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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)
(Sponsored by: S.K.P.V.V. Hindu High Schools Committee)
Kothapeta, Vijayawada – 520 001.
A College with Potential for Excellence

Date: 17/12/2025

STUDENT NOTICE

First Semester End Examinations for **I MBA & I MCA** will be held as per the following schedule. So, all the students are advised to follow the same. For more details, visit **www.kbncollege.ac.in**

DATE	TIME	I MBA	I MCA
27/12/2025	09:00 AM to 12:00 Noon	Management & Organizational Behaviour **R22MBA101**	Programming & Problem Solving Using Python **R25MCA101**
29/12/2025	09:00 AM to 12:00 Noon	Managerial Economics **R22MBA102**	Advanced Data Structure **R25MCA102**
31/12/2025	09:00 AM to 12:00 Noon	Business Environment & Business Laws **R22MBA103**	Mathematical & Statistical Foundations **R25MCA103**
02/01/2026	09:00 AM to 12:00 Noon	Financial Reporting & Analysis **R22MBA104**	Operating System **R25MCA104**
05/01/2026	09:00 AM to 12:00 Noon	Personality Development Through Life Enhancement Skills **R22MBA107A**	Personality Development Through Life Enhancement Skills **R25MCA105**
07/01/2026	09:00 AM to 12:00 Noon	Business Analytics For Managerial Decision Making **R22MBA105**	Survey of Quantum Technologies &Applications **R25MCA106**
09/01/2026	09:00 AM to 12:00 Noon	Managerial Communication **R22MBA106**	****

Controller of Examinations

Principal 17/12/25

KAKARAPARTI BHAVANARAYANA COLLEGE(Autonomous)

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PG I SEMESTER END EXAMINATION REGULAR TIME TABLE - FEB 2026

Date	Time	I M.SC(OCH)	I M.SC(ACH)	I M.SC(DS)
09-02-2026	9:00 A.M TO 12:00 PM	General Chemistry R25OCH101	General Chemistry R25ACH101	Programming with R and Python R23DS101A
11-02-2026	9:00 A.M TO 12:00 PM	Organic Chemistry R25OCH102	Organic Chemistry R25ACH102	Data Structures R23DS102A
13-02-2026	9:00 A.M TO 12:00 PM	Inorganic chemistry - I R25OCH103	Inorganic chemistry -I R25ACH103	Probablity & Statistics R23DS103A
16-02-2026	9:00 A.M TO 12:00 PM	Physical Chemistry -I R25OCH104	Physical Chemistry - I R25ACH104	Data Base Management Systems R23DS104A
18-02-2026	9:00 A.M TO 12:00 PM	Personality Development through Life Enhancement Skills R25OCH105	Personality Development through Life Enhancement Skills R25ACH105	Operating Systems R23DS105A

19/1/2026

Controller of Examinations

19/1/26

Principal

Room No: _____ Regd No: _____

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)
PG I – SEMESTER END EXAMINATIONS

Class	: I MBA	Max Marks	: 70
Subject	: Management	Pass Mark	: 28
Title of Paper	: **Management Process and Organizational Behaviour**	Duration	: 3 Hrs
Paper Code	: R22MBA101	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 27/12/2025

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. a) What are the managerial skills according to Katz?

b) Explain the importance of planning.

c) Write a note on Managerial Grid.

d) Explain personality and its determinants.

e) Explain factors affecting group performance.

f) Define motivation and write its process.

g) What is span of control?

SECTION-B

II. Answer any FIVE of the following Questions **5X8=40M**

2. Define Management and explain the functions of management in detail.

[OR]

3. Examine the impact of globalization on management practices.

4. Define planning and explain the process and types of plans.

[OR]

5. Describe Decision Tree Analysis with examples.

6. Explain Herzberg's Two-Factor Theory of Motivation.

[OR]

7. Define controlling and explain the control process.

8. Define Organisatic al Behaviour and elaborate the fundamental concepts of OB.

[OR]

9. Elucidate Transactional Analysis and its applications.

10. Explain group dynamics and the stages of group development.

[OR]

11. Discuss theories of planned change.

[P.T.O]

SECTION-C

III. Answer the following Questions **1X10=10M**

12. ABC Solutions is a mid-sized IT services company employing young graduates and experienced professionals. Recently, the management noticed a decline in employee morale and productivity, especially among fresh recruits. Although salaries were competitive, employees felt that their efforts were not recognized and that communication with supervisors was limited. Team leaders focused mainly on meeting targets and paid little attention to employee feedback or motivation.

To address the issue, the HR department suggested introducing recognition programs, regular feedback sessions, and leadership training for team leaders. However, some senior managers believed that strict supervision and pressure were enough to improve performance. As a result, the organisation faced increased absenteeism and higher employee turnover rate, affecting overall organisational effectiveness.

Questions:

1. Identify the problems faced by ABC solutions.
2. What steps should the management take to improve employee motivation and morale?
3. How can effective communication help in solving the issue discussed in the case?

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)
PG I – SEMESTER END EXAMINATIONS

Class	: I MBA	Max Marks	: 70
Subject	: Management	Pass Mark	: 28
Title of Paper	: **Managerial Economics**	Duration	: 3 Hrs
Paper Code	: R22MBA102	Time	: 9am to 12PM
W.E.F	: 2025-26	Date	: 29/12/2025

SECTION-A

5X4=20M

I. Answer any FIVE of the following Questions

1. a) Law of Demand

b) Returns to Scale

c) Short-run Costs

d) Stagflation

e) Consumption Function

f) Consumer Price Index

g) Market Equilibrium

SECTION-B

5X8=40M

II. Answer the following Questions

2. What is elasticity of demand? Explain price elasticity and its uses in managerial decision making.

[OR]

3. What are the uses of demand forecasting? Write in detail various methods of demand forecasting for the existing products.

