SHRI VISHWAKARMA SKILL UNIVERSITY

(A State Skill University, setup by an Act of Legislature in 2016)

SVSU

Course	:	B.Voc. Robotics and Automation
Subject	:	Basics of Electrical & Electronics Engineering
Subject Code	:	ZBEE-105
Semester	:	First
Duration	:	3 Hours
Maximum Marks	:	35

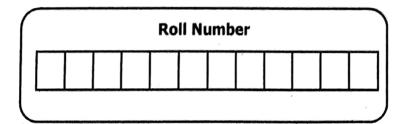## Instructions to the Students

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 marks.

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

(10x1=10 Marks)

Q1. The mobility of an electron in a conductor is expressed in terms of

a. cm^2/V-s   b. cm/V-s   c. cm^2/V d. cm^2/s

Q2. The RMS value of a half-wave rectifier symmetrical square wave current of 2 A is

a. $\sqrt{2}$ A   b. 1 A   c. $\frac{1}{\sqrt{2}}$ A   d. $\sqrt{3}$ A

Q3. The yoke of a dc machine is made up of

a. Copper   b. Carbon   c. Cast Iron   d. Silicon Steel

Q4. The hysteresis and eddy current losses of a single phase transformer working on 200V, 50 Hz supply are P_h and P_e respectively. The percentage decrease in these, when operated on a 160V, 40 Hz supply is

a. 32, 36   b. 20, 36   c. 25, 20   d. 40, 80

Q5. The function of oil in a transformer is

a. To provide insulation and cooling   b. To provide protection against lightning

c. To provide protection against short circuit   d. To provide lubrication

Q6. 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

Q7. Resistance switching is normally employed in

a. All breakers   b. Bulk oil breakers

c. Minimum oil breakers   d. Air blast circuit breakers

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.

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(5x5=25 Marks)

Q11. Explain Kirchhoff's current and voltage law in detail with suitable example?

Q12. Explain the difference between three-phase and single-phase supply? What are the main advantages three-phase over single-phase supply?

Q13. Derive the relationship between line voltage, phase voltage, line current and phase current in star and delta connection.

Q14. Define Starter and explain its need? Explain the working star delta starter in detail?

Q15. 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 a) Primary and Secondary currents in full load b) The secondary e.m.f c) The maximum flux in the core.

Q16. Write and explain the personal protective equipment used? What are the safety precautions?

Q17. Explain the construction, working and characteristics of Zener diode and write its applications in electronics circuits.

Q18. Explain the working and characteristics of a thyristor and write its applications.

------End of Paper------