

SANT GADGEBABA AMRAVATI UNIVERSITY, AMRAVATI
Summer Examination 2020
HVPM's College of Engineering and Technology
Department of First Year Engineering
Bachelor of Engineering Sem.:- I & II

Subject: - Basic Electrical Engineering/ Electrical Engineering (New & Old Syllabus)

Code:- 1B3/ 1B4

Instructions:-

1) Solve any two questions

2) All questions carry equal marks

Q1.

- a) State and explain Thevenin's theorem with suitable example. 02 Credit Point
- b) Derive expression for coefficient of coupling between two coils. 02 Credit Point
- c) Derive equation for response to pure inductor connected across A.C. supply and power consumption in pure inductive circuit. 02 Credit Point
- d) Derive relationship between line and phase voltage for star connected three phase circuit with suitable phasor diagram. 02 Credit Point
- e) Derive condition for maximum efficiency for a single phase transformer. 01 Credit Point
- f) Explain working principle of Induction type Energy Meter with suitable diagram. 01 Credit Point

Q2.

- a) Derive expressions for star to delta transformation. 02 Credit Point
- b) Explain types of induced EMF. Derive equation for dynamically induced EMF. 02 Credit Point
- c) What is RMS value of A.C. supply? Derive equation for the same. 02 Credit Point
- d) What do you mean by balanced three phase circuit? Derive relation for power consumption in balanced Star connected load. 02 Credit Point
- e) Derive torque equation for DC motor. 01 Credit Point
- f) What is earthing? Explain briefly plate and pipe type earthing. 01 Credit Point

Q3.

- a) State and explain Super Position Theorem with suitable example. 02 Credit Point
- b) Explain concept of leakage flux and fringing of flux. 02 Credit Point
- c) What do you mean by impedance? How impedance triangle is used to determine phase difference in R-L- C series circuits? 02 Credit Point
- d) Explain any one method to generate three phase A.C. Supply with suitable diagram. 02 Credit Point
- e) Explain working of single phase transformer at no load and full load with the help of

phasor diagrams.

01 Credit Point

f) Explain construction and working of attraction type moving iron ammeter.

01 Credit Point

Q4.

a) Derive expressions for delta to star transformation.

02 Credit Point

b) What is reluctance in magnetic circuits? Derive relationship for Ohm's law for magnetic circuits.

02 Credit Point

c) Explain Vector method to determine phase difference in R-L-C parallel circuits.

02 Credit Point

d) Derive relationship between line and phase current for delta connected three phase circuit with suitable phasor diagram.

02 Credit Point

e) Explain characteristics of DC shunt motor. Also explain applications of DC motors

01 Credit Point

f) Explain construction and working of PMMC type measuring instruments.

01 Credit Point