

190044

B.Voc. Automotive Mechatronics

Subject: Basic of Electrical & Electronics Engineering

Subject Code: ZBEE104

Semester: 2nd (Regular)

Batch: 2018-21

Theory (External): 35 Marks

Time: 03 hours

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. **Section A** comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. **Section B** comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 mark.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

Roll Number

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SECTION –A (OBJECTIVE TYPE QUESTIONS)

(10x1=10 Marks)

- Q1 Two 1 kilo ohm, 1/2 W resistors are connected in series. Their combined resistance value and wattage will be
- a) 2 k Ω , 1/2 W b) 2 k Ω , 1 W
c) 2 k Ω , 2 W d) 1 k Ω , 1/2 W
- Q2 When P = Power, V = Voltage, I = Current, R = Resistance and G = Conductance, which of the following relation is incorrect?
- a) $V = \sqrt{PR}$ b) $P = V^2G$
c) $G = P / I^2$ d) $I = \sqrt{P / R}$
- Q3 The yoke of a dc machine is made up of
- a) Copper b) Carbon
c) Cast Iron d) Silicon Steel
- Q4 In a single phase AC motor, condenser is used
- a) For splitting the phase
b) Minimizing the radio interference
c) Minimizing the losses
d) Minimizing the current
- Q5 If an induction machine is run at above synchronous speed, it acts as
- a) A synchronous motor b) An induction generator
c) An induction motor d) None of these

- Q6 Resistance switching is normally employed in
- a) All breakers
 - b) Bulk oil breakers
 - c) Minimum oil breakers
 - d) Air blast circuit breakers
- Q7 The reverse current in a diode is of the order of
- a) kA
 - b) mA
 - c) μ A
 - d) A
- Q8 Write and draw symbols of all possible configurations of transistor.
- Q9 Write the relation of line and phase currents for 3 phase delta connection.
- Q10 Write the relation of line and phase voltages for 3 phase star connection.

SECTION –B (ESSAY TYPE QUESTIONS)

(5x5=25 Marks)

- Q1 Define the Voltage, Current, Power, Resistance, Conductance, Inductance and Capacitance with their units and symbols. Explain Kirchhoff's current and voltage law in detail.
- Q2 Explain the difference between three-phase and single-phase supply? What are the main advantages three-phase over single-phase supply?
- Q3 Derive the relationship between line voltage, phase voltage, line current and phase current in star and delta connection.

- Q4 Explain the Construction, Principle of Operation and Applications of Servo and Stepper motors.
- Q5 A 25 KVA transformer has 500 turns on the primary and 40 turns on the secondary winding. The primary is connected to 3000 V, 50 Hz mains, Calculate
- Primary and Secondary currents in full load
 - The secondary e.m.f
 - The maximum flux in the core
- Q6 Write and explain the personal protective equipment used? What are the safety precautions?
- Q7 Explain the construction, working and characteristics of Zener diode and write its applications in electronics circuits
- Q8 Explain the working and characteristics of a thyristor and write its applications.

-----END OF PAPER-----