Reg. No.:

Name :

VIT BHOPAL
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TERM END EXAMINATIONS (TEE) – December 2021- January 2022

Programme	:	**B.Tech [BAC, BAI, BAS, BCE, BCG, BCY, BEC, BHI, BME, BMR, BOE, BSA, MEI]**	**Semester**	:	**Fall 2021-22**
Course Name	:	**Electric Circuits and Systems**	**Course Code**	:	**EEE1001**
Faculty Name	:	**Dr. Baldev Swamy**	**Slot / Class No**	:	**C11+C12+C13/0083**
Time	:	**1½ hours**	**Max. Marks**	:	**50**

Answer ALL the Questions

Q. No.		Question Description	Marks
		PART - A (30 Marks)	
1	(a)	Calculate the values of total current I and voltage across the each element (R,L,C) of the below Fig. 1.	10

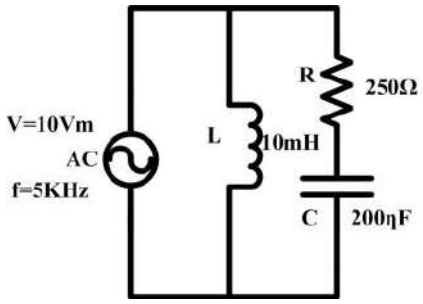

Fig. 1

OR

	(b)	An iron ring of 19.1 cm mean diameter has a cross-sectional area of 8 cm^2. The ring has an air gap of 5 mm. The winding on the ring has 1000 turns and carries a current of 5A. The relative permeability of iron is 2000. Calculate the flux produced in the air gap.	10
2	(a)	A 12-pole separately excited machine having 1200 lap-connected conductors each carrying a current of 15 A. The armature is being driven at 300 rpm. The flux per poleis 60 mWb. Resistance of armature circuit is 0.1 Ω. Calculate the output power.	10

OR

	(b)	Calculate the minimum and maximum values of the series resistance Rs of the below circuit, IzM is zener maximum current Shown in below Fig. 2.	10

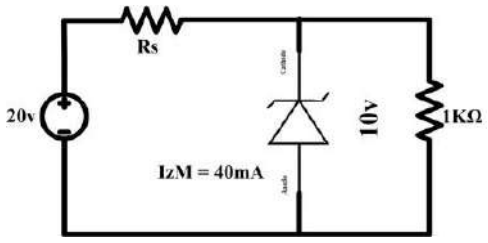

Fig. 2

3 (a) Analyse the device which works as a switch, controls the voltage and current flow between the source and drain. The working of the device depends on the MOS capacitor, which is the semiconductor surface below the oxide layers between the source and drain. Also analyse its operationg modes. 10

OR

(b) Find the outputs Y1, Y2, Y3, Y4, Y5 and Y6 of the given digital logic diagram by using truth table shown in below Fig. 3. 10

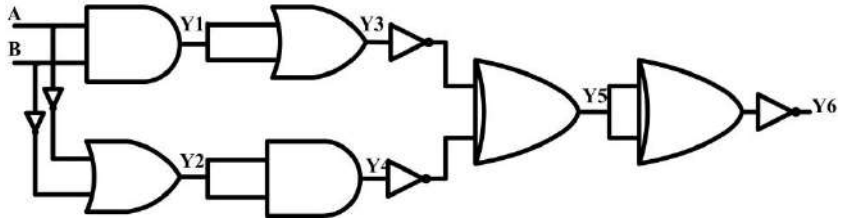

Fig. 3

PART - B (20 Marks)

4 Calculate the voltage drop across the j5Ω shown in the below Fig. 4 10

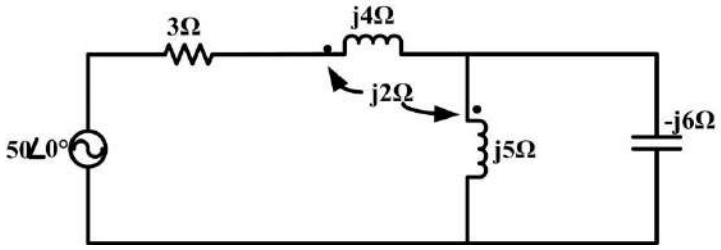

Fig. 4

5 Implement the following Boolean function $f(a, b, c) = \sum(1,2,6,7)$ by using 4:1 Mux. 10

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