

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)*

UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL/MAY 2026

*Second Semester**Civil Engineering*

BE3252 / UBET24201 – BASIC ELECTRICAL, ELECTRONICS AND

INSTRUMENTATION ENGINEERING

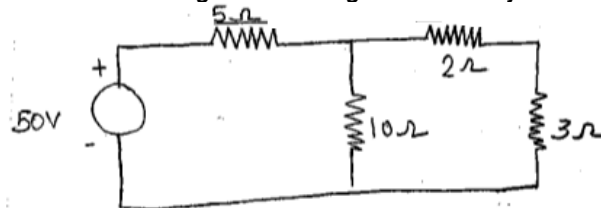
(Common to Chemical Engineering & Agricultural Engineering)

*Regulations – 2021 & 2024**Duration : 3 Hrs**Maximum : 100 Marks***PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	Why AC is represented by sinusoidal waveform?	L2	1	2
2.	Differentiate mesh and loop.	L2	1	2
3.	State the points to be earthed in internal wiring system of a residential building.	L1	2	2
4.	Two inductively coupled coils have self inductance as $L_1=0.5\text{mH}$ and $L_2=0.2\text{mH}$. If the coefficient of coupling is 0.7. Find the mutual inductance of the coil.	L4	2	2
5.	Mention the purpose of commutators in DC generators.	L1	3	2
6.	Write the torque equation of DC motor along with its parameters.	L1	3	2
7.	Define barrier potential.	L1	4	2
8.	Name the universal rule for biasing a transistor.	L2	4	2
9.	List few applications of valves.	L1	5	2
10.	What are transducers?	L1	5	2

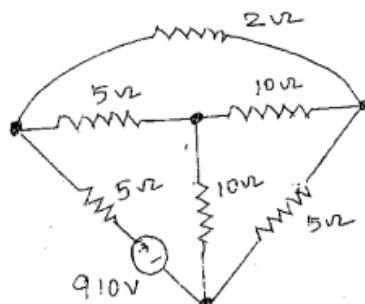
PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a i Determine the current through 5Ω using mesh analysis.	L4	1	8



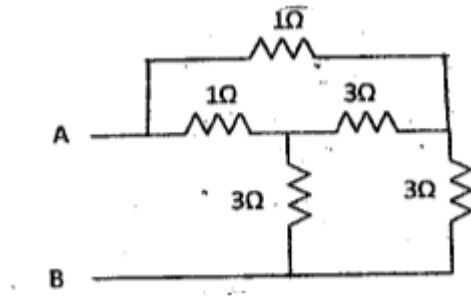
ii Determine node voltage for the circuit given below.

L4 1 8



Or

- | | | | | | |
|---|----|---|----|---|---|
| b | i | Define RMS Value, Average Value , Reactive power and Power factor. | L4 | 1 | 8 |
| | ii | Find the equivalent resistance between A and B of figure using star/delta transformation. | L4 | 1 | 8 |



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|-----|---|----|---|----|---|----|
| 12. | a | i | Coils X and Y with 12500 and 16000 turns respectively, lie in parallel plane so that 60% of flux produced in X links coil Y. It is found that current of 5A through X produced flux of 0.6mWb while the same current through Y produces 0.8mWb. Determine (i) mutual inductance and (ii) coefficient of coupling. | L3 | 2 | 8 |
| | | ii | Draw and explain a simple domestic wiring layout. | L2 | 2 | 8 |
| | | | Or | | | |
| | b | i | When two coils connected in series, their equivalent inductance are found to be 8H. When connections of one coil is reversed, the effective inductance is 4H. If the coefficient of coupling is 0.5. Calculate the self-inductance of each coil and mutual inductance. | L3 | 2 | 8 |
| | | ii | Compare electric circuit and magnetic circuit. | L2 | 2 | 8 |
| 13. | a | | Discuss about the construction and working principle of Dc motor. Also derive its torque equation. | L2 | 3 | 16 |
| | | | Or | | | |
| | b | | Elaborate the construction, working principle and application of transformer. | L2 | 3 | 16 |
| 14. | a | | Explain the construction and working principle of PN junction diode along with its characteristics. | L2 | 4 | 16 |
| | | | Or | | | |
| | b | | Describe the construction and working principle of Zener junction diode along with its characteristics. | L2 | 4 | 16 |
| 15. | a | | Explain about electro-pneumatic system and proximity sensors in detail. | L2 | 5 | 16 |
| | | | Or | | | |
| | b | | With necessary sketch, discuss about strain gauge and LVDT. | L2 | 5 | 16 |