

Model Question Paper-1 with effect from 2019-20 (CBCS Scheme)

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Fourth Semester B.E. Degree Examination

Scientific and analytical Instrumentation (18EI46)

TIME: 03 Hours

Max. Marks: 100

- Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.
 02. .
 03. .

Module -1

Q.01	a	With neat diagram explain review of important considerations in Analytical method	08
	b	List and explain basic functions of Instrumentation	05
	c	Brief the concept fundamental laws of photometry, Derive its equation	7
OR			
Q.02	a	With neat sketch explain Golay Pneumatic cell.	7
	b	With neat diagram explain Littrow mount arrangement of a monochromator.	5
	c	Explain the working of typical fourier Transform spectrometer with neat sketches.	8
OR			
Module-2			
Q. 03	a	With a neat diagram explain the working of Photomultiplier tube	8
	b	With neat diagram explain the various arrangement of the monochromators i) Ebert mounting ii) Czerny tuner mounting	12
OR			
Q.04	a	With neat diagram explain the working of Interference filter	6
	b	Write a note of instruments for absorption photometry	6
	c	With typical optical arrangement explain the working of single beam Instruments	8
OR			
Module-3			
Q. 05	a	With a neat diagram explain the working of flame atomization process for salt MX.	8
	b	With neat diagram explain the process of Nebulization.	6
	c	Explain the various steps involved in converting the analyte in to the free atoms using electro thermal atomization process	6
OR			
Q. 06	a	With a neat diagram demonstrate the arrangement of Heat Graphite Atomizer.	6
	b	Draught a neat arrangement of Atomic Fluorescence Spectrometry (AFS) and explain	7

		its working	
	c	With neat diagram explain the working of Flame Absorption Spectrometry (FAS)	7
		Module-4	
Q. 07	a	Define Chromatography. With neat block diagram explain the working of Gas Chromatography	8
	b	Draw a neat schematic diagram of oven temperature controller used in gas chromatography and explain its working	6
	c	With a neat diagram explain the working of the detector Differential flame ionisation detector	6
		OR	
Q. 08	a	With a neat diagram explain the working of Deflection type of Differential Refractometer.	8
	b	With a neat diagram explain the working of Reciprocating Piston pumps	5
	c	With a neat diagram explain the working of Ultraviolet- Visible photometers and Spectrometers	7
		Module-5	
Q. 09	a	With a neat diagram explain the electrode used to measure Blood pCO ₂ .	6
	b	With a neat block diagram of blood gas analyzer, explain its working	8
	c	With a neat diagram explain blood pH electrode.	6
		OR	
Q. 10	a	List and explain types and concentration of various gas pollutants.	5
	b	With a neat diagram of Non-Dispersive Infrared Analyzer explain the measurement of Carbon Monoxide in air	7
	c	Explain the working of measurement of total oxidants in air with a neat diagram.	8