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St Aloysius College (Autonomous)

Mangaluru

Semester II – P.G. Examination

May - 2024

OPEN ELECTIVE (UNDER CBCS)

Travel Journalism

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE - 575 004

Time: 3 hrs.

Max Marks: 70

SECTION - A

Answer any THREE of the following:

(3X15=45)

1. Define the role of travel journalism in shaping cultural perceptions and fostering cross-cultural understanding.
2. Discuss William Dalrymple's contributions to travel literature and his unique style of storytelling.
3. What are some recent trends you've observed in the tourism industry in India, and how do they impact travel experiences?
4. Analyze the storytelling techniques employed in photo essays within the context of travel and food writing.
5. Analyze the relationship between travel journalism and other forms of media, such as literature, film, and photography, in shaping cultural narratives and identities.

SECTION – B

Write short notes on any FIVE of the following:

(5X5=25)

- a) What Impact of photography on the portrayal of travel experiences
- b) Non Fiction Writing
- c) Digital Transformation
- d) Outlook Traveller
- e) Smartphone Photography in Travel Journalism
- f) Photo Essay
- g) Gimbal

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St Aloysius College (Autonomous), Mangaluru

Semester II – P.G. Examination

May -2024

OPEN ELECTIVE (UNDER CBCS)

BANKING AND FINANCE

Max. Marks: 70

Time: 3 Hours

SECTION - A

Answer any TWO questions of the following: (2x15=30)

1. Evaluate the effectiveness of development banks in reducing income inequality within a country, considering various factors such as loan accessibility, interest rates, and targeted initiatives.
2. Assess the effectiveness of factoring as a tool for improving liquidity and reducing credit risk for small and medium-sized enterprises (SMEs).
3. Critically evaluate the impact of non-performing assets (NPAs) on commercial banks willingness to extend rural credit.

SECTION - B

Answer any FOUR questions of the following: (4x6=24)

4. How does Universal Banking contribute to financial inclusion and economic development? Provide examples to support your answer.
5. Compare and contrast the various types of mutual funds, including equity funds, bond funds, and money market funds, in terms of their risk-return characteristics and investment strategies.
6. Evaluate the effectiveness of RBI's regulatory measures in promoting responsible lending practices among banks.
7. Critically assess the effectiveness of New Developmental Financial Institutions in addressing the financial needs of marginalized sectors or regions in India, proposing potential areas of improvement.
8. Given a scenario involving a business needs short-term financing, recommend the most suitable type of bill discounting facility and justify your choice.
9. Compare and contrast hire purchase and leasing, considering their advantages and disadvantages.

SECTION - C

Answer any FOUR questions of the following: (4x4=16)

10. Explain how microfinance institutions provide financial services to low-income individuals and households.
11. What are the consequences of rural indebtedness in India?
12. List the basic steps involved in a forfeiting transaction.
13. Explain the various services offered by merchant banking firms.
14. Explain the evolution of development banking in India.
15. Define commercial banking. Explain its subsidiary function.

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**St Aloysius College (Autonomous)
Mangaluru**

Semester II – P.G. Examination

May – 2024

Open Elective (Under CBCS)

READING LITERATURE

Time: 3 hrs.

Max Marks: 70

UNIT- I

Answer any ONE of the following in about 300 words: (15)

1. Discuss the significance of the title of the poem "Still I Rise" and its relation to the central themes or motifs.
2. How does the theme of isolation and confinement manifest in the short story "The Tell- Tale Heart"? Discuss its importance in Gothic literature.
3. What is literature? How do literary scholars define and approach the concept of meaning in literature?

UNIT-II

Answer any ONE of the following in about 300 words: (15)

1. How does Maya Angelou employ the theme of resilience in the poem "Still I Rise"?
2. How does Ezekiel portray the theme of ambition in "Enterprise"?
3. Analyse how the poem's speaker overcomes adversity and oppression, and comment on the significance of the repeated refrain "Still I Rise" in conveying the indomitable spirit of the African American community.

