



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examinations 2020

(Under CBCS Pattern)

Semester - III

Subject: PHYSICS

Paper: SEC1T

Full Marks : 40

Time : 2 Hours

Candidates are required to give their answer in their own words as far as practicable.

The figures in the margin indicate full marks.

PHYSICS WORKSHOP SKILL

Answer any *two* from the following questions :

2×20

1. (i) What is the least count of a screw gauge if the minimum linear scale division is 0.5 mm and the circular scale markings are 200 divisions per 0.5 mm of the linear scale ?
- (ii) Describe the use of sextant for the measurement of the height of a mountain.
- (iii) Draw the block diagram of a cathode ray oscilloscope.
- (iv) Can a multimeter be used for measuring very low resistances ? What are the limitations in such measurements ?

- (v) A lever is used to lift 400 Kg load with an effort of 40 Kg. Show the positions of the effort, load and fulcrum clearly by drawing diagram. Assuming lever length of 20 meters. Which class of levers are you using ? $5 \times 4 = 20$
2. (a) Explain the different manufacturing methods : Casting, Foundry, Machining, Forming and Welding.
- (b) What are the basic types of welding joints ? Explain with appropriate diagram. $2 \times 10 = 20$
3. (a) Describe the advantages and disadvantages of welding over soldering. Compare the applications of both the processes.
- (b) Explain (i) drilling process and (ii) milling process. Under what circumstances would you use each of them ? $2 \times 10 = 20$
4. (a) Describe the working of a regulated power supply with necessary circuit diagram.
- (b) Draw the diagram and explain the operation of a reley based electronic switch. $2 \times 10 = 20$

ELECTRICAL CIRCUIT AND NETWORK SKILLS\

Answer any *two* from the following questions : 2×20

1. Draw a circuit of full wave bridge rectifier using crystal diode. Explain the operation and draw the output signal and corresponding input signals.
2. What are ladder diagrams used for ? Define the sign of voltage drop across a resistor and source of e.m.f with proper diagram.
3. (a) An aluminum wire 7.5m long is connected in a parallel with a copper wire 6 m long. When a current of 5A is passed through the combination, is found that current in the aluminum wire is 3A. The diameter of the aluminum wire is 1 mm. Determine the

diameter of the copper wire. Resistivity of copper. is $0.017 \mu\Omega - m$, that of the aluminum is $0.028 \mu\Omega - m$. 10

(b) Define multimeter, voltmeter and ammeter with diagram. 10

4. Answer any **four** from the following : 4×5

(a) Draw a diagram of AC generator and write its disadvantages.

(b) What is blue print ? And write a short note on blue print process.

(c) Define resistor, inductor and capacitor with symbol.

(d) Give a general idea of Single-phase and three-phase alternating current sources with proper diagram.

(e) How do we prepare an AC electric extension board ? Draw and describe.