

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



First Semester B.Sc. Internal Examination

Subject: Physics

Course: USO1CPHY02

Date: 05 -10-2016 , Wednesday 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) In a network, the point where two or more circuit elements are connected is known as point.

(a) junction (b) node (c) branch (d) mesh.

(2) Which of these bridges is used to determine frequency of a voltage source?

(a) Kelvin bridge (b) Schering bridge (c) Wien bridge (d) Hay bridge

(3) For a telescope, with decrease in wavelength of the light used, the resolving power

(a) increases (b) decreases (c) becomes zero (d) remains unchanged

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

(1) With a suitable network define: (i) junction point and (ii) branch.

(2) Draw the circuit of dc bridge and state expressions for its balancing conditions.

(3) There are total 20,000 lines (i.e. N) ruled on a plane transmission grating.

Determine its resolving power in the third order (i.e. $n = 3$).

Q.3 With a suitable diagram and example, explain mesh current analysis method for three mesh network. (6)

OR

Q.3 With a suitable diagram explain node pair i.e. nodal method for analysis of a two node-pair network. (6)

Q.4 With necessary diagram explain construction and working of Maxwell bridge. Mention its features. (6)

OR

Q.4 What is a Schering bridge? With necessary diagram explain its working and discuss its features. (6)

Q.5 What is an interferometer? State principle of Michelson interferometer. Explain its construction and working. (6)

OR

Q.5 Explain Rayleigh's criteria for just resolved images. Define resolving power of a telescope. Derive expression for resolving power of a telescope. (6)