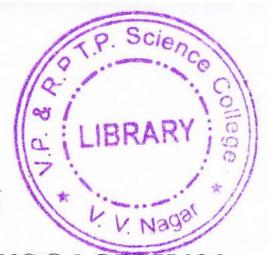


V.P. & R.P.T.P. SCIENCE COLLEGE
VALLABH VIDYANAGAR
2nd SEMESTER B. Sc. INTERNAL EXAMINATION



Subject: **Physics** Title: **Electronics, Nuclear & Modern Physics** Course: **USO2CPHY02**

Date: **17-03-2015** Tuesday Time: **12: 30 pm to 01:30 pm**

Marks: **25**

Q.1 Answer the following MCQs with the correct option. Each of 1 Mark (3)

- (1) Which rectifier uses four diodes?
(a) half-wave (b) centre-tap (c) bridge (d) All of these.
- (2) To obtain variable capacitance, diode is used.
(a) power (b) varactor (c) zener (d) LED
- (3) The average or dc value of the rectified output voltage (V_{dc}) of a Half-wave rectifier is nearly equal to.....
(a) V_m/π (b) $V_m/2\pi$ (c) $2V_m/\pi$ (d) $V_m/2$

Q.2 Answer any TWO of the following questions in short. Each of 2 Mark. (4)

- (1) What is a rectifier circuit? Why we need it?
- (2) Define ripple factor and rectification efficiency of a rectifier.
- (3) What are power diodes? State their characteristics and applications.
- (4) For a transistor having α_{dc} equal to 0.98, determine the collector current (I_C) if the emitter current (I_E) is of 10 mA.

Q.3 (a) What is a half wave rectifier? Explain its construction, working and PIV. (5)

(b) Explain working of a series inductor filter with necessary diagram. (4)

OR

Q.3 (a) Explain construction and working of a full wave bridge rectifier and state its PIV. Determine values of ripple factor and rectification efficiency of a full wave rectifier. (9)

Q.4 (a) State features of a zener diode and explain its use as a voltage regulator. (5)

(b) Write a note on light emitting diodes (LEDs). (4)

OR

Q.4 (a) Draw the circuit to determine static characteristics of PNP transistor in CE mode. Discuss its input and output characteristics and their importance. (9)

-----XXXXXXXXXXXXXXXXXXXXXXXXXX-----