UNIT-III

Answer any ONE of the following in about 300 words: (15)

1. Analyse the significance of the title, "The Tell-Tale Heart." What does it suggest about the psychological and moral aspects of the story?
2. Discuss the theme of identity and its complexities in "Desiree's Baby" by Kate Chopin.
3. How does the character of Madame Loisel evolve throughout the story, and what motivates her action in the short story "The Diamond Necklace"?

UNIT-IV

Answer any ONE of the following in about 300 words: (15)

1. Discuss the historical context of "Trifles" and its relevance to early 20th century feminist movement.
2. How does the protagonist in "Broken Image" struggle with her dual identity? How does it reflect broader societal issues?
3. Compare and contrast Mrs. Hale and Mrs. Peters in "Trifles" by Susan Glaspell.

UNIT-V

Write short notes on any TWO of the following: (2x5=10)

1. The title "Desiree's Baby"
2. The Necklace
3. "Anecdote of the Jar"
4. Black American Movement

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St Aloysius College (Autonomous)

Mangaluru

Semester II- P.G. Examination

Open Elective (Under CBCS)

May - 2024

INIDAN SOCIAL PROBLEMS AND INTERVENTIONS

Time: 3 hrs.

Max Marks: 70

SECTION – A

(3x10=30)

- Answer any **THREE** questions.
- Each question carries **TEN** marks.
- Answer should not exceed **400** words.

- Explain the social problems faced by children in India and its impact on society.
- Elaborate on Rehabilitation services available for women in distress and violence.
- Write a note on the following.
 - Suicide among youth
 - Unemployment among youth
- Discuss the characteristics of Unorganized Labour.
- Describe "The Child Labour (Prohibition and Regulation) Amendment Act, 2016".

SECTION – B

(2x20=40)

- Answer any **TWO** questions.
- Each question carries **TWENTY** marks.
- Answer should not exceed **800** words.

- Discuss Contemporary Social Problems in India and its impact on Societal Development.
- Write the Causes and Impact of violence against women.
- Discuss the problems faced by youth and enumerate the governmental and non-governmental initiatives for youth welfare.
- Discuss the issues and challenges associated with the unorganized sector and Underline the recent initiatives taken by the government.

St Aloysius College (Autonomous)**Mangaluru****Semester II – P.G. Examination
May - 2024****Open Elective (Under CBCS)****PERSONAL FINANCE AND INVESTMENT PLANNING**

Time: 3 hrs.

Max Marks: 70

SECTION – A**Answer any FIVE questions.****(5×4=20)**

1. Distinguish between Investment and Speculation.
2. Examine the role of depository services in Stock Market.
3. Compare Open-Ended and Closed-Ended Scheme.
4. Analyse various tax saving avenues for an investor
5. Explain the value-added services offered by Mutual fund.
6. Differentiate between Capital market and Money Market.
7. Suppose you invest ₹ 2,500 annually in a bank for 5 years and your deposits earn a compound interest of 9% per annum, what will be the series of deposits (annuity) at the end of 5 years? Assuming each deposit will occur at the end of the year. What will be the future value of an annuity?

SECTION – B**Answer any FOUR questions.****(4×10=40)**

8. Explain the pros & cons of investing in Mutual Funds.
9. Explain the various money market instruments.
10. Discuss the functions and classification of Stock Market.
11. Explain the stages of Financial Life Cycle.
12. A firm borrows ₹10,00,000 at an interest rate of 15 percent and the loan to be repaid in 5 equal instalments payable at the end of each of the next 5 years. Prepare Loan Amortisation Schedule.
13. Explain various schemes of Mutual fund with example.

SECTION – C (Compulsory)**(1×10=10)**

14. Ashok and Aparna Dixit are a middle-class couple in their late 40s. Ashok has a mid-level job and Aparna is a school teacher. They have two children and want to give them the best education that they can manage. Due to their limited income, they have not managed to save and invest much. They own the house they live in and have five more years to pay off the home loan. They bought the house for ₹30 lakh and the market value is now close to ₹1 crore. They have Provident Fund savings and some money invested in mutual funds. Their elder son wants to start his own business and Ashok wants to provide some seed capital to support his son. He is considering drawing from his investments or PF. Suggest the suitable financial options available to Ashok and Aparna.

