

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
TELANGANA
DIPLOMA EXAMINATION (C-21)
C21-MID1-OCT-2022
SEMESTER I, MID-I EXAM



AA/AI/AU/BM/CCB/CE/CH/CPS/CS/EC/EE/EI/ES/EV/LF/LG/ME/MN/MT/PK/PT/TT

PCODE
11003

SC-103
Basic Physics

Exam Date: 12-10-2022
Duration: 1 Hour [11:30 AM To 12:30 PM]

Session: FN
[Total Marks: 20]

PART-A

Instructions: 1. Answer the following questions. 4 X 1 = 4
2. Each question carries **ONE** mark.

1. Define Random Error.
2. Define dimensions of a physical quantity.
3. What is the angle between two vectors to have scalar product negative?
4. What are Equal vectors?

PART-B

Instructions: 1. Answer the following questions. 2 X 3 = 6
2. Each question carries **THREE** marks.

- 5(a). List three applications of dimensional formulae.
---- OR ----
- 5(b). Write significant figures of (1) 0.002 (2) 2.0020 (3) 20020
- 6(a). A force of $2\hat{i} + 3\hat{j} + 4\hat{k}$ is applied on a body and produces displacement $\hat{i} + \hat{j} + \hat{k}$. Calculate the work done by the force.
---- OR ----
- 6(b). Interpret area of the triangle in terms of vector product.

PART-C

Instructions: 1. Answer the following questions. 2 X 5 = 10
2. Each question carries **FIVE** marks.

- 7(a). List any five advantages of S.I. units.

----- OR -----

- 7(b). Apply dimensional analysis to check the correctness of the equation
$$S = ut + \frac{1}{2}at^2$$

where S is displacement, u is initial velocity, a is acceleration and t is time

- 8(a). If $|\vec{A} + \vec{B}| = |\vec{A} - \vec{B}|$, Find the angle between \vec{A} and \vec{B} .

----- OR -----

- 8(b). Apply vector properties to represent a vector in terms of unit vectors \vec{i}, \vec{j} and \vec{k}