

**V.P. & R.P.T.P. SCIENCE COLLEGE**  
**VALLABH VIDYANAGAR**  
**2<sup>nd</sup> SEMESTER B. Sc. INTERNAL EXAMINATION 2016**

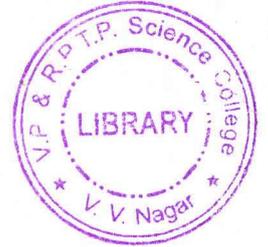
Subject: **Physics** Title: **Electronics, Nuclear & Modern Physics** Course: **USO2CPHY02**

Date: **17-03-2016** Thursday Time: **01: 30 pm to 02:30 pm**

Marks: **25**

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

- (1) Which rectifier uses two diodes?  
(a) half-wave (b) centre-tap (c) bridge (d) All of these.
- (2) Which diode is used in rectifier circuits?  
(a) zener (b) LED (c) power (d) varactor
- (3) The ripple factor of a half wave rectifier circuit is ...  
(a) 1.21 (b) 2.21 (c) 0.48 (d) 1.12



**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) What are zener diodes? Draw its circuit symbol and state its application.
- (3) Define ripple factor and rectification efficiency of a rectifier.

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

**(b)** Explain working of a shunt capacitor filter with necessary diagram. (4)

**OR**

**Q.3 (a)** Explain construction and working of a full wave Centre-Tap rectifier. (9)  
Determine values of ripple factor and rectification efficiency of a full wave rectifier.

**Q.4 (a)** What is a varactor diode? Write a note on it. (5)

**(b)** What are light emitting diodes (LEDs)? State their advantages and applications. (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)

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