CC11

SEMESTER-V

TIME: F.M.-30

Answer any one:

Q1

a) Define specific rotation of a solution for pure liquids. State the factors on which it depends. 2+3

b) Write down the relevant theory for the polarimeter experiment 5

c) A 20cm long tube containing sugar solution gives a rotation of 11^0 of the plane of vibration of a plane polarized light. Find the strength of the solution. Specific rotation of sugar= $66^0 dm^{-1} g^{-1} cm^3$. 5

d)Give a brief sketch of a Half Shade Polarimeter/bi quartz polarimeter. 5

e) Write the precautions and discussions for the above mentioned experiment. 5

f) What is a half shade plate? Explain its action?
Or
What is a biquartz Explain its action. 5

Q2. a) What is Fresnel's law of reflection ? 5

b) Write down the relevant theory for the experiment 5

c) What is a polaroid ? 5

d) Sketch the relevant graph for verification of Fresnel's laws 5

e) Show the relevant table for the above verification. 5

f) State the precautions for the above experiment. 5

3 (a) What is light ? 2
(b) What is Brewster's angle? 2
(c) What is Brewster's Law ? 2
(d) Draw the relevant sketch showing verification of Brewster's Law. 4
(e) Describe the process of determining Brewster's angle for air glass interface using a prism. 10
(f) State the relevant precautions for the experiment. 5
(g) Find the angular altitude of the sun at which sunlight reflected from a still lake becomes plane polarized. Refractive index of water=4/3 5.
