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Time : 2 Hours**ELECTRONICS****Pre-Vocational****Subject Code**

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Total No. of Questions : 4**(Printed Pages : 4)****Maximum Marks : 40****INSTRUCTIONS :** (i) All the questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) Draw a neat labelled diagram wherever necessary.

(iv) Answer each question on a fresh page.

1. (A) Answer the following in *one* word : 2

(i) Which component of a moving coil loudspeaker vibrates to produce sound ?

(ii) Name the commonly used material to manufacture stationery plates of capacitor loudspeaker.

(B) Answer the following in brief : 6

(i) What is a microphone ? Explain the construction of microphone which uses carbon granules for its operation.

(ii) Explain the working of dynamic speaker.

(C) Answer the following in short : 2

(i) "It is folded and placed in the powerful magnetic field" Based on the given statement identify and name the given microphone and state *one* advantage of it.

2. (A) Answer the following in *one* sentence : 2
- (i) What is the cause of whistling sound in a Public address system ?
 - (ii) Define ripples factor with respect to a power supply circuit.
- (B) Answer the following in brief : 6
- (i) What is Rectification ? Draw a neat and labelled diagram of centre-tap rectifier along with its corresponding input and output waveform.
 - (ii) Draw a block diagram of power supply circuit and explain its last 3 blocks.
- (C) Answer the following in short : 2
- (i) Name the transducers used in a Public Address system. Show the layout connection diagram for installing a PA system in a conference hall.
3. (A) Answer the following in *one* or *two* words or sentences : 2
- (i) Name the region in the bipolar junction transistor which is heavily doped.
 - (ii) How do copper losses occur in a transformer ?
- (B) Answer the following in short : 4
- (i) State *two* points of difference between Shell type and Core type transformer.
 - (ii) Explain the construction of a transformer along with a neat labelled diagram.

- (C) Answer any *one* of the following in detail : 4
- (i) State *two* characteristics of common emitter configuration. Draw a crystal structure of N-Type semiconductor materials and explain how it is obtained.
- (ii) State *two* characteristics of common base configuration in transistor. Explain with diagram what happens to the charge carriers when a P-N junction is formed in a diode.
4. (A) Answer the following in *one* sentence : 2
- (i) Define Amplitude of a sound wave.
- (ii) State Ohm's Law.
- (B) Answer the following in brief : 4
- (i) Rahul runs his juicer every morning. The juicer uses 90 W of power and the current drawn is 0.45 A. How much volts is necessary to run the juicer ?
- (ii) Shane was given a NPN transistor and was ask to find whether the transistor is good or bad. Name the instrument she will use to do the testing and explain how the testing has to be done.

(C) Answer any *one* of the following in detail :

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- (i) A wave train moving along a rope has a velocity of 100 m/s and wavelength of 20 M. What is its time period ?

What are ultrasound and infrasound frequencies ? State any *one* characteristic of sound wave.

- (ii) If the Frequency of the tuning fork is 400 Hz and the velocity of sound in air is 320 m/s, find how far the sound travels if the tuning fork makes 30 vibrations. What is compression and rarefaction of sound wave ?