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**St Aloysius College (Autonomous)
Mangaluru**

Semester II – P.G. Examination

May – 2024

Open Elective Under CBCS

ST. ALOYSIUS COLLEGE
MANGALURU
KARNATAKA
2015-2016

**QUALITY ASSURANCE AND QUALITY CONTROL IN PRODUCT
DEVELOPMENT**

Time: 3 Hours

Max. Marks: 70

Note: Draw neat labeled diagrams/schematic sketches/structures wherever Necessary.

I. Write short notes on any FIVE of the following: (5x3=15)

1. Identify the advantages to the companies that have implemented ISO 9000.
2. Elaborate on the different types of hazards.
3. Define QTPP and write a note on it.
4. List out the measures involved in the prevention of cross contamination.
5. How is GMP different from cGMP? Write the significance of GMPs.
6. Mention the modern GDP principles.
7. What are master formula records?
8. What is the need of quality review in the pharmaceutical industry?

II. Write explanatory notes on any FIVE of the following: (5x5=25)

9. Name three types of benchmarking and briefly explain each.
10. Explain the steps involved in ISO 22000 certification process.
11. State the importance of Checksheet with a suitable example.
12. Explain the regulations involved in the part I of schedule T.
13. Describe the history of GMP.
14. Explain the importance of committed documents with examples.
15. Why is site master file important? How it is being maintained?
16. Explain the need of standard operating procedures in the pharmaceutical industry.

III. Answer any THREE of the following: (3x10=30)

17. Define TQM, its goals, principles and benefits.
18. Elaborate on the structure of the ISO 14000 series. Identify and explain the main standards within this series.
19. How are the premises and equipments regulated by GMP regulations? Add a note on the qualification and validation of the equipments.
20. Describe the role of key personnel in the manufacturing industry in the light of GMP.
21. How the complaints and recalls on the released pharmaceutical product are being dealt with? Add a note on the counterfeit pharmaceutical product.

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St Aloysius College (Autonomous)

Mangaluru

Semester II- P.G Examination

May - 2024

Open Elective (Under CBCS)

BIOCHEMISTRY OF DISEASES

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

Time: 3 Hours

Max. Marks: 70

I. Answer any TEN sub-divisions of the following:

(10x2=20)

1. For what type of infections is acyclovir is an effective drug?
2. What are macronutrients, and how do they differ from micronutrients?
3. What is an antidote and how does it function in treating poisonings?
4. Write a note on concept of drug potency and efficacy.
5. Name two common short-term adverse reactions associated with alcohol consumption.
6. What is the main difference between the target molecules of salbutamol and montelukast in the context of asthma?
7. Why does farmers are more prone for professional hazards
8. Define hepatitis and name the causative agents
9. What is tuberculosis and name the causative agent
10. What is the primary class of medication that digoxin belongs to?
11. Name the six classes of essential nutrients and provide examples of each.
12. How do communicable diseases spread, and what measures can be taken to prevent their transmission?

II. Answer any SIX of the following:

(6x5=30)

13. Explain the mechanism by which cimetidine reduces stomach acid production?
14. Compare and contrast the mechanism of action of codeine and morphine.
15. Enumerate three common adverse reactions associated with the use of NSAIDs.
16. Analyze the importance of awareness in containing sexually transmitted disease
17. Explain about deficiency disorder associated with vitamins
18. Discuss about Healthy Diet
19. What are anticancer drugs and write about Cyclophosphamide
20. Explain about toxicity of methanol in human body

III. Answer any TWO of the following:

(2x10=20)

21. Define antidote and explain physical and chemical antidotes
22. Discuss the uses, mechanism of action and adverse effects of Dexamethasone.
23. Describe the role of vinblastine and vincristine in cancer treatment
24. Write about general checkups of human body

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St Aloysius College (Autonomous)

Mangaluru

SEMESTER II – P.G. Examination

May - 2024

Open Elective (Under CBCS)

ANALYTICAL TECHNIQUES

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

Time: 3 Hours

Max. Marks: 70

PART – A

1. **Answer any SEVEN questions of the following:** **(7x2=14)**
- Write any two biological functions of Vitamin C.
 - What are Food Adulterants? Give two examples.
 - Briefly explain the concept of an indicator electrode in potentiometric titrations. How does it signal the endpoint of the titration?
 - What is the significance of the salt bridge in an electrochemical cell?
 - What is the principle behind the measurement of viscosity-average molecular weight (M_v) using the Mark-Houwink equation?
 - Provide examples of how the molecular structure of polymers influences their T_g and T_m values.
 - What are non-permitted colors? Give two examples.
 - Give any two differences between indicator and reference electrodes.
 - Define the term 'polymer' and provide an example of a natural polymer.

