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CAH 553

IV Semester M.Sc. Examination, September/October 2022
(CBCS : 2016 – 17 Syllabus)
ANALYTICAL CHEMISTRY
Process Analytical Chemistry

Time : 3 Hours

Max. Marks : 70

Note : i) Answer Part – **A** and **any four** questions from Part – **B**.
ii) Figures to the **right** indicate marks.

PART – A

Answer **all** the following questions :

(9×2=18)

1. a) Name the types of automated techniques.
- b) Write the merits and limitations of automation in industry.
- c) Write the applications of BUN analyzers.
- d) State the principles of flow injection analysis.
- e) Comment on film structures in automated analysis.
- f) Mention the applications of flow injection measurements.
- g) Comment on safe storage and use of hazardous chemicals in Lab.
- h) Write the precautions to be taken while handling explosive/hazardous chemicals.
- i) List the difference between ISO 9000 and ISO 14000 regulations.

PART – B

Answer **any four full** questions :

(4×13=52)

2. a) Explain the basic concept of glucose analyzer with a neat diagram.
- b) Write a note on working methodology of COD analyzer.
- c) How do you estimate the ammonia using automatic analyser ? Write the relevant chemical transformations with chemical equations. **(5+4+4)**

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3. a) Explain the working methodology of centrifugal fast scan analyser with a neat sketch.
- b) Explain the differences between discrete and non-discrete methods of automated analysis.
- c) Enumerate the factors affecting the dispersion. **(5+4+4)**
4. a) Explain the principle and instrumentation of flow injection analysis. Mention any two applications.
- b) Write a note on automated analysis based on multilayer films.
- c) Mention advantages of flow injection measurements over continuous flow measurements. **(5+4+4)**
5. a) Describe the importance and functions of quality control pharmaceutical industry.
- b) Describe any two methods of sampling of toxic chemicals with examples.
- c) Briefly explain the laws related to quality control. **(5+4+4)**
6. a) Differentiate between single and multi-channel auto analysers in industry. Mention their relative merits and limitations.
- b) What is the difference between segmented and non-segmented flow methods ? Explain.
- c) Write on the theoretical considerations and applications of CFA in iodometry. **(5+4+4)**
7. a) Briefly explain about the recycling and reuse of laboratory chemicals.
- b) Explain the good laboratory practices highlighting :
- i) Safe working procedure.
- ii) Emergency procedure and first aid.
- c) Comment on :
- i) Quality acceptance.
- ii) Cost aspects of quality decision in Industry. **(5+4+4)**
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