 where $S = L/\mu A$ is identified as the reluctance of the magnetic path.
92.	A 230 V a.c. source has internal impedance of $2 + j2\Omega$. What load can draw and dissipate the maximum power from this source?
	(1) $\sqrt{2^2+2^2}$ Ω resistor
	(2) 2Ω resistor
	(3) j2 Ω inductor
	(4) $2-j 2 \Omega$ capacitive load
93.	For a 4-pole, 3-ph induction motor having 4% slip at full load, if the speed
	is 720 r.p.m., then supply freq. is
	(1) 50 Hz. (2) 25 Hz.
	(3) 100 Hz. (4) 16.67 Hz.
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Questic No.	Questions
94.	Power factor correction / improvement apparatus is useful in the following
	 (1) It relieves only distribution line (prior to the load) from much reactive current, thus reducing the I²R losses in distribution line, but no effect on transmission line losses. (2) It relieves the transmission line (prior to the load) from much reactive.
·	current, thus reducing the I ² R losses in transmission line, but no effect on distribution line losses.
	(3) It relieves the transmission/distribution line (between sending end and load) from much reactive current, but has no effect on I ² R losses in transmission/distribution line, as reactive current causes no losses.
	(4) It relieves the transmission/distribution line (between the sending end and the load) from much reactive current, thus reducing the I ² R losses in the transmission/distribution line.
95.	Iron losses of a transformer are negligible during short circuit test, because
	 voltage applied across the h.v. side is a small fraction of the rated voltage and so is the flux.
	2) supply is short-circuited.
(:	3) iron core becomes fully saturated, thus losses become negligible.
(4	the input voltage is full but input power is not adequate that is may meet Cu losses and iron losses

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Questio	n
No.	Questions
96.	An ideal current source will:
	(1) continue to supply same voltage under all loading conditions.
	(2) have its terminal voltage become zero when terminals are open-
	circuited.
	(3) continue to supply same current no matter what load is put in series
	with it.
	(4) supply zero current if its terminals are short-circuited.
97.	Copper losses of a transformer are negligible during open circuit test, because
	(1) the currents in both the primary and the secondary are very less.
	(2) the input voltage is not sufficient.
	(3) iron core becomes fully saturated, hence hardly any losses.
	(4) the current in the open circuited secondary only is very less.
	Two cables, each of length 1 km, with insulation resistances R_1 and R_2 respectively, are properly joined end to end, then insulation resistance of the resultant two km long cable is
	(1) $R_1 + R_2$ (2) $R_1 - R_2$
	(1) $R_1 + R_2$ (2) $R_1 - R_2$ (3) $(R_1 R_2)/(R_1 + R_2)$ (4) $2R_1 R_2$
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Why are intersheaths used in cables? (1) To provide protection against moisture, current and voltage surges. (2) To improve the insulation level of the cable. (3) To minimize the stress. (4) To provide proper stress distribution. (5) It is a substitution of the cable of the cable. (6) To provide proper stress distribution. (7) R and C due to conductor resistance and due to air acting as insulator but no L.
2) To improve the insulation level of the cable. 3) To minimize the stress. 4) To provide proper stress distribution. 4 long transmission line has
n and C due to conductor resistance and due to singesting as insulate
n and C due to conductor resistance and due to singesting as insulate
but no L.
R, L and C and higher receiving end voltage than sending end voltage due to Ferranti effect.
R and L but no C.
lower receiving end voltage than sending end voltage due to Ferrant effect.
•
)

Q. NO.	Α	В	C	D
1	2	3	2	2
2	3	4	4	3
3	1	2	1	3
4	1	4	3	1
5	4	1	1	2
6	4	1	4	4
7	3	3	2	1
8	2	2	3	4
9	1	3	3	3
10	3	1	2	- 2
11	2	3	4	1
12	4	4	2	4
13	2	4	1	4
14	4	3	2	1
15	1	1	4	3
16	3	2	3	2
17	1	2	4	2
18	3	1	3	1
19	4	4	2	4
20	2	3	1	3
21	2	2	3	3
22	4	3	4	4
23	1	3	1	4
24	3	1	2	3
25	1	2	1	1
26	4	4	2	2
27	2	1	4	2
28	3	4	3	1
29	3	3	4	4
30	2	2	1	3
31	1	2	3	2
32	4	3	4	4
33	4	1	4	1
34	1	1	3	3
35	3	4	1	1
36	2	4	2	4
37	2	3	2	2
38	1	2	1	3
39	4	1	4	3
40	3	3	3	2
41	3	4	2	2
42	4	2	4	1
43	2	1	2	3
44	. 4	2	4	4
45	1	4	1	1
46	1	3	3	4
47	3	4	1	2
48	2	3	3	3
49	3	2	4	1
	1	1	2	2

Spring 14/x11/22

Q. NO.	Α	В	С	D
51	4	2	1	3
52	2	1	4	4
53	1	3	4	1
54	2	4	1	2
55	4	-1	3	1
56	3	4	2	2
57	4	2	2	4
58	3	3	1	3
59	2	1	4	4
	1	2	3	1
60	2	2	2	3
61	1	4	3	4
62	3	1	1	2
63	4	3	1	4
64	1	1	4	1
65	4	4	4	1
66	2	2	3	3
67 68	3	3	2	2
69	1	3	1	3
70	2	2	3	1
71	3	2	3	4
72	4	4	4	2
73	4	2	2	1
74	3	4	4	2
75	1	1	1	4
76	2	3	1	3
77	2	1	3	4
78	1	3	2	3
79	4	4	3	2
80	3	2	1	1
81	3	3	2	2
82	4	4	3	3
83	1	1	3	1
84	2	2	1	1
85	1	1	2	4
86	2	2	4	4
87	4	4	1	3
88	3	3	4	2
89	4	4	3	1
90	1	1	2	3
91	2	1	2	2
92	3	4	1	4
93	3	4	3	2
94	1	1	4	4
95	2	3	1	1
96	4	2	4	3
97	1	2	2	1
98	4	1	3	3
99 100	2	4 3	2	2

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