4. Theory of firm is profit maximization. Justify. Write the assumptions and criticisms of the theory.

[OR]

5. What are Iso Costs and Iso Quants? Explain with a graph the least cost combination for a firm

6. Explain TC, MC, AC cost curves. Draw a graph and explain the long –run cost and output relationship.

[OR]

7. What are the features of perfect competition? How is price and output determined in a perfectly competitively market?

8. What is macroeconomics? Discuss in detail various macroeconomic aggregates and various methods of measuring national income.

[OR]

9. Define inflation. Explain in detail the demand pull and cost push inflation.

10. Explain different phases of trade cycles. How does monetary and fiscal policy help in correcting the economic fluctuations.

[OR]

11. Explain the concepts of aggregate demand and aggregate supply. Write briefly on Keynesian economics

[P.T.O]

SECTION-C
CASE STUDY (COMPULSORY)

1X10=10M

III. Answer the following

12. From the following particulars, calculate:

(i) Break-even point in terms of sales value and in units.

(ii) Number of units that must be sold to earn a profit of Rs. 90,000/-

Fixed Factory Overhead costs	60,000/-
Fixed Selling Overheads	12,000
Variable manufacturing cost per unit	Rs12/-
Variable selling cost per unit	Rs.3/-
Selling Price/unit	Rs.24/-

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MBA	Max Marks	: 70
Subject	: Management	Pass Mark	: 28
Title of Paper	: **Business Environment And Business Laws**	Duration	: 3 Hrs
Paper Code	: R22MBA103	Time	: 9am to 12pm
W.E.F	: 2023-24	Date	: 31/12/2025

SECTION-A

I. Answer any FIVE of the following Questions. **5X4=20M**

1. **a)** Nature of business environment
   b) SWOT analysis
   c) Monetary policy
   d) Corporate governance
   e) Breach of contract
   f) Social objectives of business
   g) Discharge of contract
   h) Sale of goods Act, 1930

SECTION-B

II. Answer the following Questions. **5X8=40M**

2. What is business environment? Explain various dimensions of business environment.

(OR)

3. What is porter's 5 forces model with an example?

4. Define globalization. Explain how privatization and globalization made impact on India economy after 90's.

(OR)

5. Briefly explain different modes of money flow in an economy.

6. What is social responsibility of business? Put the arguments for and against business assuming social responsibility?

(OR)

7. Define technological environment. Explain trends in technology management.

8. Define quasi contract. Explain various forms of quasi contracts.

(OR)

9. Define law of agency. Explain creation and termination of agency.

10. Briefly explain competition Act, 2002.

(OR)

11. Define consumer. Examine how consumer is protected under the consumer protection act in India.

SECTION-C

12. Case Study: **1X10=10M**

"All agreements are contract". Do you agree? Why and Why not? Give reasons and explain

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)
PG I – SEMESTER END EXAMINATIONS

Class	: I MBA	Max Marks	: 70
Subject	: Management	Pass Mark	: 28
Title of Paper	: **Financial Reporting and Analysis**	Duration	: 3 Hrs
Paper Code	: R22MBA104	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 02/01/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. **a)** Describe the significance of ratios
   b) Explain the objectives of financial reporting.
   c) What are the purposes of financial statement analysis?
   d) Explain uses of Cash Flow Statement.
   e) Explain the concept of distributing dividend.
   f) What are various cost management techniques?
   g) Describe auditors report.

SECTION-B

II. Answer any FIVE of the following Questions **5X8=40M**

2. Explain the elements of financial statements recognition and de-recognition in Indian GAAP

[OR]

3. Define financial accounting.What are the objectives and limitations of financial reporting.

4. Describe details regarding subsidiary companies in financial statements.

[OR]

5. Describe disclosures on company website and disclosure by listed companies.

6. Distinguish between capital and revenue concepts with examples

[OR]

7. Explain the income and expenditure statement, balance sheet with proforma.

8. Explain the concept of financial analysis and its limitations

[OR]

9. Distinguish between cash flow and fund flow statements.

10. Classify costs into fixed, variable, and semi-variable with suitable business examples

[OR]

11. What is cost-volume-profit analysis and how can management use it for planning and control?

[P.T.O]

SECTION-C

III. Answer the following **1X10=10M**

12. From the summary Cash Account of Sunny Ltd. Prepare Cash Flow Statement for the year ended 31st March 2021 in accordance with AS- 3 (Revised) using the direct method. The company does not have any cash equivalents.

