**Enrollment No: _____ Exam Seat No:_____**

# C.U.SHAH UNIVERSITY
## Summer Examination-2018

**Subject Name: Pharmaceutical Analysis-III**

**Subject Code: 4PS08PHA1** **Branch: B. Pharm**

**Semester: 8** **Date: 01/05/2018** **Time: 02:30 To05:30** **Marks: 70**

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

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**Q-1 Attempt the following questions** **(14)**

a) Chromatography
b) Accuracy
c) Phosphorescence
d) Robustness
e) Fluorescence
f) Ruggedness
g) Calibration
h) Chemical Shift in NMR
i) Validation
j) Mass to charge ratio in Mass spectroscopy
k) LOD
l) Spectroscopy
m) LOQ
n) Coupling constant

**Attempt any four questions from Q-2 to Q-8**

**Q-2** a) Derive beer and lambert's law for spectroscopy. (5)

b) Draw schematic diagram of Double beam UV Spectrophotometer. Explain any two detectors of UV in Detail. (5)

c) Explain principle and application of ELISA in detail. (4)

**Q-3** a) Explain Jablonski diagram in detail. (7)

b) Explain instrumentation of fluorescence spectroscopy in detail with schematic diagram. (7)

**Q-4** a) Explain various solid, liquid and gaseous sample handling technique for IR spectroscopy. (7)

b) Explain various types of molecular vibrations and theory of IR spectroscopy in brief. (7)

**Q-5** a) Draw a schematic diagram of flame photometer. Explain burners in detail. (7)

b) Differentiate atomic absorption and atomic emission spectroscopy. Explain interferences in atomic spectroscopy in brief. (7)

**Q-6** a) Enumerate various hard and soft ionization techniques of MS, explain any two in detail. (7)

b) How various ions are separated in MS? Explain any one "Separator" in detail. (7)

**Q-7** a) Explain principle of NMR in detail with relaxation process. (7)

b) Which kind of samples can't analyzed by proton NMR and by C13 NMR? Give example of each. Explain factors affecting spin spin coupling in detail. (7)

**Q-8** a) Enumerate various detectors of Gas chromatography, explain any two in detail. (7)

b) Explain principle of HPLC. Draw a schematic diagram of HPLC-MS. (7)