PART – B

- Answer any FOUR of the following choosing at least one full question from each unit:** **(4x14=56)**

UNIT – I

- Discuss the impact of artificial sweeteners on taste perception and consumer preferences. **(4)**
 - Discuss the Structure of sucrose and maltose **(5)**
 - Write a note on Dulcin **(5)**
- Write a note on Benzoates. **(4)**
 - What are vitamins? Write a note on their Biological functions **(5)**
 - Explain the process involved in the estimation of methyl alcohol in Alcoholic beverages. **(5)**

Contd...2

UNIT – II

- 4.a) Discuss the factors that influence the electrode potential of a half-cell. How does temperature, concentration, and pressure affect the electrode potential? (4)
- b) Describe the purpose of a salt bridge in an electrochemical cell. Explain how it contributes to the smooth flow of electrons in the cell. (5)
- c) Write a note on acid base conductometry. (5)
- 5.a) Discuss the principle of Cyclic Voltammetry. (4)
- b) Define indicator electrodes in the context of electrochemistry. Discuss their role in measuring and monitoring electrochemical reactions. (5)
- c) Write a note on electrolytes (5)

UNIT – III

- 6.a) Define the sedimentation method for determining polymer molecular weights. (4)
- b) Define osmometry and describe its principle in determining the molecular weights of polymers. Explain the concept of osmotic pressure and its relationship to polymer molecular weight. (5)
- c) Define Gel Permeation Chromatography (GPC) and explain its principle in determining the molecular weights of polymers. (5)
- 7.a) Discuss the factors that can influence the accuracy and precision of light scattering measurements for polymer molecular weight determination (4)
- b) Define DSC, DTA, DTG, and TGA techniques used in the characterization of polymers. Briefly explain the principles behind each technique (5)
- c) Explain the classification of polymers based on monomers. Give one example for each. (5)

St Aloysius College (Autonomous)**Mangaluru****Semester II – P.G. Examination****May-2024****Open Elective (Under CBCS)****BEHAVIOUR AND SOCIETY**ST. ALOYSIUS COLLEGE
P.G. EXAMINATIONS
MANGALURU-575 004**Time: 3 hrs.****Max Marks: 70****I. Answer any FIVE of the following.****(5×2=10)**

1. What is Representativeness heuristics
2. What is impression formation?
3. What are the components of self according to Carl Rogers?
4. Mention the types of social norms.
5. What is Companionate love?
6. What do you mean by secure attachment style?
7. What are the ABC components of attitude?

II. Answer any FOUR of the following.**(4×5=20)**

8. What tactics do people use to create a positive impression?
9. What is sexism? Explain different forms of sexism.
10. Describe the interactive determinants of interpersonal attraction.
11. Discuss the potential errors that we commit in our social cognition
12. Does Discrimination exist in modern days? Explain its various forms.
13. Workplace aggression is expressed in various ways. Explain.

III. Answer any FOUR of the following.**(4×10=40)**

14. Describe any one of the theories of attribution.
15. How do prejudices emerge?
16. What are the various factors that cause aggression?
17. Discuss the social comparison theory
18. What is compliance? What tactics do people use to get others to comply with them?
19. Why do people help? Discuss the theoretical perspectives of helping behaviour

St Aloysius College (Autonomous) Mangaluru
SEMESTER II - PG EXAMINATION - M.Sc Mathematics

MAY - 2024

OPEN ELECTIVE (UNDER CBCS)

Basic Tools in Mathematics

Time : 3 Hours

Max. Marks : 70

Answer **FIVE FULL** questions

(14x5=70)

1. a. Verify whether the given functions are bijective:

1. $g: \mathbb{R} \rightarrow \mathbb{R}$ given by $g(x) = \frac{x}{2}, \forall x \in \mathbb{R}$.

