

Date 1/12/2012
Time 10:30 to 12:30

Final year B.Pharm sem VIII (REV) 2012-2013
Pharmaceutical Analysis IV

P4-RT-Exam.-Oct.-12-109

Con. 8074-12.

(REVISED COURSE)

CN-8267

(2 Hours)

[Total Marks : 40

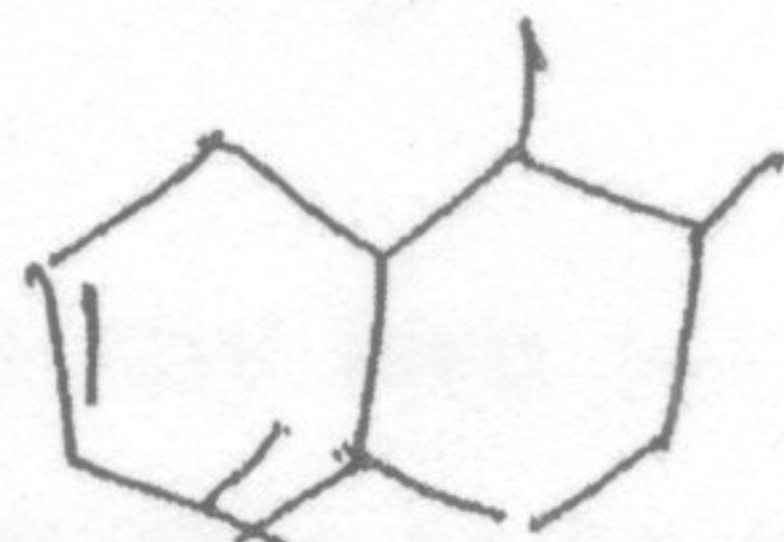
N.B. : (1) Question No. 1 is compulsory.

(2) Attempt any **four** questions from remaining **six** questions.

(3) Draw **neat** labelled **diagram** wherever **necessary**.

(4) **Figures** to the **right** indicate **full** marks.

1. (a) Explain the following terms in brief (any **two**) :- 4
- (i) Chemically equivalent proton
 - (ii) Metastable ion
 - (iii) Radionuclidic Purity
 - (iv) Overtones bands in IR.
- (b) Name the following (any **four**) :- 4
- (i) Agent added to determine exchangeable protons in ¹H NMR Spectroscopy
 - (ii) Carrier gas used in GC-MS
 - (iii) Peak with highest intensity in MS
 - (iv) Two types of burners used in flame photometry
 - (v) Any two techniques for measurement of radioactivity.
2. (a) Compare and contrast between Atomic Absorption and Atomic Emission Spectroscopy. 4
Write a note on applications of AAS.
- (b) A compound having molecular formula C₄H₈O₃ has the following spectral 4
characteristics. Deduce its structure.
IR : 3011 cm⁻¹, 2817 cm⁻¹, 1658 cm⁻¹, 1425 cm⁻¹
¹H NMR : δ = 2.48 [q, J = 7.3 Hz, 12 squares]
 δ = 2.12 [s, 17.6 squares]
 δ = 1.07 [t, J = 7.3 Hz, 18.2 squares]
3. (a) Write a note on Q.C. of Radio Pharmaceuticals. 4
- (b) Predict the λ_{max} in UV spectrum of following compound - 4

