

No of printed pages: 01

Seat No.:



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester II) Internal Examination - 2025
US02MAPHY01 : PHYSICS

Date: 04-03-2025

Time: 12:45 pm to 2:15 pm

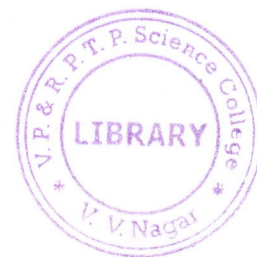
Day: Tuesday

Total marks : 30

Note: Figures to the right indicate marks of the question.

Q-1 Write the most appropriate answer from the following multiple-choice questions. [06]

- 1 Which of the following is a scalar quantity?
(a) Velocity (b) Force
(c) Temperature (d) Acceleration
- 2 For unit vector $\hat{i}$, $\hat{i} \times \hat{i}$ is
(a) 1 (b) 0
(c) 2 (d) -1
- 3 A frame of reference in which Newton's laws of motion are valid is called
(a) non-inertial frame of reference (b) inertial frames of reference
(c) Cartesian frame of reference (d) absolute frame of reference
- 4 The bridge rectifier uses ____ diodes.
(a) 2 (b) 4
(c) 3 (d) 5
- 5 Which bridge is used to determine the inductance of a coil?
(a) Wien (b) Maxwell
(c) Ampere (d) Schering
- 6 Which of these is the smallest region in a transistor?
(a) Emitter (b) Base
(c) Collector (d) Rectifier



Q-2 Discuss the scalar product of three vectors. [06]
OR

Q-2 State and prove stoke's theorem. [06]

Q-3 Deduce Einstein mass energy relation $E=mc^2$, considering variation of mass with velocity. [06]
OR

Q-3 Discuss Lorentz-fitzgerald length contraction and time dilation. [06]

Q-4 With proper example explain mesh current analysis method for two mesh network. [06]
OR

Q-4 Explain construction and working of a Maxwell bridge. [06]

Q-5 What is a rectifier? Explain construction and working of a Centre-tap rectifier. [06]
OR

Q-5 Explain structure of a Transistor. Draw its circuit symbol. Explain input characteristics of a CE transistor. [06]