2. $f: \mathbb{Z} \rightarrow \mathbb{N}$ given by $f(x) = x^2 + 2, \forall x \in \mathbb{Z}$.

b. Verify whether $\sum_{n=1}^{\infty} u_n$, where $u_n = \frac{1}{n(n+1)(n+2)}$, is convergent or not.

c. If $X, Y, Z \in \mathbb{R}^k$ and $\alpha \in \mathbb{R}$, then prove the following:

1. $\|\alpha X\| = |\alpha| \|X\|$

2. $|X \cdot Y| \leq \|X\| \|Y\|$.

3. $\|X + Y\| \leq \|X\| + \|Y\|$.

2. a. Let $\{s_n\}$ and $\{t_n\}$ be sequences of complex numbers with $\lim_{n \rightarrow \infty} s_n = s$ and $\lim_{n \rightarrow \infty} t_n = t$. Then prove the following:

1. $\lim_{n \rightarrow \infty} (s_n + t_n) = s + t$.

2. $\lim_{n \rightarrow \infty} (s_n t_n) = st$.

3. $\lim_{n \rightarrow \infty} \frac{1}{s_n} = \frac{1}{s}$, if $s_n \neq 0, n = 1, 2, \dots$ and $s \neq 0$.

b. If z and w are complex numbers then prove the following:

1. $|z w| = |z| |w|$

2. $|z + w| \leq |z| + |w|$

c. If p is a prime number, prove that there exists no rational whose square is p .

3. a. Find $\frac{dy}{dx}$ if

i) $y = \sqrt{x + \sqrt{x + \sqrt{x + \sqrt{x + \dots}}}}$

ii) $x = \frac{1}{1+t}, y = \frac{t}{1-t}$.

b. i) Evaluate $\lim_{x \rightarrow 3} \frac{\sqrt{3+x} - \sqrt{6}}{x-3}$

ii) Show that the function $f(x) = \begin{cases} x-1 & \text{if } 1 \leq x < 2 \\ 2x-3 & \text{if } 2 \leq x \leq 3 \end{cases}$ is continuous at $x = 2$.

4. a. Find the interval where the given function $f(x) = 2x^3 - 3x^2 - 36x + 7$ is increasing or decreasing.

b. State the intermediate value theorem. Find the maximum and minimum values of the function $f(x) = x^3 - 6x^2 + 9x + 15$, if there any.

Contd...2

5. a. i) Evaluate $\lim_{x \rightarrow a} \frac{\sqrt{3a-x} - \sqrt{x+a}}{x-a}$.

ii) Show that the function $f(x) = \begin{cases} x+1 & \text{if } x \leq 1 \\ 5-3x & \text{if } x > 1 \end{cases}$ is continuous at $x = 1$.

b. Show that the function $f(x) = \begin{cases} x & \text{if } x < 1 \\ 2-x & \text{if } x \geq 1 \end{cases}$ is not differentiable at $x = 1$.

6

6. a. (i) Let A be a square matrix that has a left inverse B . Show that A is invertible and $A^{-1} = B$.

8

(ii) Show that a system $AX = 0$ of m linear equations in n unknowns with $m < n$ has a nontrivial solution.

b. Prove that a square matrix A is invertible if and only if $\det(A)$ is nonzero.

6

7. a. Compute the characteristic polynomial, the eigenvalues, and eigenvectors of the matrix $\begin{bmatrix} 1 & i \\ -i & 1 \end{bmatrix}$.

8

6

b. Solve completely the system of equations $AX = B$, where

$$A = \begin{bmatrix} 1 & 2 & 1 & 1 \\ 3 & 0 & 0 & 4 \\ 1 & -4 & -2 & -2 \end{bmatrix} \text{ and } B = \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}.$$

8. a. If A_1, A_2, \dots, A_m are $n \times n$ invertible matrices then prove that their product $A_1 A_2 \dots A_m$ is invertible.

5

b. If A and B are $n \times n$ matrices prove that $d(AB) = d(A)d(B)$.