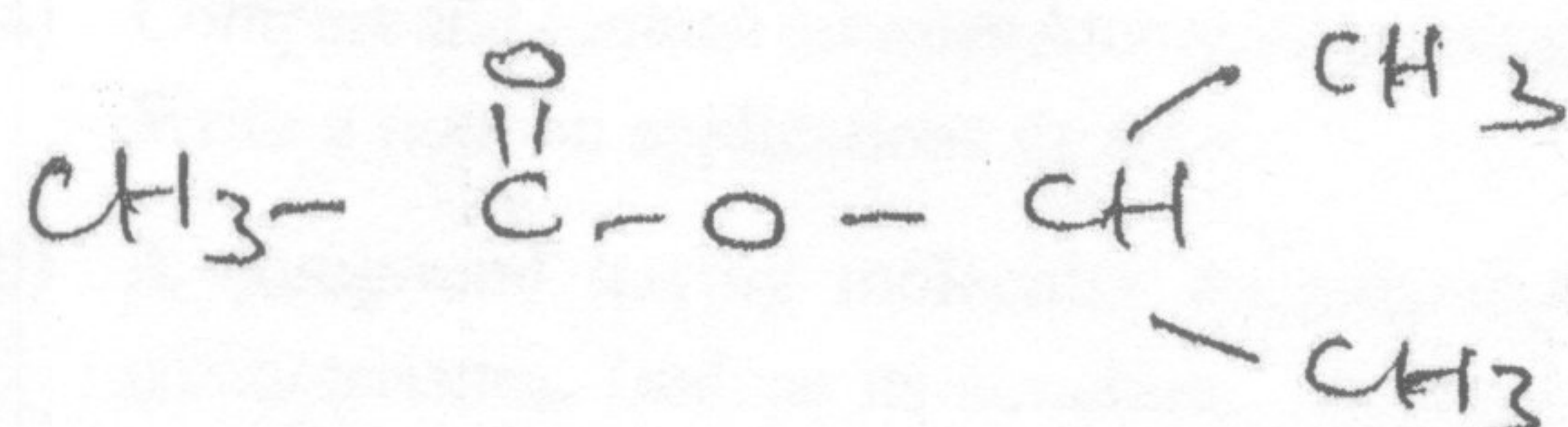
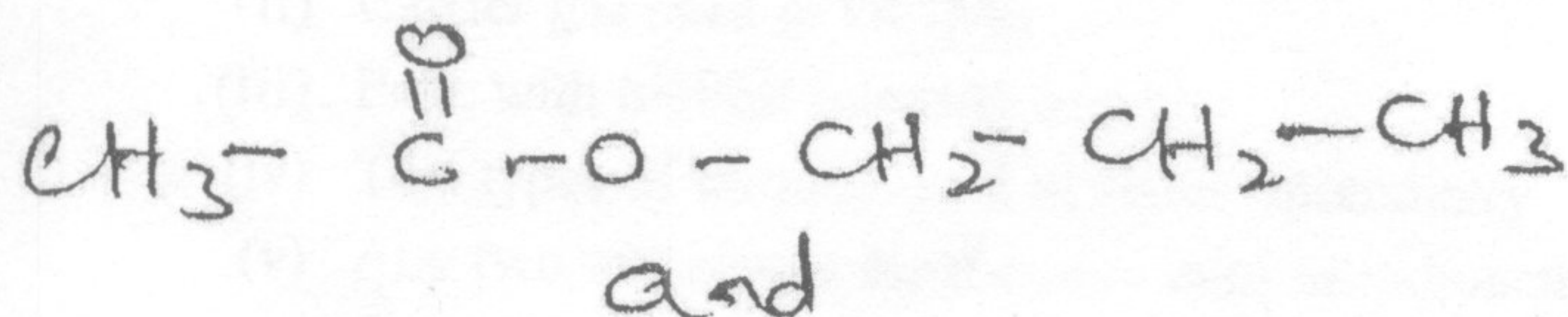


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4. (a) Write a note on principle involved in X-ray diffraction. Discuss its pharmaceutical applications. 4
- (b) A compound having molecular weight 69 exhibits the following spectral characteristics. 4
Deduce its structure.
- UV : above 210 nm
IR : 2941 cm^{-1} , 2857 cm^{-1} , 2273 cm^{-1} , 1460 cm^{-1} .
 $^1\text{H NMR}$: δ ppm 2.72 (Septet, $J = 6.7\text{ Hz}$, 4.2 squares)
1.33 (doublet, $J = 6.7\text{ Hz}$, 25.8 squares)
5. (a) List out the interfaces used in LC-MS. Discuss any one in detail. 4
- (b) Distinguish between the following pair of compounds by giving suitable spectral characteristics :- 4



6. (a) Describe the basic principle involved in proton NMR. Explain the term chemical shift and anisotropy. 4
- (b) Depict two fragmentation pathways in mass spectrum of 4
 $\text{CH}_3 - \text{CH}_2 - \text{O} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$
7. Write short notes on any two :- 8
- (a) Safety measures to be taken for radiation protection in laboratory.
- (b) Woodward Fieser rules
- (c) Applications of Mass Spectroscopy
- (d) Spin-Spin coupling.