

GANPAT UNIVERSITY
M. Sc. Third Semester Examination (C.B.C.S) Nov-Dec, 2014
Subject: Chemistry (Analytical)
Paper: CHA 301 AAT Advanced Instrumental Analytical Techniques

Time: 3 hours

Total Marks: 70

Instructions:

1. Attempt any three questions from each section, of which question No. 4 and 8 are compulsory
 2. Answer each section in separate answer book.
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SECTION – I

- Q: 1 a) Discuss basic principle, types, stationary phases and applications of Gas Chromatography (7)
b) Describe various detectors of GC (7)
- Q: 2 a) Write a note on Ion Chromatography (7)
b) Discuss principle, instrumentation and applications of Size Exclusion Chromatography (7)
- Q: 3 a) Discuss various types of HPLC techniques. Enlist detectors of HPLC (7)
b) Write a detail note on HPTLC (7)
- Q: 4 Answer the followings (7)
- a) Give the name of hyphenated techniques of GC
 - b) Define Ion Pair Chromatography
 - c) Name various ion pairing reagents
 - d) Enlist components of HPLC Instrumentation
 - e) Define and give equation of Capacity factor
 - f) Define and give equation of Resolution
 - g) Enlist applications of HPLC

SECTION – II

- Q: 5 a) Write a detail note on Paper electrophoresis (7)
b) Discuss principle, instrumentation and applications of supercritical fluid chromatography (7)
- Q: 6 a) Discuss principle, instruments and application of X-ray diffraction method (7)
b) Write a detail note on Electron Spin Resonance Spectroscopy (7)
- Q: 7 a) Discuss principle, instrumentation and applications of DSC (7)
b) Write a detail note on LASER (7)
- Q: 8 Answer the followings (7)
- a) Enlist various electrophoretic techniques
 - b) Define and give examples of supercritical fluid
 - c) Enlist detectors used in X-ray methods
 - d) Enlist various thermal methods of analysis
 - e) Give name of various enzyme immuno assay methods
 - f) Name components of instrumentation of radio immuno assay (RIA) technique
 - g) Give full name: SDS-PAGE and EMIT

----- END OF PAPER-----

GANPAT UNIVERSITY

M.Sc. Third Semester Examination (C.B.C.S) Nov-Dec, 2014

Subject: Chemistry (Analytical Chemistry)

Paper: CHA 302 FDC: Food, Drug & Cosmetic Analysis

Total Marks: 70

Time: 3 hours

Instructions:

1. Attempt any three questions from each section, of which question No. 4 and 8 are compulsory
2. Answer each section in separate answer book.

SECTION: I

- Q-1 a. Discuss general constituents of food and their importance 07
b. Discuss the role, sources and deficiency of vitamin 07
- Q-2 Write a note on standardization of shampoo, cream and face powder 14
- Q-3 Discuss in detail limit test for chloride, sulphat and iron 14
- Q-4 Answer the following in brief 07
- a. What is the function of benzoic acid in food?
 - b. Give name of any two antioxidant used in food
 - c. What is cosmetic?
 - d. Name any four cosmetic products used for nails
 - e. What is food adulteration?
 - f. Name any four dosage forms of drugs
 - g. What is biological assay?

SECTION: II

- Q-5 a. Discuss ICH guidelines for stability of new drug substances 07
b. Discuss various methods of stabilization 07
- Q-6 a. Discuss official assay procedure for any selected category of medicinal compounds 07
b. Write a detail note on analytical method validation 07
- Q-7 Write a note on followings
a. Determination of volatile oil content as per WHO guidelines 07
b. Determination of bitterness value as per WHO guidelines 07
- Q-8 Answer the following in brief 07
- a. Define stomatal index
 - b. Define ash value
 - c. Define stability
 - d. Write full form of ICH and USFDA
 - e. Enlist factors affecting stability of formulations
 - f. Define precision
 - g. Define biochemical analysis of drugs

-----END OF PAPER-----

Seat No. _____

GANPAT UNIVERSITY

M. Sc. (Analytical) Chemistry Third Semester Examination (C.B.C S.)

Nov-Dec 2014

Subject Code and Name: CHA 303 EIA Environmental and Industrial Material Analysis

Time: 3 Hours

Max. Marks: 70

Instructions:

- 1) Attempt any three questions from each section, of which question No. 4 and 8 are compulsory.
- 2) Answer and tie both sections separately.

SECTION-I

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| Q-1 | Write a detail note on determination of antiperspirants and deodorants. | 14 |
| Q-2 | Write a note on analysis of nitrogen, phosphorus and potassium in fertilizers. | 14 |
| Q-3 | Explain analysis of soaps and detergents. | 14 |
| Q-4 | Answer the following questions in one or two sentence(s) | 07 |
| | a. What are pigments? | |
| | b. Define sampling. | |
| | c. What is fertilizer? | |
| | d. Kjeldahl flask method is used for determination of _____ in fertilizer. | |
| | e. Define antiperspirants. | |
| | f. Define soap. | |
| | g. What is environmental analysis? | |

SECTION-II

- Q-5 Write a note on biological waste water treatment. 15
- Q-6 Discuss Sludge analysis and methods of disposal. 10
- Q-7 Write a note on analytical methods for determination of soil pollutants. 10
- Q-8 Answer the following questions in one or two sentence(s)
- What is COD?
 - Write any two factors affecting soil analysis.
 - Define flash point.
 - What is internal standard?
 - What is gas chromatography?
 - Give examples of any two petroleum products.
 - Enumerate soil pollutants.

END OF PAPER

GANPAT UNIVERSITY
M.Sc. Third Semester Examination (C.B.C.S) Nov-Dec, 2014
Subject: Research Methodology (Organic /Analytical)
Paper: CIA 304 RMD

Time: 3 hours

Total Marks: 70

Instructions:

1. Attempt any three questions from each section, of which question No. 4 and 8 are compulsory
2. Answer each section in separate answer book.

SECTION: I

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| Q-1 | a) | Write a detailed note on various types of research. | 07 |
| | b) | Discuss the importance of literature survey in research with respect to patent. | 07 |
| Q-2 | a) | How will you write the research report? | 07 |
| | b) | Write a note on analysis of data. | 07 |
| Q-3 | a) | Discuss various types of paragraphs used in documentation. | 07 |
| | b) | Write a note on use of tables and figures in documentation. | 07 |
| Q-4 | a) | Give objectives of research. | 07 |
| | b) | What is the full form of MEDLINE and NLM? | |
| | c) | What type of motivations we get from research? | |
| | d) | Enlist the tools of qualitative research. | |
| | e) | Enlist the most useful list of books for literature review. | |
| | f) | "There is" or "It is" is example of | |
| | g) | "We don't have nothing." is example of | |

SECTION: II

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|-----|----|---|----|
| Q-5 | | Enlist various types of research grant from DST. Explain any two research grant from DST in detail. | 14 |
| Q-6 | a) | Give name of any five research journals related to chemistry. Write a note on Abstract and Conclusion section of research report. | 07 |
| | b) | Describe barriers of communication skills. | 07 |
| Q-7 | a) | Discuss various activities performed in industry institute interaction. | 07 |
| | b) | Write on key determinants of initial project cost. | 07 |
| Q-8 | a) | The most important component of non-verbal communication is | |
| | b) | How interaction between industry and academia be achieved? | |
| | c) | The first indicator in project cost analysis is | |
| | d) | What are the full form of AICTE and ICMR? | |
| | e) | Enlist different types of charts available in MS Excel. | |
| | f) | Give examples of recurring and non-recurring expenses. | |
| | g) | Enlist any four international grant/scholarship for research. | |

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