9

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St Aloysius College (Autonomous)

Mangaluru

Semester II – P.G. Examination

May - 2024

Open Elective (Under CBCS)

PHYSICS OF THE UNIVERSE

ST. ALOYSIUS COLLEGE
P.G. EXAMINATIONS
MANGALURU-575 004

Time : 3 Hours

Max. Marks : 70

PART A

Answer any one full question from each unit

(3x18=54)

Unit –I

1. a. What is the importance of coordinate systems in astronomy? Explain in detail various coordinate systems. (9)
- b. Explain in detail the apparent and absolute magnitudes of stars and establish the relation between them. (9)

OR

2. a. Explain different time keeping systems in astrophysics. (9)
- b. What are colour indices? Explain the UB and BV colour index of a star. (9)

Unit-II

3. a. Discuss the various reactions involved in energy generation in a star. (8)
- b. What is the Hertzsprung-Russell (HR) diagram, and how does it classify stars based on their luminosity, temperature, and evolutionary stage? (10)

OR

4. a. What are the different ways in which a star meets its end depending upon how massive it is? (8)
- b. What are the different types of binary star systems based on their orbital characteristics and stellar properties? Explain. (10)

Unit-III

5. a. How is Einstein's special relativity different from Galilean relativity? Under what conditions do Lorentz transformation equations become Galilean transformation equations? (6)
- b. What are the shortcomings of the standard model of the universe? (6)
- c. Explain the quark model and how quarks were discovered. (6)

OR

6. a. What are the various evidences for the expansion of universe? Explain with evidences. (10)
- b. What are the predictions of general relativity? (4)
- c. Write a note on Cosmic Microwave Background. (4)

PART-B

7. Answer any FOUR Questions

(4x4=16)

- a. Describe the difference between stellar parallax and stellar aberration.
- b. What are precession and nutation? Discuss.
- c. Briefly discuss the classification of galaxies.
- d. What are neutron stars and black holes?
- e. Briefly explain about the models beyond the standard model.
- f. Explain Hubble's law. How does it prove expansion of universe?

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St Aloysius College (Autonomous)

Mangaluru

Semester II – P.G. Examination

May - 2024

Open Elective (Under CBCS)

SPECTRAL METHODS OF ANALYSIS

ST. ALOYSIUS COLLEGE
PG DEPARTMENT
MANGALURU

Time: 3 Hours

Max. Marks: 70

PART - A

1. Answer any **SEVEN** questions of the following: (7x2=14)
- Compare the significance of IR and NMR spectroscopy in elucidation of molecular structure
 - Explain any two important uses of UV visible spectroscopy
 - On the basis of what Mass spectrometer separates ions?
 - Describe the concept of shielding and its effect on chemical shift values in NMR spectroscopy.
 - What are the key parameters considered when applying the Woodward-Fieser Rules to predict UV absorption?
 - Discuss the role of solvent effects in altering chemical shift values in NMR spectra.
 - What are systematic absences?
 - Define Miller indices and explain their significance in crystallography.
 - Mention the factors affecting x-ray intensities.

PART - B

Answer any **FOUR** of the following choosing at least one full question from each unit: (4x14=56)

UNIT – I

- How auxochromes and chromophores can affect conjugation of UV active molecules? (4)
 - A $3.50 \times 10^{-6} \text{M}$ solution of a red pigment has an absorbance of 0.602 at 502 nm in a 1 cm cuvette. Calculate the molar absorptivity ϵ of the pigment at 502nm. (5)
 - How is electronic spectra important in elucidating the structure of organic molecules? (5)
-
- What are the various factors that affect the band positions and intensities of peaks in IR spectroscopy? (4)
 - How is symmetry of molecules related to IR activity? (5)
 - Calculate the vibrational frequency of a C=O bond? ($m_C = 20 \times 10^{-24} \text{ g}$
 $m_O = 2.66 \times 10^{-23} \text{ g}$ $k = 10 \times 10^5 \text{ g/s}^2$) (5)

