STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted from the academic year 2024 – 2025)

B.Sc. DEGREE EXAMINATION, APRIL 2026
HOME SCIENCE – FOOD SCIENCE AND NUTRITION
SECOND SEMESTER

COURSE : ALLIED CORE
PAPER : FUNDAMENTALS OF CHEMISTRY- II
SUBJECT CODE : 24FS/AC/FC24
TIME : 3 HOURS MAX. MARKS: 100

Q. No.	**SECTION A** **Answer all the questions in 50 words. (10 x 2 = 20)**	CO	KL
1.	State the Beer–Lambert law.	1	1
2.	List out the applications of HPLC in the food industry.	1	1
3.	Differentiate between the stationary and mobile phases.	1	1
4.	Define R_f value in paper chromatography.	1	1
5.	What is the principle of Abbe's refractometer?	1	1
6.	What is the function of the flame in flame photometry?	1	1
7.	Give the significance of moisture content in food analysis.	1	1
8.	How are thermal methods used in food analysis?	1	1
9.	Write the role of water in food processing.	1	1
10.	Why is the isolation of synthetic food colours necessary in food analysis?	1	1
Q. No.	**SECTION B** **Answer any TWO of the following with 500 words. (2 x 10 = 20)**	**CO**	**KL**
11.	Explain the instrumentation and working of UV–Visible spectrophotometer with a neat block diagram.	2	2
12.	Describe the separation of carotenoids using column chromatography.	2	2
13.	Discuss the principle and estimation of riboflavin using fluorimetry.	2	2
14.	Explain the importance of nutrient analysis in foods.	2	2
Q. No.	**SECTION C** **Answer any TWO of the following with 500 words. (2 x 10 = 20)**	**CO**	**KL**
15.	Discuss the colourimetric estimation of cholesterol in food samples.	3	3
16.	Discuss the instrumentation and applications of Gas Chromatography.	3	3
17.	Explain the principle and instrumentation of a flame photometer with a neat diagram.	3	3
18.	Describe the isolation and identification of synthetic food colours in foods and beverages.	3	3
Q. No.	**SECTION D** **Answer any ONE of the following with 1000 words. (1 x 20 = 20)**	**CO**	**KL**
19.	i) Assess the DNS method for the estimation of reducing sugars. (10) ii) Assess the amount of sodium present in food samples using flame photometry. (10)	4	4
20.	Analyse the methods used for the determination of moisture, ash and fibre in food analysis.	4	4
21.	i) Discuss the procedure for the determination of salt content in brine used in canned products. (10) ii) Describe the importance of water quality monitoring in food industries. (10)	4	4

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Q. No.	SECTION E Answer any ONE of the following with 1000 words. (1 x 20 = 20)	CO	KL
22.	i) Explain the separation and identification of amino acids using paper chromatography and discuss the factors affecting the separation. **(12 marks)** ii) Compare the different chromatography techniques in terms of their principles and applications in food analysis. **(8 marks)**	5	5
23	i) Analyse the principle and procedure of the colourimetric estimation of iron and state its significance in food analysis. **(12 marks)** ii) Describe the estimation of sodium by flame photometry. **(8 marks)**	5	5
24.	i) Analyse the principles of thermal methods and discuss their role in determining food composition and stability. **(10 marks)** ii) Discuss the determination of total carbohydrates in foods using Anthrone method. **(10 marks)**	5	5

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