

Rayat Shikshan Sanstha's
Rajarshi Chhatrapati Shahu College, Kolhapur
Department of Chemistry
B.Sc. Part-III (Physical Chemistry)
Unit Test ,Paper-XI, Sem.V

Day and Date: Monday 17 /9/2018
Time: 3.0 to 4.0 pm

Total Marks: 25

Q.1 Choose the correct alternative from the followings and rewrite the sentence. [5]

- 1) Rotational sub levels or quantum numbers are denoted by.....
a) n b) E c) J d) v
- 2) In vibrational spectra, the transition from $v=0$ to $v=1$ gives a very intense line.....
a) Overtone band b) fundamental band c) dark line d) None of these
- 3) For rotational transitions selection rule is.....
a) $\Delta J = \pm 1$ b) $\Delta V = \pm 1$ c) $\Delta E = \pm 1$ d) none of these
- 4) Rotational spectra are observed in.....
a) far infrared b) visible c) uv d) radiowave
- 5) The distance between two nearest troughs or crests is known as.....
a) frequency b) Wavelength c) wave number d) all of these

Q.2. Answer any four of the following . [10]

- 1) What is electromagnetic spectrum? Explain.
- 2) Write a note on fundamental equation of light.
- 3) Explain Stokes and anti-Stokes lines.
- 4) Write a note on quantum yield.
- 5) Write a note on chemiluminescence

Q.3. Long Answer type questions (any one) [10]

- 1) Explain rotational spectra of diatomic molecule using rigid rotor model.
- 2) Discuss, vibrational spectra of diatomic molecules.