Summary Cash Account (for the year ended 31.12.2021)

	Rs. '000		Rs. '000
Balance on 1.4.2020	100	Payment of Suppliers	4000
Issue of equity shares	600	Purchase of fixed assets	400
Receipts from customers	5600	Ownerhead expenses	400
Sale of Fixed assets	200	Wages and Salaries	200
		Taxation	500
		dividend	100
		Repayment of bank loan	600
		Balance on 31.3.2021	300
	6500		**6500**

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MBA	Max Marks	: 70
Subject	: Management	Pass Mark	: 28
Title of Paper	: **Personality Development Through Life Enlightenment Skills**	Duration	: 3 Hrs
Paper Code	: R22MBA107	Time	: 9am to 12pm
W.E.F	: 2022-23	Date	: 05/01/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X3=15M**

1. Write short notes on:

a) Find Dimensions of Personality in brief

b) Importance of self- motivation

c) Types of attitude

d) What is meant by the term Emotional Intelligence?

e) Good manners and etiquette

f) Time Management

g) Types of Pranayama

h) Cyclic meditation

SECTION-B

II. Answer any FIVE of the following Questions **5X8=40M**

2. Summarize the Theories of Personality development (Freud &Erickson).

(OR)

3. Explain the SWOT analysis of any MNC

4. Can you write a brief outline of Attitude formation and advantages and disadvantages of positive/negative attitude?

(OR)

5. Compare the Theories of Motivation explained by Maslow and Herzberg.

6. Explain the meaning and importance of social skills, soft skills, and life skills.

(OR)

7. Identify the qualities of a successful leader.

8. Analyse the aspects of Holistic Development of personality as envisaged in Bhagavad Gita.

(OR)

9. Examine Personality of Role Model as said in Bhagavad Gita.

10. Explain the Historical Perspective of Yoga in brief.

(OR)

11. How would you like to classify the Types of Stress and Relaxation Techniques?

SECTION-C

III. Case Study **1X15=15M**

Mr. Afroz an organizational consultant. He found personalities nametags are important in the work place and we must interact with one another But, sometimes interactions can lead to conflict because of the clashes between traits dimensions for example, outspoken and reserved, impulsive and methodical, along with skeptical and accepting. Besides, impulsive types usually foster more conflict than the others. This also being supported by some research because personality characteristics seem to affect whether the interpersonal conflict helps or hurts team performance It can be determine by the openness to experience and emotional stability of the employees. Conflict can affect team performance if there is low on some personality qualities. Plus, relationship between employees and supervisors can be weak if they have different personality on the big five modal except extraversion.

Questions

a. Analyze the summary of the case.

b. How would you like to examine the personality Traits which really influence the team's performance?

c. Justify with your answer and list out the personality traits which help in strengthening the relationships between the employees and the supervisor.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MBA	Max Marks	: 70
Subject	: Management	Pass Mark	: 28
Title of Paper	: **Business Analytics for Managerial Decision Making**	Duration	: 3 Hrs
Paper Code	: R22MBA105	Time	: 9am to 12pm
W.E.F	: 2023-24	Date	: 07/01/2026

SECTION-A

I. Answer any FIVE of the following Questions. **5X4=20M**

1. Write short notes on

a) Importance of business analytics

b) Effective communication of analytics

c) Types of data

d) Cluster analysis

e) Binomial distribution

f) Linear regression

g) Predictive analytics

h) Chi-square test

SECTION-B

II. Answer the following Questions. **5X8=40M**

2. Distinguish between analytics and analysis. Briefly explain types of analytical applications.

(OR)

3. What are the benefits of business analytics? How does business analytics provide a competitive edge to business organizations?

4. Solve the following equations use gauss elimination method

$2x+y+z=10$, $3x+2y+3z=18$, $X+4y+9z=16$

(OR)

5. Solve the following system of equations and find the value of x, y and z using crammer's rule

$x+y+z=8$, $x-y+2z=6$, $3x+5y-7z=14$.

6. State and prove Bayes' theorem.

(OR)

7. What is a measure of central tendency? Explain various measures of central tendency.

8. Define time series analysis? Mention the methods used for the study and measurement of trend in time series.

(OR)

9. From the following data find two regression equations of x on y and y on x,

X	4	2	8	7	9
Y	10	8	4	7	6

[P.T.O]

10. Explain hypothesis formulation and testing in detail.

(OR)

11. What are the applications of t-test?

The mean weekly sale of soap bars in departmental store was 146.3 bars per store. After an advertising campaign the mean weekly sales in 22 stores for a typical week increased to 153.7 and showed standard deviation of 17.2. Was the advertising campaign successful? (Given tabulated value of t for 21 d.f. at 5% level of significance=1.72)

SECTION-C

12. Case Study : **1X10=10M**

Three varieties of coal were analyzed by four chemist and ash content in the varieties were found to be

varieties	CHEMIST			
	1	2	3	4
A	8	5	5	7
B	7	6	4	4
C	3	6	5	4

a. Do the varieties differ significantly in their ash content using Anova and state your conclusion $[F_{tab} = 4.26]$.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MBA	Max Marks	: 70
Subject	: Management	Pass Mark	: 28
Title of Paper	: **Managerial Communication**	Duration	: 3 Hrs
Paper Code	: R22MBA106	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 09/01/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. a) Process of communication

b) Managerial Speeches

c) Business Reports & Proposals

d) Meetings & Group Discussions

e) Importance of listening

f) Negotiation skills

g) Johari window

SECTION-B

II. Answer the following Questions **5X8=40M**

2. Discuss the importance of communication in the work place

[OR]

3. Define Communication. Explain the Barriers of Communication?

4. What is Oral Communication? Explain in detail about Oral Communication process

[OR]

5. What is written communication? Explain the Barriers to Listening skills.

6. Discuss the importance of Listening & Explain the types of Listening Skills?

[OR]

7. Define body language. Explain importance of body language

8. What are the Various Modes of Communication Network?

[OR]

9. Discuss about advanced Visual Support for Managers during Presentations.

10. How do you prepare a CV? Explain with Suitable Example.

[OR]

11. What is Negotiation? Explain the Steps in Negotiation Process.

[P.T.O]

SECTION-C
Case Study

III. Answer the following Question **1X10=10M**

12. Ratan works as an assistant manager at Trecks Pvt.Ltd. he frequently reports late for work. his manager tries to councel him, but he often gives personal reasons as an excuse for his tardiness. he is an intelligent man and has good technical skills. he delays the tasks assigned to him,and this is a cause of concern for his team. at work he oftenseen trying to complete personal billpayments online. if his team members ask him to hurry up with the work given to him, he gets upset.

