

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE  
(AUTONOMOUS)**

**II - B. Tech I-Semester Supplementary Examinations (BR23), March - 2026  
ELECTRICAL CIRCUIT ANALYSIS-II (EEE)**

Time: 3 hours

Max. Marks: 70

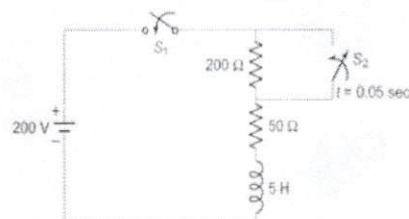
*Question Paper consists of Part-A and Part-B  
Answer ALL the question in **Part-A and Part-B***

PART-A (10X2 = 20M)

	Marks	CO	BL
1. a) Show the circuit diagram that measures the three-phase power using two wattmeter method.	2M	CO1	1
b) How do you convert to unbalanced star to unbalanced delta system	2M	CO1	1
c) What are the merits of Laplace transformation to electrical circuits	2M	CO2	1
d) What are the initial conditions? Why are they necessary	2M	CO2	1
e) Identify the necessary expression for obtaining the short circuit admittance parameters.	2M	CO3	3
f) What is the relation between inverse hybrid parameters and impedance parameters.	2M	CO3	1
g) What is the difference between Fourier integrals and Fourier transforms	2M	CO4	1
h) What is the Fourier series expression for f(t) in exponential form?	2M	CO4	1
i) Classify filters.	2M	CO5	2
j) What is the basic difference band pass filters and band elimination filters.	2M	CO5	1

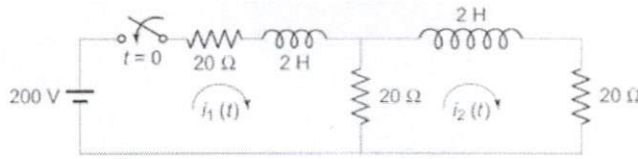
PART-B (5X10 = 50M)

- 2a. Develop the relation between line and phase quantities in star connected system with necessary diagrams 5M CO1 3
- b Show that power consumed by three identical phase loads connected in delta is equal to three times power consumed when phase loads are connected in star. 5M CO1 2
- (OR)
- 3a. Develop the relation between line and phase quantities in delta connected system with necessary diagrams. 5M CO1 3
- b Each phase of a balanced three phase delta connected load has a 0.5 Henry inductor in series with a parallel combination of a 7  $\mu$ F capacitor and 50 resistances. If a 3-phase voltage of 230 V at a frequency of 400 rad/sec is applied to this load, find i) phase current ii) line current and iii) total power absorbed by the load 5M CO1 5
4. In the circuit shown in below Figure, switch S1 is closed at  $t = 0$  and S2 is opened at  $t = 0.05$  sec. Find the transient current using differential equations. 10M CO2 5



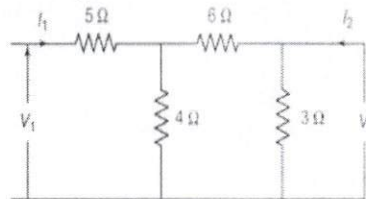
(OR)

5. In the network shown in below Figure, the switch is closed at  $t = 0$ . Find the values of  $i_1(t)$  and  $i_2(t)$  assuming zero initial currents through inductors using Laplace transforms.



10M CO2 5

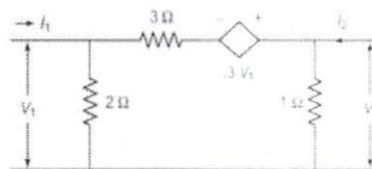
- 6a. Develop the necessary expression for obtaining the short circuit admittance parameters and draw its equivalent representations  
 b. Determine Y-Parameters of the given network.



5M CO3 5

(OR)

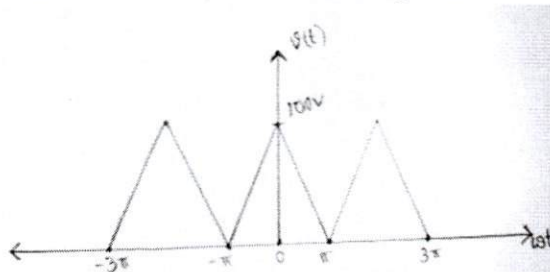
- 7a. Explain how do you determine the hybrid parameters for a two-port network  
 b. Find Y-parameters for the network shown in below Figure.



5M CO3 5

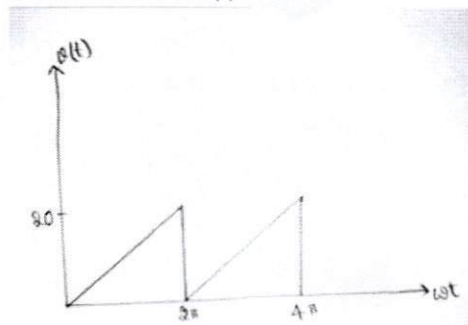
- 8a. Find exponential Fourier Series for the waveform given below.

b.



5M CO4 5

- b. Find Fourier series for the waveform  $v(t)$



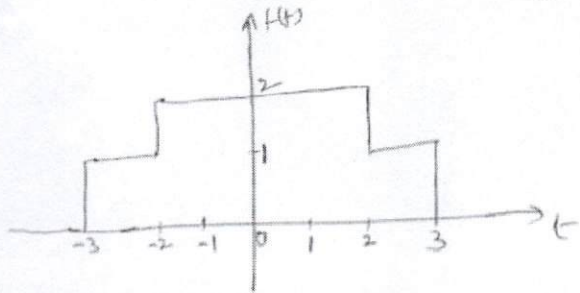
5M CO4 5

(OR)

- 9a. What are the specific differences between Fourier and Laplace transforms

4M CO4 1

b. Find the Fourier transform of the function shown in below figure.



6M CO4 4

10 Design constant K Low pass filter and High Pass filter in detail.  
(OR)

10M CO5 6

11a Design K type band pass filter having a design impedance of  $500\Omega$  and cut off frequencies 1KHz and 10 KHz.

5M CO5 6

b. Design a band eliminator filter having a design impedance of  $500\Omega$  cut off frequencies  $f_1 = 1\text{KHz}$  and  $f_2 = 5\text{KHz}$ .

5M CO5 6

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