



বিদ্যাসাগর বিশ্ববিদ্যালয়  
**VIDYASAGAR UNIVERSITY**

**Question Paper**

**B.Sc. General Examinations 2020**

(Under CBCS Pattern)

**Semester - III**

**Subject: PHYSICS**

**Paper: SEC1T & SEC1P**

**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**

**THEORY (Marks : 40)**

Answer any *two* from the following questions :

2×20

1. (a) Describe the use of screw gauge for the measurement of the thickness of a paper.

(b) Describe the use of sextant for the measurement of the height of a mountain.

(c) Draw the block diagram of a cathode ray oscilloscope.

(d) What is the difference between a regulated power supply and an unregulated power supply ?

4×5

2. (a) Explain the working principle of a power generation system.,  
(b) Draw a diagram and explain how a wheel is connected to a gear system.  $2 \times 10 = 20$
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) Explain the different manufacturing methods : Casting, Foundry, Machining, Forming and Welding.  
(b) What are the basic types of welding joints ? Explain with appropriate diagrams.  $2 \times 10 = 20$

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## COMPUTATIONAL PHYSICS

### Group - A

#### THEORY (Marks : 25)

- Answer any **one** from the following questions :  $1 \times 10$
1. What is algorithm ? Mention its properties. Write an algorithm to convert temperature from Fahrenheit to celsius. What are the symbols commonly used in writing a flowchart ?  $2+2+3+3$
2. Explain the FORTRAN variables and their types. What are executable and non-executable statements in FORTRAN ? Write a program in FORTRAN to find area of a circle. Write a flowchart for the same.  $2+2+2+2+2$

Answer any *one* from the following questions :

1×15

1. Define “loop”. Discuss the types of loop. What is Arithmetic IF statement ? What is document class in LA Tex ? Show how bibliography is written in Latex. Write a flowchart to find the greater number between two numbers. 2+4+3+3+3
2. What do you understand by flowchart ? Write a flowchart and an algorithm to find the roots of a quadratic equation. What is Gnu plot ? Write its uses. 3+4+4+2+2
3. What is FORTAN ? Explain functions and subroutines in FORTRAN. What do you mean by array in programming language ? Find the sum of the series  $1+2+3+\dots+20$  by using FORTRAN. 2+5+3+5

**Group - B**

**PRACTICAL (Marks : 15)**

Answer any *one* from the following questions :

1×15

1. Discuss the procedure to find a set of prime numbers mentioning the necessary programming steps in FORTRAN.
  2. Explain in detail how to find the roots of a quadratic equation using FORTRAN.
  3. Discuss the procedure and the necessary steps to write program to open a file and generate data for plotting using Gnu plot.
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