



THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: (15x2=30)

1. What is population inversion?
2. Which type of detectors is used in fluorescence?
3. Difference between fluorescence and phosphorescence?
4. Define electronic energy levels?
5. Write properties of good solvent used in Uv-Vis spectroscopy?
6. What is selection rule in IR?
7. Write sources used in UV-Vis and IR spectroscopy?
8. What is ICP?
9. How do you determine the number of vibrational modes?
10. Define term electromagnetic spectrum?
11. Define Raman and IR spectroscopy?
12. Define allowed and forbidden transition in UV-Vis spectroscopy?
13. Define prism and Monochromator?
14. What is LASER?
15. What is the purpose of grating used in UV-Vis spectrophotometer?

Answer the following questions.

- Q.2 a) Write down the limitations of Beer-Lambert law? (5)**
- b) Write a note on absorption photometry? (5)**
- Q. 3 a) Write principle of ICP-AES? (5)**
- b) Write down its applications of IR on the basis of qualitative and quantitative analysis? (5)**
- Q. 4 a) Explain FTIR instrumentation? (5)**
- b) Write a note on special detection systems and read out devices used in ICPE? (5)**