

T.E.(INSTRUMENTATION)(SEM VI) (CBSGS) / DEC 2019/18.12.2019

Duration: 03 Hours

Total Marks: 80

- Note:** 1) Question No. 1 is compulsory.
 2) Answer any **three** questions from the remaining **five** questions.
 3) Assume **suitable data** wherever **necessary**.



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Q1. Answer any 4 from the given 5 questions:

- Give 4 differences between Fluorescence and Phosphorescence.
- Justify that Beer-Lambert's law is a limiting law.
- Differentiate filters and monochromators.
- Explain any 4 characteristics of Raman lines.
- What is chemical shift and give its significance in NMR.

Q2. a) With a neat diagram, explain working of Single beam spectrophotometer. 10

b) Describe with a neat diagram phosphoroscope. 10

Q3. a) Explain working and application of Scintillation counter with neat diagram. 10

b) Explain working of Atomic Emission Spectrometer with application. 10

Q4. a) Explain the working of Nuclear Magnetic Resonance (NMR) Spectrometer. 10

b) Explain the working GC-MS with a neat diagram. 10

Q5. a) Explain principle and working of Time-of-flight type mass spectrometer. 10

b) Explain with a neat diagram the working of gas density analyzer. 10

Q6. Write short notes on: (any two) 20

a) HPLC

b) X-ray absorption meter

c) Double beam Fluorimeter