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

First Semester B.Sc. Internal Examination

Subject: **Physics** Title: **Network Analysis, Optics and Laser** Course: **USO1CPHY02**

Date: 05 -12-2014 Friday **Time: 11:00 to 12.00 pm** **Total Marks:25**

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

(1) The point of a network where three or more circuit elements are connected is known as ..... point.
(a) junction (b) node (c) branch (d) mesh.

(2) Which of these is not a dc bridge?
(a) Kelvin bridge (b) Maxwell bridge (c)Wheatstone bridge (d) none of these

(3) For a transmission grating, with decrease in spectrum order (n), the resolving power
(a) increases (b) decreases (c) becomes infinite (d) remains unchanged

Q.2 Answer any two. (Each of 2 Mark.) **(4)**

(1) Give statement of Thevenin's theorem and state its importance.

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

(3) Define resolving power and state Raylaigh's criterion for just resolved images.

Q.3 With a suitable diagram explain what is a network and define various network terms i.e. network terminology. **(6)**

OR

Q.3 Define mesh and mesh current. Explain mesh current method for analysis of a two mesh network with a proper example. . **(6)**

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

OR

Q.4 What is a Wien Bridge? With necessary diagram explain its working and discuss its parameters. **(6)**

Q.5 What is a interferometer? Explain principle, construction and working of a Michelson interferometer. **(6)**

OR

Q.5 Explain resolving power of a microscope and derive expression for it. **(6)**

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