



AJEENKYA

D Y PATIL UNIVERSITY

End Term Examination (December 2018)

School : of Engineering

Course: Advanced Analytical Techniques

Semester: I

Max Marks: 50

Program: M. Tech (Biotech)

Course Code: BEN511

Duration (mins): 120

Note : 1. Figures to the right indicates full marks.

2. All questions are compulsory

Q. No. 1 Define following terms – (Each question carries 1 marks)

(any 10)

(10)

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|--------------------------|-------------------|
| a. Optical density | g. Isotopes |
| b. Partition coefficient | h. Hooke's law |
| c. p^H | i. Monochromator |
| d. Fluorescence | j. Normality |
| e. Centrifugal force | k. Chromatography |
| f. Gyromagnetic ratio | |

Q. No. 2 Write short note on following – (Each question carries 3 marks)

(any 5)

(15)

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|--|------------------------------|
| a. Chromophore concept | d. Thin layer chromatography |
| b. Applications of UV-Vis spectroscopy | e. Proportional Counter |
| c. Raman spectroscopy | f. Adsorption chromatography |

Q. No. 3 Explain following in details and solve problems (Each question carries 5 marks)

(any 5)

(25)

- Calculate the wavenumber for C-H and O-H stretching.
- NMR Spectroscopy
- Rate of radioactive decay
- Cesium - 137 has a half-life of 33 years. Calculate the fraction of cesium - 137 that decays (i) per year (ii) per minute.
- A solution containing 500 mg of a particular substance per litre gives on O.D. of 1.00 in a 1 cm cuvette at 600 nm. What will be the concentration of a solution of the same substance if it is giving a 30 percent transmission in a 3 cm cuvette?
- Column chromatography