Contd...2

UNIT - II

- 4.a) Evaluate the influence of electron density on shielding and deshielding effects in NMR spectroscopy. (4)
- b) Explain the concept of spin-spin splitting in NMR spectroscopy, including how it occurs due to interactions between neighboring protons. (5)
- c) Discuss the importance of the detector in mass spectrometry instrumentation, including its role in converting ion signals into measurable electrical signals and the factors affecting detector sensitivity and resolution. (5)
- 5.a) How can the detection of characteristic fragments resulting from McLafferty rearrangement aid in the identification of functional groups or structural features in a molecule? (4)
- b) Explain why the ^{13}C - ^{13}C spin splitting is not observed in ^{13}C -NMR spectrum? Also compare & contrast ^1H & ^{13}C NMR (5)
- c) Write a note on nitrogen rules in mass spectrometry (5)

UNIT - III

- 6.a) Describe the experimental setup for a typical X-ray diffraction experiment. Include details about the X-ray source, sample preparation, and the detector. Discuss how each component contributes to obtaining meaningful diffraction data. (4)
- b) Discuss the de Broglie wavelength and its significance in electron diffraction and specify how the energy of electrons relate to their wavelength, and how does this affect their diffraction patterns? (5)
- c) Discuss the experimental set up for LEED experiments. (5)
- 7.a) Describe the experimental setup for a Debye Scherrer X-ray diffraction experiment. (4)
- b) Describe the basic setup of a Laue method experiment. Include key components such as the X-ray source, crystal sample, and detector, and explain their functions. (5)
- c) Discuss the advantages and limitations of SEM. (5)

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**St Aloysius College (Autonomous)
Mangaluru**

**Semester II – P.G. Examination – M.Sc. Food Science and Technology
May - 2024**

**Open Elective (Under CBCS)
ESSENTIALS OF FOOD SCIENCE**

Max Marks: 70

Time: 3 hrs.

I. Answer any SIX of the following:

(6x3=18)

1. Write a short note on types of milk.
2. Write a short note on whole milk powder.
3. Comment on different types of dough and batter.
4. Write a short note on wheat plant.
5. Name three spices commonly prone to adulteration.
6. Define pectin and state its role in fruits.
7. How eggs are graded?

II. Answer any FOUR of the following:

(4x7=28)

8. Explain in pasteurization of milk (LTHT & HTST).
9. Discuss on principles of starch cookery.
10. Discuss the post-harvest handling methods.
11. Discuss on internal & external quality evaluation of eggs.
12. Differentiate between rigor mortis and meat aging.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain the composition, nutritive value & sources of milk.
14. Comment on the cake manufacturing and role of ingredients.
15. Explain in detail the canning of fruits & vegetables.

St Aloysius College (Autonomous)
Mangaluru

Semester II – P.G. Examination – M.Sc. Food Science Nutrition and Dietetics
May - 2024
Open Elective (Under CBCS)
Basic Nutrition

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:**(6x3=18)**

1. Discuss the physiological functions of carbohydrates in the body.
2. Explain the significance of Recommended Dietary Allowances (RDA) in ensuring adequate nutrition.
3. Compare and contrast the health effects of LDL (low-density lipoprotein) and HDL (high-density lipoprotein) cholesterol.
4. Critically evaluate the role of proteins in muscle growth and repair.
5. Briefly discuss the importance of minerals in maintaining overall health and well-being.
6. Define vitamin deficiency and give two examples of diseases caused by vitamin deficiencies.
7. Explain the importance of dosage levels in nutraceutical consumption.

II. Answer any FOUR of the following:**(4x7=28)**

8. Discuss the potential health risks associated with consuming excessive amounts of saturated fats and trans fats. Provide recommendations for reducing their intake.
9. Discuss the physiological mechanisms by which dietary fiber exerts its beneficial effects on health, including its role in controlling blood cholesterol levels.
10. Critically examine the factors affecting BMR and BMI.
11. Evaluate the potential mechanisms through which functional foods exert their health benefits. Provide examples and discuss relevant scientific studies.
12. Discuss the methods used to assess nutritional status.

III. Answer any TWO of the following:**(2 x12=24)**

13. Discuss the role of physical activity in weight management and obesity prevention. Provide recommendations for integrating physical activity into daily routines for optimal health benefits.
14. Analyse the impact of nutrition on human health.
15. Explain the concept of Recommended Dietary Allowances (RDAs) for vitamins. How are RDAs determined and why are they important?