1. Identify and list the soft skills that rattan needs to work on.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class : I MCA
Subject : Computer Applications
Title of Paper : **Programming and Problem Solving Using Python**
Paper Code : R25MCA101
W.E.F : 2025-26

Max Marks : 70
Pass Mark : 28
Duration : 3 Hrs
Time : 9am to 12pm
Date : 27/12/2025

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Explain the history of Python Language
2. Explain operator precedence and Associativity in Python Language
3. Explain about Map and filter functions in Python
4. Explain about classes and objects in python
5. Explain about Abstract classes and interfaces in python
6. Explain about Numpy Arrays
7. Explain about Data Frames in Pandas
8. Explain about Simple Scatter plots in python

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain about Control structures in Python

[OR]

10. Explain the features of Python and concept of reading from the console

11. Explain about Lists and Sets Data structures in Python

[OR]

12. Explain about Dictionaries

13. Explain about Inheritance in Python

[OR]

14. Explain about Exception Handling in Python

15. Explain about Computation on Numpy Arrays

[OR]

16. Explain about Data Manipulation With Pandas

17. Explain about Density and Contour Plots

[OR]

18. Explain about Histograms, Binning and Density

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MCA/ M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Computers/Analytical Chemistry/Organic Chemistry	Pass Mark	: 28
Title of Paper	: **Personality Development Through Life Enhancement Skills**	Duration	: 3 Hrs
Paper Code	: R25MCA105/ R25ACH105/R25OCH105	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 18/02/2026

SECTION-A

I. Answer any Five of the following Questions. **5X4=20M**

1. Write a short notes on Success
2. SWOT analysis
3. Define Attitude
4. Define Motivation
5. Explain the Work ethics.
6. Body language
7. Derive Stress
8. Explain about Pranayama

SECTION-B

II. Answer any FIVE of the following Questions. **5X10=50M**

9. Describe the concept of Personality and theories of Personality development

(OR)

10. What are the factors responsible for achieving the Success? How to overcome hurdles achieving the success ?.

11. Describe the nature and characteristics of Motivation. Explain the any two theories Motivation

(OR)

12. Define Self Esteem. Explain the Do's and Don't's to development of Positive Self esteem

13. Describe the good manners and etiquette. How do they help in building a person's Emotional Intelligence

(OR)

14. What is self motivation? Why Is Self motivation is Important for Personality development

15. Explain the Pride and Honesty in Personality development according to Bhawadgita

(OR)

16. Explain the some neethisatakams in Bhagawadgeetha

17. What are the components and types of attitudes? Explain the advantages and disadvantages of positive and negative attitude

(OR)

18. Narrate the Importance of attitude for an Individual in Personal and Professional life.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)
PG I SEMESTER END EXAMINATIONS

Class	: I MCA	Max Marks	: 70
Subject	: Computer	Pass Mark	: 28
Title of Paper	: Programming and Problem Solving Using Python	Duration	: 3 Hrs
Paper Code	: R22MCA101A	Paper Time	: 9am to 12pm
W.E.F	: 2022-23	Date	: 27/12/2025

SECTION –A

I. Answer ALL the following Questions. **5X14=70M**

1. Explain the principles of Programming Languages and Language Translation.

(OR)

2. Explain about Declarations and Overloading and name resolution.
3. Explain the features and tokens of Python.

(OR)

4. Explain Decision Control Statements and Basic Loop Structures.
5. Explain about Function Declaration, Function Definition, Function Call and Return Statement.

(OR)

6. Explain the String Handling Functions and Packages in Python.
7. Explain about Classes and Objects in Python and give examples.

(OR)

8. Explain Built-in Class Attributes, Class Methods and Static Methods.
9. Explain the various types of Inheritance and give examples.

(OR)

10. Explain about Exception Handling and give examples.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MCA	Max Marks	: 70
Subject	: Computer Applications	Pass Mark	: 28
Title of Paper	: **Advanced Data Structures**	Duration	: 3 Hrs
Paper Code	: R25MCA102	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 29/12/2025

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Define Data Structure and Types of Data structures with example

2. Explain with example Bubble sort

3. Define Searching and discuss about Linear Search

4. Define List? Discuss about various types of linked list

5. Define Queue? Discuss about Queue operations using Array

6. Define Tree? Discuss types of Trees with example

7. Define Graphs? Representation of graphs using Adjacency Matrix

8. Explain about ; DFS traversals used in Graphs

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain about inserting and deleting a value in an Linear Array

[OR]

10. Explain about Time Space Tradeoff and Algorithm Complexity

11. Explain about Insertion sort

[OR]

12. Explain about Binary Search

13. Discuss about Insertion and deletion operation in a Linked List

[OR]

14. Explain Procedure of Infix to Post fix conversion

15. Explain about Binary search Tree and its operations

[OR]

16. Explain about Tree Traversal Techniques

17. Explain about BFS in graphs

[OR]

18. Explain the procedure of Radix sort

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MCA	Max Marks	: 70
Subject	: Computer Applications	Pass Mark	: 28
Title of Paper	: **Mathematical and Statistical Foundations**	Duration	: 3 Hrs
Paper Code	: R25MCA103	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 31/12/2025

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Explain Quantifiers with an example.
2. Write about Strong induction.
3. Explain about applications of Inclusion & Exclusion.
4. Explain about Graphs and Graph models.
5. Explain about Spanning trees.
6. Explain about Shortest Path Problem.
7. Define distribution function and its properties.
8. Write about Null hypothesis and Alternative hypothesis.

