



AJEENKYA

D Y PATIL UNIVERSITY

End Term Examination (December 2018)

School : of Engineering

Program: B. Tech (BioTech)

Course: Analytical Techniques

Course Code: BTE204

Semester: III

Max Marks: 50

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)

- | | |
|--------------------------|----------------------------|
| a. Isotopes | b. Optical density |
| c. Partition coefficient | d. Half-life ($t_{1/2}$) |
| e. p^H | f. Monochromator |
| g. Fluorescence | h. Normality |
| i. Centrifugal force | j. Chromatography |

Q. No. 2 Write short note on following – (Each question carries 3 marks) (any 5) (15)

- | | |
|-----------------------------|------------------------------|
| a. Chromophore concept | b. Thin layer chromatography |
| c. Electromagnetic spectrum | d. G-M Counter |
| e. Raman spectroscopy | f. Adsorption chromatography |

Q. No. 3 Explain in details and solve problems- (Each question carries 5 marks) (any 5) (25)

- Calculate the wavenumber for C-H and N-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