

CARMEL COLLEGE OF ARTS, SCIENCE & COMMERCE FOR WOMEN, NUVEM
SEMESTER END EXAMINATION, NOVEMBER, 2022
SEMESTER III of B.Sc (SEC)
CHS101 NATURAL RESOURCES AND ANALYSIS

Time: 2hrs

Date: 28/11/2022

Total Marks:60

Q.1. Answer ANY TEN of the following:

(2x10 = 20marks)

- i) Define Gross Calorific Value and Net Calorific Value.
- ii) Explain briefly classification of fuels.
- iii) What is Solvent Refining.
- iv) Write the composition of Coal gas.
- v) What is Coal Tar? Which are the different fractions obtained in the distillation of coal tar.
- vi) What are the advantages of using Biogas?
- vii) Define Knocking.
- viii) Write a note on LPG.
- ix) Differentiate between class I and class II preservatives? Give one example each.
- x) What is food processing and why it is done?
- xi) Name two indicators used in complexometric titrations and the colour change involved.
- xii) What are macronutrients and micronutrients. Give examples of each.
- xiii) Explain Coagulation and Sedimentation process in water treatment plant.
- xiv) What is Eutrophication?

Q.2.A) i) Coke obtained from HTC has high market value. Why?

(3)

ii) What are Synthetic Fuels?

(2)

OR

Q.2.A) iii) With a neat labelled diagram explain the fractional distillation process.

(3)

iv) Write a note on Anthracite coal.

(2)

Q.2.B) i) What is Coal Liquefaction? Explain in brief the direct and indirect route involved.

(3)

ii) Among Thermal and Catalytic cracking which one is more preferred? Write any two advantages of the preferred method.

(2)

Q.3.A) i) What is Food Adulteration? Explain 3 categories of it.

(3)

ii) Differentiate between Carbonate hardness and Non-carbonate hardness.

(2)

OR

Q.3.A) iii) Discuss any 3 adulterants that are added for damage.

(3)

iv) Why do we add buffer for complexometric titrations.

(2)

Q.3.B) i) What are the different components of soil? Explain in brief each of the component.

(3)

Q.4.A) i) Explain the 3-day BOD test. (3)

ii) State the factors which affect the formation of the soil. (2)

OR

Q.4.A) iii) A 25mL of sewage water sample was refluxed with 10mL of 0.25N $K_2Cr_2O_7$ solution. The untreated dichromate requires 6.5mL of 0.1N FAS solution. 10mL of dichromate solution and 25mL distilled water, under the same condition as sample required 27mL of 0.1N FAS solution. Calculate the COD of sewage. (3)

iv) State the uses of the following Petrochemicals: (2)

a) Propylene oxide

b) Toluene

Q.4.B) i) What are chelate compounds? Give one example of ligand forming chelate compound and their application in soil analysis. (3)

ii) What are the essential requirements for drinking water. (2)

Q.5.A) i) Suggest a nutritional diet plan for 20 years old girl with low haemoglobin count. (3)

ii) Define Water pollution. (2)

OR

Q.5.A) iii) With the help of schematic diagram, explain the process of Steam Hydrogasification. (3)

iv) Give the boiling point, composition in terms of hydrocarbon and uses of following fractions: (2)

a) Petrol

b) Paraffin Wax

Q.5.B) i) How does Industrial waste and Agricultural waste contribute to soil pollution? (3)

ii) How will you detect: (2)

a) clay in coffee powder

b) lead chromate in pulses

*****ALL THE BEST*****