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Define Tautology and Determine whether $\{(p \vee q) \wedge (p \rightarrow r) \wedge (q \rightarrow r)\} \rightarrow$ ris a tautology or not.

[OR]

10. Use mathematical induction to show that $1^2 + 3^2 + 5^2 + \ldots\ldots + (2n-1)^2 = \left(\frac{n(2n-1)(2n+1)}{3}\right)$.

11. How many solutions does the equation $x_1 + x_2 + x_3 = 11$ have , where x_1 ,x_2 and x_3 are non-negative integers ?

[OR]

12. Solve $a_n - 5a_{n-1} + 6a_{n-2} = 0$ Where $a_0 = 1$, $a_1 = 5$.

13. Explain about Krushkal·s and Prims Algorithm.

[OR]

14. Define Relation and properties of Relation with an example.

15. Define Poisson Distribution and derive its mean and variance.

[OR]

16. State and prove Bayes theorem.

17. Explain testing hypothesis on a mean, comparing two means

[OR]

18. Explain testing hypothesis on a Proportion, comparing two Proportion.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MCA	Max Marks	: 70
Subject	: Computer Applications	Pass Mark	: 28
Title of Paper	: **Mathematical and Statistical Foundations**	Duration	: 3 Hrs
Paper Code	: R22MCA103A	Time	: 9am to 12pm
W.E.F	: 2024-25	Date	: 31/12/2025

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Explain about Tautology and Contradiction with example
2. Verify $[(\sim p \vee \sim q) \rightarrow (p \wedge q \wedge r)] \Leftrightarrow (p \wedge q)$] truth table
3. Explain about Equivalence relation
4. Explain about principle of inclusion and exclusion
5. Explain about Planar Graphs
6. Explain about shortest path problem
7. Explain about Axioms of Probability
8. Explain about significance testing

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Using Mathematical Induction solve $1+2+2^2+.....+2^n=2^{n+1}-1$

[OR]

10. Show that $P \rightarrow (Q \rightarrow R)$ *and* $(P \rightarrow Q) \rightarrow R$ are logically equivalent
    Test the validity of the following argument
    Some intelligent boys are lazy
    Ravi is an intelligent boy
    : Ravi is lazy

11. Find the solution to the recurrence relation $a_n - 7a_{n-1} + 12a_{n-2} = 0$, for $n >= 2$ with the Initial conditions $a_0 = 2$, $a_1 = 5$ by using characteristic roots.

[OR]

12. Solve the recurrence relation $a_n + a_{n-1} - 6a_{n-2} = 0$, $a_0 = -1$ & $a_1 = 8$

13. Construct Partial ordering on the set {1,2,3,4,6,8,12} such that (a,b) such that a divides b.

[OR]

14. Explain about graph isomorphisum and graph coloring

15. Explain about Bayes' Theorem

[OR]

16. Sum of the squares of natural numbers equal to n (n+1) (2n+1) /6 using M.Induction

17. Explain testing hypothesis on a proportion, comparing two proportions

[OR]

18. Explain about Hypothesis testing on the variance

Room No: _____ Regd No: _____

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)
PG I – SEMESTER END EXAMINATIONS

Class	: I MCA	Max Marks	: 70
Subject	: Computer Applications	Pass Mark	: 28
Title of Paper	: **Operating Systems**	Duration	: 3 Hrs
Paper Code	: R25MCA104	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 02/01/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. What are Operating System Services?
2. Explain about System Calls and their types.
3. Explain about Semaphore.
4. Explain about Memory Management.
5. Explain about Demand Paging?
6. Explain about Segmentation
7. List File Access Methods.
8. Explain about Network Topology

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain Operating System services and user–OS interface.

[OR]

10. Explain Inter-Process Communication mechanisms.

11. Explain the Critical Section Problem and Peterson's Solution.

[OR]

12. Explain Deadlock Prevention, Avoidance and Detection.

13. Explain **Paging** with page table structure.

[OR]

14. Explain Page Replacement Algorithms (FIFO, LRU, Optimal).

15. Explain File System Implementation and Structure.

[OR]

16. Explain Disk Structure and Disk Scheduling algorithms.

17. Explain Architecture and Features of Android Operating System.

[OR]

18. Explain Types of Network-Based Operating Systems.

Regd No:

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MCA	Max Marks	: 70
Subject	: Computers	Pass Mark	: 28
Title of Paper	: **Operating Systems**	Duration	: 3 Hrs
Paper Code	: R22MCA104A	Time	: 9am to 12pm
W.E.F	: 2023-24	Date	: 02/01/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Explain about Operating Systems Structures
2. Explain about system Calls
3. Explain about Monitors.
4. Explain about Semaphores
5. Explain about Segmentation
6. Explain about Contiguous Memory Allocation
7. Explain about File System operation
8. Explain about Network Topology

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain about Operating system Structure and Services.

