AJEENKYA
D Y PATIL UNIVERSITY

End Term Examination (December 2019)

School : School of Engineering **Program:** B. Tech (BioTech Engg)

Course: Analytical Techniques **Course Code**: BTE204

Semester: III **Max Marks:** 40 **Duration (mins) :** 90

Note : 1. Figures to the right indicates full marks.
2. All questions are compulsory

Q. 1 Define following terms – (Each question carries 1 marks) (any 10) (10)

a. Radioactivity
b. Beer-Lambert's law
c. Gyromagnetic ratio
d. Half-life ($t_{1/2}$)
e. Hooke's law
f. Monochromator
g. Phosphorescence
h. Molality
i. Centrifugal force
j. Spin quantum number
k. Diffraction grating

Q. 2 Write short note on following – (Each question carries 4 marks) (any 3) (12)

a. Applications of UV-VIS spectroscopy
b. Types of centrifuge
c. Electromagnetic spectrum
d. G-M Counter
e. Magnetic properties of nucleus

Q. 3 Explain in details/solve problems- (Each question carries 6 marks) (any 3) (18)

a. Calculate the wavenumber for C-H and N-H stretching.
b. Raman Spectroscopy
c. Rate of radioactive decay
d. Scintillation counter and its applications
e. Calculate the O.D of 0.2 m mole of (i) FAD [11.3] (ii) NADH [6.22] (iii) ATP [15.4] and (iv) Guanine [8.1] in 4 ml volume. The path length is 1 cm. Molar absorptivities are given in square brackets.

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