

V. P. & R. P. T. P. SCIENCE COLLEGE
VALLABH VIDYANAGAR



Second Semester B.Sc. Internal Examination

Subject: Physics

Course: USO2CPHY02

Date: 17-03-2018

Time: 1:30 to 2:30 pm

Total Marks:25

Q.1 Answer the following questions with the correct choice. (Each of 1 Mark.) (3)

- (1) The circuit which smoothes out the pulsating dc is called as circuit.
(a) transformer (b) rectifier (c) filter (d) regulator.
- (2) Which of these diodes is used as a radio wave detector?
(a) signal (b) power (c) zener (d) LED
- (3) In alpha decay, the atomic number of a parent nuclei is
(a) increased by 2 (b) decreased by 2 (c) increased by 4 (d) decreased by 4

Q.2 Answer any TWO. (Each of 2 Mark.) (4)

- (1) Draw the circuit of a Half Wave rectifier and name its components.
- (2) With schematics, explain construction of a NPN transistor.
- (3) Find the decay constant of a radioactive element having a half life of 3 day.

Q.3 With a suitable diagram explain construction and working of a Full wave centre-tap rectifier. Explain its PIV. (6)

OR

Q.3 With a suitable diagram explain working of (i) Series Inductor filter and (ii) Shunt Capacitor filter (6)

Q.4 What is a zener diode? Write a note on it and explain its application as a voltage regulator. (6)

OR

Q.4 With necessary circuit diagram explain input and output characteristics of a common emitter (CE) PNP transistor circuit. (6)

Q.5 Explain (i) Binding energy and (ii) binding energy per nucleon with a suitable example. Draw the curve of binding energy per nucleon against mass number and discuss its two features. (6)

OR

Q.5 What is radioactivity? State its important features and explain Rutherford's explanation about type of radiations. State examples of various nuclear transformation processes with suitable examples. (6)