[OR]

10. Explain about 2 scheduling algorithms

11. Explain about Critical –Section Problem and Peterson's Solution?

[OR]

12. Explain about Dead lock handling, Deadlock Prevention and Recovery

13. Explain about Paging

[OR]

14. Explain about 2 page replacement algorithms

15. Explain about File System mounting?

[OR]

16. Explain about Disk Structure, Disk Scheduling

17. Explain about Features of Android Operating Systems

[OR]

18. Explain about Types of network based Operating systems

Room No: _____ Regd No: _____

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MCA/M.SC [ACH/OCH]	Max Marks	: 70
Subject	: Computers/Chemistry	Pass Mark	: 28
Title of Paper	: **Personality Development Through Life Enlightenment Skills**	Duration	: 3 Hrs
Paper Code	: R25MCA105/R25ACH105/R25OCH105	Time	: 9am to 12pm
W.E.F	: 2022-23	Date	: 05/01/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Motivation
2. Personality
3. Self-esteem
4. Leadership
5. Pranayama
6. Wisdom
7. Distress
8. Meditation

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain the process of conducting SWOT (Strength, Weakness, Opportunities and Threats) analysis.

[OR]

10. Define Personality and explain the theories of Personality Development.

11. Describe the theories of motivation and identify the factors leading to demotivation.

[OR]

12. Explain about the types of Attitudes along with their advantages and dis advantages.

13. Describe work ethics in the back drop of good manners and etiquette at work place.

[OR]

14. Explain the concepts of problem solving, conflict management and Negotiation skills.

15. Describe Pride and Heroism.

[OR]

16. Explain the Personality of role model.

17. Discuss Stress Management in detail.

[OR]

18. Explain the role placed by relaxation techniques in Yoga to avoid stress management.

Room No: _____ Regd No: _____

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I MBA/MCA/M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Management /Computers/Chemistry	Pass Mark	: 28
Title of Paper	: **Personality Development Through Life Enlightenment Skills**	Duration	: 3 Hrs
Paper Code	: R22MBA107A/R25MCA105/R25ACH105/R25OCH105	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 05/01/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. a) Success

b) SWOT

c) Attitude

d) Conflict

e) Motivation

f) Body Language

g) Quality of Work Life.

f) Emotional Intelligence

SECTION-B

II. Answer the following Questions **5X8=40M**

2. Describe the concept of Personality and Theories of Personality Development?

[OR]

3. What are the factors responsible for achieving success? How to overcome hurdles in achieving success?

4. Describe the nature and characteristics of Motivation. Explain any two theories of Motivation.

[OR]

5. Define Self-Esteem. Explain the do's and don'ts to develop positive Self-Esteem.

6. What is Self-Motivation? Why is Self-Motivation important for personality development?

[OR]

7. Describe the good manners and etiquette. How do they help in building a person's Emotional Intelligence?

8. Explain different types of stress and the steps in stress management.

[OR]

9. Explain the concept of work-life balance of Women Employees in service sector.

10. What are the components and types of Attitudes? Explain the advantages/ disadvantages of positive and negative Attitudes.

[OR]

11. Narrate the importance of Attitude for an individual in Personal and Professional Life.

[P.T.O]

SECTION-C

1X10=10M

II. Case study (Compulsory)

12. Job Sharing at Motorola

Background

Motorola was founded in 1928 in the U.S., and currently employs more than 100,000 people worldwide. Today, it is harnessing the power of wireless, broadband and the Internet to deliver embedded chip system–level and end-to-end network communications solutions for the individual, work team, vehicle and home. Motorola employs 1,530 staff in its East Kilbride, Scotland operation, of which about 700 are operators. Motorola operates in a highly competitive global environment; to maintain its competitive advantage, it operates its plants 24 hours a day, seven days a week.

A variety of work-life balance arrangements are offered, many of which are long-established throughout the company. They include part-time wo ., dependency leave; an employee assistance program (EAP); job sharing; health care (adding some private health care benefits to the state-funded U.K. system); special shift arrangements (non-standard shifts); study leave (time off work to complete sections for formal qualifications);and emergency holidays (when annual leave needs to be taken for non-holiday time). Moyra Withycombe, the human resource operations manager at the East Kilbride location, explains that they are offered as part of being a premier employer and to attract high-caliber people, then recognize and reward them. This fits with Motorola's philosophy of balancing life and work, which has contributed to the company's high rating in America's 100 Best Corporate Citizen award lists for environment, community and employment practices.

Job Sharing in Manufacturing

In 2000, there was a major change in work hours at the East Kilbride plant. The change was intended to standardize shifts throughout the whole organization. Today, full-time Motorola operators work seven 12-hour shifts over a two-week period, on the basis of four days one week, and three days the next. When the work hours were changed, employees were offered job sharing, either on the day or night shifts. Job sharing means that two people share a full-time job between them, splitting equally the number of hours worked. Though not commonplace, it has been an occasional practice in the U.K. for some years, mainly in the public-service sector. Mary McDonald, a single parent with two children, applied for a job-share on the day shift. She felt the full-time shift pattern was too onerous given her family situation. In making her written application to the Human Resource department, she gave her personal and operational reasons. Her application was successful and, matched with her job partner, Heather Chalmers, she works in the wafer fabrication production area. McDonald says this system "has worked very well" for her. "I'm full of energy for the days I work—Motorola gets 100 percent from me." She is extremely positive about job sharing, "especially for people with families...it is very good for family life." Alistair Reid, a manufacturing section manager, concurs. He also highlights that Motorola East Kilbride hosts 120 job sharers and explains that they are all included in feedback sessions and the annual reviews conducted to assess the effectiveness of partnerships. He stresses that "the transition to new shift patterns, including job share, allowed us to retain key skills and avoid external recruitment."

