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**Time : 2 Hours****ELECTRONICS****Pre-Vocational (Electrical Group)****Subject Code**

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**Total No. of Questions : 4****(Printed Pages : 3)****Maximum Marks : 40**

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**INSTRUCTIONS :** (i) All questions are compulsory.

(ii) Draw a neat labelled diagrams wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Answer each question on a fresh page.

1. (A) Answer the following questions in *one or two* words each : 2

(i) What is the frequency of 230 Volts Domestic AC supply.

(ii) Name the microphone that has high Impedance.

(B) Answer the following questions in brief : 6

(i) Draw the circuit diagram of a half wave rectifier and state its disadvantages.

(ii) Define the following :

(a) Self Inductance

(b) Mutual Inductance

(c) One Henry.

- (C) Answer the following question in brief : 2  
What is public address system ? State one of its characteristics.
2. (A) Answer the following questions in *one* sentence each : 2
- (i) What is a rectifier ?
  - (ii) Name the two transformers classified on the basis of its output voltage.
- (B) Answer the following questions in brief : 6
- (i) Draw a neat diagram of a simple core type transformer. State its advantage over shell type transformer.
  - (ii) State the working principle of a moving coil speaker. State the two classes of speakers based on their frequency response. What are double coned speakers ?
- (C) Answer the following questions in brief : 2  
Draw the symbol of loud speaker. Compare Dynamic and Electrodynamic speaker stating one point of difference.
3. (A) Answer the following in *one* or *two* words : 2
- (i) How does a longitudinal wave travel ?
  - (ii) Name the part of the speaker that vibrates to produce sound.
- (B) Answer the following questions in brief : 4
- (i) State the two characteristics of a longitudinal wave.
  - (ii) What is meant by velocity of a sound wave ? What is the amplitude of a sound wave ?
- (C) Answer any *one* of the following in brief : 4
- (i) With the help of a neat diagram explain the construction of a crystal microphone.
  - (ii) With the help of a neat diagram explain the construction of a Ribbon Microphone.

4. (A) Answer the following questions in short : 2
- (i) What is doping of a semiconductor ?
  - (ii) Define Kirchhoff's current law.
- (B) Answer the following in brief : 4
- (i) An electric heater taken 3 Amps of current when connected to a 230 V AC Supply. Find the power consumed by the heater if the supply frequency is 50 Hz.
  - (ii) What is forward biasing of a PN junction ? What is the state of depletion region in a forward biased connection ?
- (C) Answer any *one* of the following in detail : 4
- (i) With a neat diagram explain the common collector configuration of a NPN type transistor.
  - (ii) With a neat diagram explain the common emitter configuration of a NPN type transistor.