

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End semester Examination, December 2022

Course: Instrumental Methods of Analysis

Program: B.Pharm

Course Code: BP701T

Instructions: Read the Question Paper Carefully.

Semester: VII

Time 03 hr

Max. Marks: 75

SECTION A

S. No.	CO	Multiple Choice Questions/objective/one line	Marks
Q1			20
1	CO2	Write the Beer Lambert Law	1
2	CO1	Lambda max of 1,3 butadiene is ____ nm a. 254 b. 214 c. 219 d. 234	1
3	CO4	Name a universal detector used in HPLC	1
4	CO4	What is reverse phase chromatography	1
5	CO4	What is a guard column	1
6	CO1	What is the range of Vacuum UV a. 200-300nm b. 10-200nm c. 300-400nm d. 400-700nm	1
7	CO3	Limitations of Gas chromatography is that it can not be used for a. Non Volatile compounds b. Thermolabile compounds c. Compounds with high boiling points d. All	1
8	CO2	What do you mean by Phosphorescence	1
9	CO5	Anionic interferences are observed in flame emission spectroscopy but not in atomic adsorption spectroscopy. True/ False	1
10	CO5	Which of the following is a type of emission spectroscopy a. UV spectroscopy b. Fluorimetry c. AAS d. IR spectroscopy	1
11	CO5	Give one application of turbidometric analysis	1
12	CO1	Which of the flowing is an important condition for a compound to be IR active a. Conjugation b. Dipole moment	1

		c. Unsaturation d. Volatility	
13	CO1	At what frequency (cm^{-1}) ketones show a strong band in IR a. 1550 b. 1660 c. 1720 d. 2200	1
14	CO3	Principle of separation in paper chromatography is _____	1
15	CO4	SCOT and WCOT are columns used in which type of chromatography techniques	1
16	CO3	Name any two gases used in Gas chromatography	1
17	CO1	Write one limitation of Beers law	1
18	CO1	If transmittance is 20%. What would be the reading of absorbance in UV spectroscopy	1
19	CO3	Which stationary phase is used in ion exchange chromatography	1
20	CO3	Name a derivatizing reagent for amino acids used in TLC	1
SECTION B			
Q2		Answer any two	20
1	CO1	Draw well labelled Jablonski diagram. Discuss the advantage of spectrofluorimetry over UV spectroscopy	10
2	CO4	Describe the following terms in a. Lambda max b. Quenching c. Theoretical Plates d. Resolution	10
3	CO2	Write the frequency range of different bonds present in Butanoic acid	10
SECTION C			
Answer any seven			35
1	CO2	What is difference between UV and PDA detector used in HPLC	5
2	CO2	Why is KBr used to prepare samples in IR spectroscopy	5
3	CO2	Write about any two types of interferences in flame spectroscopy	5
4	CO4	Discuss different parameters of Van Deemter Equation	5
5	CO3	What do you mean by 2D thin layer chromatography	5
6	CO3	Define the following terms a. Column Bleed b. Baseline shift c.	5
7	CO4	Discuss the detectors used in Gas chromatography	5
8	CO5	Write a short note on capillary electrophoresis	5
9	CO4	What is the stationary phase used in gel permeation chromatography. Also give the application of gel permeation chromatography.	5