Code No.: EE401ES   R20   H.T.No. | | | 8 | R | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Supply) - February- 2023
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(MECH)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (20 Marks)

1. a)	What is the V-I relation of capacitance?	[2M]
b)	Define active power.	[2M]
c)	What is the purpose of earthing?	[2M]
d)	What is the function of MCCB?	[2M]
e)	State the working principle of a D.C motor.	[2M]
f)	Name the different parts of a synchronous generator.	[2M]
g)	Define dynamic resistance of a P-N junction diode.	[2M]
h)	State various applications of Zener diode.	[2M]
i)	Give the relation between 'α' and 'β' of a CE transistor.	[2M]
j)	Draw the symbols for NPN and PNP transistors.	[2M]

PART-B   (50 Marks)

2.a) State Kirchhoff's laws. [4M]

b) (i) Calculate the current flowing in the 30 Ω resistor shown in [6M]
Figure below. (ii) What additional value of resistance would have to be placed in parallel with the 20 Ω and 30 Ω resistors to change the supply to current to 8 A, the supply voltage remaining constant.

OR
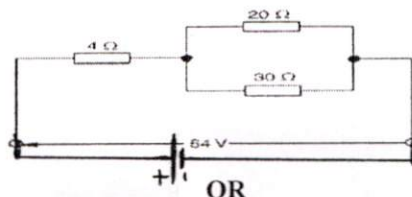
3.a) Explain the following: (i) active power (ii) reactive power and (iii) apparent power. [5M]

b) The alternating current expression is given by, $i(t) = 200 \sin 314t$. Find (i) Maximum value (ii) [5M]
R.M.S value (iii) Average value (iv) Form Factor and (v) peak factor

4. State different types of batteries. Explain the main characteristics of batteries. [10M]

OR

5. Explain different types of wires used in various wiring systems. [10M]

6. Explain the construction and working principle of d.c generator. [10M]

OR

7.a) State different losses that occur in a transformer. [5M]

b) Derive the torque equation of a d.c motor. [5M]

8.a) Draw the V-I characteristics of a Zener diode. [5M]

  b) Explain the operation of a PN junction diode. [5M]

OR

9. What is a filter? Explain various types of filters. [10M]

10. Explain how a transistor can be used in common emitter configuration with a diagram. Draw its input and output characteristics. [10M]

OR

11.a) Give the comparison of BJT and FET. [5M]

  b) Explain the working principle of FET. [5M]