

2025

SKILL ENHANCEMENT COURSE

Course Name : Physics Workshop Skill

Course Code : PHY-SEC-1013

Full Marks : 30

Time : $1\frac{1}{2}$ Hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : 1×5=5
- a) Most important property of lubricating oil is :
 - i) Viscosity
 - ii) Pour Point
 - iii) Flash Point
 - iv) None of the above
 - b) Bronze is an alloy of :
 - i) Copper and Zinc
 - ii) Copper and Tin
 - iii) Iron and Tin
 - iv) Iron and Zinc
 - c) The melting point of a solder should be:
 - i) Low
 - ii) High
 - iii) Moderate
 - iv) None of the above
 - d) A capacitor allows which type of current to pass through it easily ?
 - i) Only DC
 - ii) Only AC
 - iii) Both AC and DC
 - iv) Neither AC nor DC

(Turn over)

e) 10^7 Joule =erg

i) 10^{17}

ii) 10^{14}

iii) 10^{-14}

iv) 10^{49}

2. Answer **any five** of the following questions : $2 \times 5 = 10$

- What do you mean by 'bench work' ?
- What are the two basic classifications of metals used for manufacturing ?
- Why do we use fitting tools in a workshop ?
- Which characteristic enables a Zener diode to act as a voltage regulator ?
- In an oscilloscope's display, the peak-to-peak division of a signal is found to be 5. If the voltage per division is 100 mV, what is the value of the peak-to-peak voltage? What is the r.m.s value of the voltage?
- Determine the volume of a solid cylinder if its length is 0.7 m and diameter is 0.14 m in C.G.S unit.
- What do you mean by systematic error in measurement? Write its importance.

3. Answer **any three** of the following questions : $5 \times 3 = 15$

- Describe a lathe machine properly explaining its different components.
- Explain in brief the following machine tools or processes:
 - Shaper
 - Drilling
 - Milling
 - Surface machines
 - Cutting tools
- Explain briefly the block diagram of a regulated power supply.

- A sinusoidal signal is applied to a CRO. One complete cycle spans 3 horizontal divisions. The time-base is set at 0.4 ms/div. Calculate the frequency of the signal. 2
 - What is a Lissajous figure ? 1
 - In a CRO, a Lissajous figure is formed in the shape of the number 8. If the frequency of the signal in the horizontal direction is 200 Hz, calculate the frequency of the signal in the vertical direction. 2
- What is a sextant ? Describe its working principle to measure the dimension of a given window situated at an accessible distance.

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