

2019

B.Sc.

4th Semester Examination
CHEMISTRY (Honours)

Paper - SEC-2T

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

(Basic Analytical Chemistry)

Full Marks : 25

Time : 2 Hours

Group - A

1. Answer any *three* questions : 3×2=6
- (a) What is mono sodium glutamate ? State its uses.
 - (b) What type of materials are present in a soil ?
 - (c) Distinguish between accuracy and precision.
 - (d) What is meant by R_f value ?
 - (e) What are chromatoplates in TLC ?

[Turn Over]

Group - B

2. Answer any *two* questions. $2 \times 5 = 10$
- (a) "Sample Size" is playing a vital role in detecting the systematic error"—Explain. $3+2$
- (b) Express the result with significant figures :
 $25.4623 + 0.620 - 8.14302$
3. (a) What are the functions of food preservatives ?
- (b) Name the type of foods preserved by Sugar, Salt and Oil. $2+3$
4. (a) 'TLC is superior to other type of chromatographic methods'—Explain.
- (b) Is purified water the same as distilled water ?
- (c) What is Ion exchange Capacity ? $2+2+1$

Group - C

5. Answer any *one* question. $2 \times = 10$
- (a) Why are the Magnesium 'trisilicate and Amylacetate used in cosmetics ? $2+2+2+3$
- (b) What happens if the pH of the soil is too low or high ?
- (c) Suggest reason for the observation that species are eluted in the order of decreasing molecular size.
- (d) Explain the separation of Lanthanides by ion exchange method.

6. (a) 'High precision of the data does not warrant high accuracy of the result'—Explain.
2+3+2+2
- (b) Name the raw materials required for manufacture of the following —
- (i) Talcum powder.
- (ii) Lip stick
- (c) What is Reversed phase partition TLC ?
- (d) What is the principles of paper chromatography ?
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(Chemistry of Cosmetics and Perfumes)

Full Marks : 25

Time : 2 Hours

1. Answer any *three* (03) questions out of *five* (05) questions 02 marks of each. 3×2=6
- (a) Write down the use of Suntan lotion.
- (b) What is the difference between tooth paste and tooth powder ? 2
- (c) Write down the ingredients present in face powder. 2
- (d) What is cream ? How many types of creams are found in the market ? 2

[Turn Over]

- (e) What is talcum powder ? Write down the use of talcum powder. 2
2. Answer any two (02) questions out of three (03) questions carrying 05 marks of each. $2 \times 5 = 10$
- (a) What is the importance of Anti-Wrinkled cream ? Write the composition of Anti Wrinkled cream. 3+2
- (b) What are the beneficial effects of Shampoo ? Explain the composition of Egg Shampoo. 3+2
- (c) Describe the composition and functions of liquid foundation. 5
3. Answer any *one* (01) question out of *two* (02) questions carrying 09 marks of each. $1 \times 9 = 9$
- (a) What are the functions of lipstick ? Write the composition of lipstick. Describe the functions and compositions of Eye shadow. 2+2+5
- (b) What do you understand by the term Anti-perspirant and deodorant ? Explain the composition of liquid Anti-perspirant. Which shampoo will you suggest for oily hair ? 4+3+2

(Pesticide Chemistry)

Full Marks : 40

Time : 2 Hours

Part - IAnswer any *five* questions.

5×2=10

1. (a) What is pesticides ?
- (b) Give examples of one natural and one synthetic pesticides.
- (c) Write two benefits of pesticides.
- (d) Write two adverse effects of pesticides.
- (e) Write down the full form of DDT.
- (f) What is carbofuran ?
- (g) Write the structure of parathion.
- (h) What do you mean by biopesticides ?

Part - IIAnswer any *four* questions.

4×5=20

2. (a) What are the changing concepts of pesticides ?
5
- (b) Write the preparation and use of DDT. 5
- (c) Write the synthesis/technical manufacture of *carbofuran* and mention its uses. 5

[Turn Over]

- (d) Explain the structure activity relationship in pesticides chemistry ? 5
- (e) What is malathion ? Write its synthesis and use. 5
- (f) Write down the classification of pesticides with example in each type. 5

Part - III

Answer any *one* question. $1 \times 10 = 10$

3. Write down the preparation/synthesis (with flow chart), uses and environmental effect of (a) Butachlor and (b) Chloranil. 5+5
4. Write down the preparation/synthesis (with flow chart) uses, and environmental effect of (a) Alachlor and (b) Gammexene. 5+5

(Fuel Chemistry)

Full Marks : 40

Time : 2 Hours

Group - A

1. Answer any *five* questions. $5 \times 2 = 10$
- (a) What is bio-diesel ?
- (b) Define flash point and ignition temperature ?

- (c) Write down the composition of water gas.
- (d) What is power alcohol and what is its use ?
- (e) Define cloud point of lubricating oil.
- (f) Mention use of Vinylacetate.
- (g) What are the constituents of coal as determined by proximate analysis ?
- (h) Define octane number and its significance.

Group - B

Answer any *four* questions. 4×5=20

- 2. What do you understand by HTC Δ LTC of coal ?
Write down the usefulness of each process. 3+2
- 3. (a) What are the characteristics of lubricants ? 3
(b) Give example and use of two solid lubricants ?
2
- 4. Write short notes on renewable sources of energy ?
5
- 5. (a) What is biofuel ? 2
(b) Discuss in brief about "gobar gas as biogas".
3
- 6. (a) What is CNG and what is its composition ? 2
(b) What are the advantages of CNG over other fuels ?
3

[Turn Over]

7. (a) What is the calorific value of a fuel ? 2
(b) Distinguish between GCV & NCV. 3

Group - C

Answer any *one* question. 1×10=20

8. (a) What is petroleum crude ? 1
(b) Write down the name and composition of various fractions of fractional distillation of crude petroleum. 4
(c) What are the benefits of coal gasification ? 2
(d) How can biofuel be an ideal substitute of fossil fuel and help in solving global energy crisis. 3
9. (a) How to prepare producer gas and what is its constituents. 2
(b) What are the advantages of synthetic lubricant over natural lubricants ? 2
(c) What is LPG and CNG ? 2
(d) Explain the significance of ultimate analysis of coal. 2
(e) What is knocking and antiknocking ? 2
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