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KAMALA INSTITUTE OF TECHNOLOGY & SCIENCE, SINGAPUR 23EE28ES401

II.B. Tech. II. Semester Regular/Supplementary Examinations, April/May- 2026
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CE, ME)

Time: 3 Hours

Max. Marks: 60

Note: Question paper consists of Part-A & Part-B.

i) **Part-A** for 10M, ii) **Part-B** for 50marks

- Part A** is compulsory, consisting of 10 sub questions from all units carrying equal marks.
- Part-B** consists of **10 questions** (numbered from 2 to 11) carrying **10marks** each. From each unit there are 2 questions and the students should answer one of them. Hence the student should answer **5 questions** from **Part-B**.

PART-A (10Marks)			
Q. No	Questions	Marks	BTL
1.a)	State Kirchhoff's current law?	1M	1
1.b)	What is the relation between phase voltage and line voltage in case of star connection?	1M	1
1.c)	What is the function of fuse?	1M	1
1.d)	Write the full form of MCCB?	1M	2
1.e)	What is the principle of DC generator?	1M	1
1.f)	Write the working principle of three phase induction motor?	1M	1
1.g)	What are the applications of Zener diode?	1M	1
1.h)	Draw the circuit diagram of Half wave rectifier?	1M	1
1.i)	What are the types of BJT?	1M	2
1.j)	What is the function of FET?	1M	1
PART-B (50Marks)			
Q.No	Questions	Marks	BTL
2. a)	Explain the voltage and current sources?	5M	2
b)	State and explain the Kirchhoff's voltage law with an suitable example?	5M	2
OR			
3.	A resistor of 6 ohm and an inductor of 25.5 mH are connected in series across a 220V, 50 HZ supply. Find i) the inductive reactance ii) Impedance iii) Active power iv) Reactive power v) power factor	10M	3
OR			
4. a)	What are the important characteristics for batteries. Explain?	5M	2
b)	How can power factor of a system be improved?	5M	2
OR			
5. a)	With necessary diagrams, explain various components of L.T switch gear?	5M	2
b)	Write short notes on MCB?	5M	2
6. a)	Derive the EMF equation of DC generator?	5M	3

b)	Explain the construction details and working of single-phase transformer?	5M	2
OR			
7. a)	Describe the working principle of a single phase transformer?	5M	2
b)	An 8 pole DC generator has 500 armature conductors and useful flux per pole of 0.065 wb. What will be the EMF generated if it is lap connected and runs at 1000 rpm? At what speed it must be driven to produce the same EMF if it is wave connected?	5M	3
8. a)	Explain the V-I characteristics of P-N junction diode?	5M	2
b)	Explain the operation of full wave rectifier with relevant circuit and waveforms?	5M	2
OR			
9. a)	Draw the characteristics of zener diode and explain?	5M	2
b)	Write short notes on L-section filters?	5M	2
10.a)	Explain the operation of the transistor as an amplifier in common-Emitter configuration?	5M	2
b)	Obtain the input and output characteristics of transistor in common base connection?	5M	3
OR			
11.a)	Explain the principle operation of Field effect transistors?	5M	2
b)	Write the comparison of BJT and FET?	5M	2

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