[Continued to Next Page]

Neil McKinven, a senior line manager, believes that job share plays a high-profile role for the East Kilbride Motorola plant to remain competitive and to meet their performance metrics in the face of stiff global competition. In particular, he notes that "job share allowed us to retain our pool of highly qualified and well-trained talent." Most job share employees are women who are unable to or prefer not to work full-time due to family commitments. Job share, McKinven explains, "created a different management dimension in developing supporting procedures, such as procedures for holiday and absence cover." These procedures have been refined over time and now function smoothly. Reid believes there are important benefits for individuals in job share, and highlights that many women returning after maternity leave value this arrangement. He considers that the most challenging issue is when job share partnerships are fractured during the year when, for example, changes in partnerships necessary for holiday cover arrangements can disrupt the workflow. This means a change in one of the job share partners when holidays are taken. Most job sharers work very closely together to meet their combined job requirements without manager involvement; this can easily change during their holiday leave periods because the temporary holiday employee is unlikely to be very familiar with the regular sharing system between the two main job sharers. Managers may then need to be involved in work scheduling in job share posts during job sharers' holidays.

Mc Kinven stresses the need for standardization and open discussion when developing policies on how people are treated at work with respect to work-life balance arrangements and manager involvement in these. Withycombe highlights the importance of matching business needs and individual requests, and summarizes that overall, "any negatives of work-life balance arrangements are outweighed by the positives."

Way Forward

Motorola plans to have ongoing reviews of job-sharing practices, together with evaluation of the business effects.

Questions:

A. How does Motorola's job sharing system fit with their business needs?

B. What particular needs do female employees face in work-life balance arrangements such as job sharing?

C. What are the advantages and disadvantages of job sharing to job sharers and their managers?

D. What factors come into play in introducing job sharing into other organizations in a U.S. context?

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class : I MCA
Subject : Computer Applications
Title of Paper : **Survey of Quantum Technologies and Applications**
Paper Code : R25MCA106
W.E.F : 2025-26

Max Marks : 70
Pass Mark : 28
Duration : 3 Hrs
Time : 9am to 12pm
Date : 07/01/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Explain about concept of Quantum Technologies.
2. Define Quantum Circuits.
3. Explain about Basics of Qubits.
4. Explain about Di Vincenzo criteria for realising qubits.
5. Explain about NMR Qubits.
6. Explain about Atomic Clock.
7. Explain about Terrestrial fibre-based.
8. Explain about Free space, Satellite-based.

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain about No Cloning Theorem.

[OR]

10. Explain Heisenberg Uncertainty Principle.

11. Explain about Solid State Qubits.

[OR]

12. Explain physical implementation of qubits.

13. Explain Superconducting Qubits.

[OR]

14. Explain about State of the Art in Quantum Sensing.

15. Explain about RSA and Shor's Algorithm.

[OR]

16. Describe the Magnetometry.

17. Explain about Quantifying Classical Information.

[OR]

18. Explain Eavesdropping.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Analytical Chemistry /Organic Chemistry	Pass Mark	: 28
Title of Paper	: **General Chemistry**	Duration	: 3 Hrs
Paper Code	: R25ACH101/R25OCH101	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 09/02/2026

SECTION-A

I. Answer any FIVE of the following Questions. **5X4=20M**

1. Write a note on Minimization of errors.

2. Write a note on Criteria of rejection of an observation.

3. Explain classification of reactions in titrimetric analysis.

4. Write a note on Fajjan's method.

5. Write the industrial applications of distillation.

6. Write the Basic principles involved Recrystallization.

7. Write a note on development of TLC plates.

8. Write the applications of HPLC.

SECTION-B

II. Answer any FIVE of the following Questions. **5X10=50M**

9. Define an error explain the types of errors in detailed.

(OR)

10. Write a note on Significant figures and computation rules.

11. Explain Volhard's and method-Mohr's methods.

(OR)

12. Explain how calcium and magnesium can be estimated by using EDTA.

13. Write a note on vacuum distillation and steam distillation.

(OR)

14. Write a note on drying Techniques used for alcohols and Tetra hydro furan.

15. Explain the basic principle, stationary phase and mobile phase used in Column Chromatography.

(OR)

16. Write the applications of paper chromatography in the identification of amino acids.

17. Write the applications of GC in the separation, identification and quantitative analysis of organic compounds.

(OR)

18. Write the basic principle and instrumentation used in HPLC.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)
PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Analytical Chemistry/Organic Chemistry	Pass Mark	: 28
Title of Paper	: **General Chemistry**	Duration	: 3 Hrs
Paper Code	: R22ACH101A/ R22OCH101A	Time	: 9am to 12pm
W.E.F	: 2024-25	Date	: 09/02/2026

SECTION-A

I. Answer any FIVE of the following Questions. **5X4=20M**

1. Write a note on Accuracy and precision.
2. Write a note on propagation of errors.
3. Explain about primary and secondary standards.
4. Write a note on mixed indicators.
5. Write the Basic principle of distillation.
6. Write a note on selection of solvents.
7. Write a note on adsorption chromatography
8. Write a note selection of columns and carrier gases in GC.

