

M.Sc. (Part-II) Semester-III (CBCS) Examination
PHARMACEUTICAL CHEMISTRY
(Modern Pharm. Analytical Tech.-I)
Paper-3SA1

Time : Three Hours]

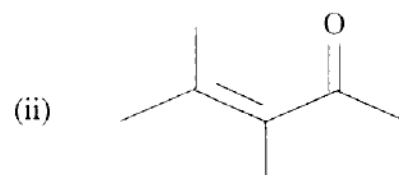
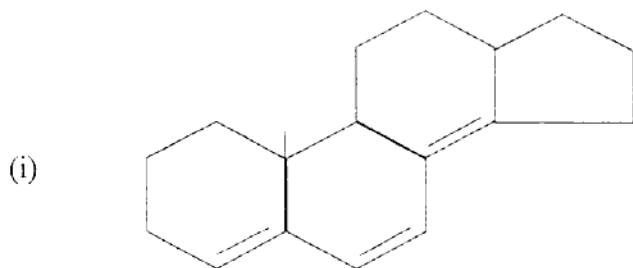
[Maximum Marks : 80

- Note : — (1) **ALL** questions are compulsory
(2) All questions carry equal marks.
(3) Draw diagrams wherever necessary.

1. (a) With a neat labelled diagram explain design and working principle of double beam UV spectrophotometer. 8
(b) Explain the terms Chromophore and Auxochromes with example. Give the applications of UV spectroscopy. 8

OR

- (p) Using Woodward-Fischer's rule, calculate wavelengths of maximum UV absorption for following compounds : 8



- (q) Explain Beer-Lambert's law and its deviations. 8
2. (a) Explain the applications of Flame emission spectroscopy in pharmacy. 8
(b) Explain instrumentation and applications of AAS. 8

OR

- (p) Explain the relationship between :
(i) Chemical structure and Fluorescent intensity. 8
(ii) pH and Fluorescent intensity.
(q) Define Quenching. Write the types of Quenching. Explain relationship between concentration and Fluorescent intensity. 8
3. (a) Explain with example how inductive effect, mesomeric effect, resonance and ring strain affect absorption of IR radiation. 8
(b) Explain the various sampling techniques in IR spectroscopy. 8

OR

- (p) Explain various applications of IR spectroscopy. 8
- (q) Discuss about ATR in detail. 8
- 4. (a) Define chemical shift. Explain shielding and deshielding of protons. 8
- (b) Answer the following
 - (i) Why C12, O16, O18, S32 do not show NMR spectra. 8
 - (ii) n-butane shows splitting signals in its NMR spectrum.

OR

- (p) Discuss the following :
 - (i) Natural abundance 8
 - (ii) COSY
- (q) Explain the instrumentation and applications of NMR spectroscopy. 8
- 5. (a) Explain the instrumentation and applications of Mass spectroscopy. 8
- (b) Explain about Ge-MS in detail. 8

OR

- (p) Discuss about chemical ionization mass spectroscopy. 8
- (q) Discuss about fragmentation process and fragmentation pattern in Mass Spectroscopy. 8