SECTION-B

II. Answer any FIVE of the following Questions. **5X10=50M**

9. Write a note on student's t-Test and F-Test.

(OR)

10. Describe Gaussian distribution curve.

11. Write a note on theory of neutralization indicators.

(OR)

12. Describe the change of electrode potentials during titration of Fe(II) with Ce(IV).

13. Write a note on continuous distillation and batch distillation.

(OR)

14. Explain the basic concepts in Soxhlet extraction and write its industrial applications.

15. Write the basic principle and types of Paper Chromatography.

(OR)

16. Write the applications of TLC in monitoring organic reactions and quantitative analysis.

17. Write the basic principle and instrumentation used in HPLC.

(OR)

18. Write a note on detectors used in GC.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Analytical Chemistry /Organic Chemistry	Pass Mark	: 28
Title of Paper	: **Organic Chemistry**	Duration	: 3 Hrs
Paper Code	: R25ACH102/R25OCH102	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 11/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Write a note on homo aromaticity.

2. Explain the aromaticity of Hetero aromatic compounds.

3. Write a note on Sommelet Hauser rearrangement

4. Write a short note on mixed SN^1 & SN^2 reactions.

5. Write a note Saytzeffs Rule.

6. Write the mechanism of Cannizzaro condensation.

7. Write the mechanism of Dieckmann condensation.

8. Discuss the stereochemistry of compounds containing Sulphur.

SECTION-B

II. Answer ALL the following Questions **5X10=50M**

9. Describe stability and reactivity of carbanions.

[OR]

10. Write a note on Non benzenoid aromatic compounds

11. Explain Neighbouring group participation.

[OR]

12. Explain benzyne mechanism and SN2 Ar Mechanism.

13. Write a note on Pyrolytic Elimination.

[OR]

14. Write a note on Markovnikovs rule.

15. Write a note on MPV reduction and Birch reduction.

[OR]

16. Discuss the reaction and mechanism of Aldol & Benzoin condensations.

17. Explain the stereo chemistry of compounds containing Phosphorus and Nitrogen.

[OR]

18. Discuss stereospecific and stereoselective synthesis

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Analytical Chemistry /Organic Chemistry	Pass Mark	: 28
Title of Paper	: **Organic Chemistry**	Duration	: 3 Hrs
Paper Code	: R22ACH102A/R22OCH102A	Time	: 9am to 12pm
W.E.F	: 2022-23	Date	: 11/02/2026.

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Write a short note on anti aromaticity
2. Write about carbenes
3. Write a note on Von-Richeter rearrangement
4. Explain SN_2 raction and examples
5. Explain about hydroboration
6. Write the mechanism for aldol condensation
7. Write the mechanism for benzoin condensation
8. Discuss the stereo chemistry of Allenes

SECTION-B

II. Answer ALL the following Questions **5X10=50M**

9. Write a note on Non benzenoid aromatic compounds

(OR)

10. Describe stability and reactivity of carbo cations

11. Explain benzyme mechanism and SN^2 Ar mechanism

(OR)

12. Explain neighbouring group participation

13. Write a note on pyrolytic elimination

(OR)

14. Explain stereo chemistry and orientation of Haffmann and Saytzeff rules

15. Discuss the reaction and mechanism of Meerwein-ponndorf-Verley-reduction reaction and birch reduction reaction

(OR)

16. Discuss Dieckmann condensation and Oppenaur oxidation reaction

17. Write the stereo chemistry of compounds containing nitrogen and phosphrous

(OR)

18. Discuss stereo specific and stereo selective synthesis with examples

Room No: _____ **Regd No:** _____

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Analytical Chemistry /Organic Chemistry	Pass Mark	: 28
Title of Paper	: **Inorganic Chemistry**	Duration	: 3 Hrs
Paper Code	: R25ACH103/R25OCH103	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 13/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Explain the spectrochemical series

2. Draw the Walsh diagrams for bent molecules

3. Write account on bent's rule

4. Describe the splitting of d-orbitals in trigonal bipyramidal

5. Define the Irving William Series.

6. Explain the step wise formation constants?

7. Write the preparation and structures of Diboranes complexes

8. Describe Wade's rule.

SECTION-B

II. Answer any FIVE of the following Questions **5X10=50M**

9. Write the fundamental postulates of Werner's Coordination theory

[OR]

10. Discuss the Structural isomerism exhibited by the complexes with coordination compounds.

11. Write a note on VSEPR theory and write the limitations

[OR]

12. What is Walsh diagram? Predict the shape of linear (BeH_2) and Bent (H_2O) molecule.

13. Explain the Jahn teller distortion with suitable examples.

[OR]

14. Write note on Molecular diagram for bonding in Octahedral complexes.

15. Explain the HSAB theory for acid base strength

[OR]

16. Describe the determination of formation constants by pH metric method (Bjerrum's)

17. Discuss the structure and synthesis of S-N cyclic compounds

[OR]

18. Discuss the structure and synthesis of P-N cyclic compounds

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Analytical Chemistry /Organic Chemistry	Pass Mark	: 28
Title of Paper	: **Inorganic Chemistry-I**	Duration	: 3 Hrs
Paper Code	: R22ACH103A/R22OCH103A	Time	: 9am to 12pm
W.E.F	: 2022-23	Date	: 13/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Write a short note on nature and types of ligands in metal complexes

2. Write an account on Bents rule

3. Explain Molecular Orbital Diagram for BeH_2

4. Write the splitting of d-Orbitals in trigonal bipyramidal

5. Explain about statistical effect and ratio

6. Explain overall formation constants

7. Write a note on dioxygen complexes

8. Explain about Wades rule.

SECTION-B

II. Answer ALL the following Questions **5X10=50M**

9. Discuss the structural isomerism exhibited by the complexes with co-ordination compounds

(OR)

10. Discuss the stereo isomerism exhibited by the complexes with co-ordination number 6

11. Explain non valence cohesive forces

(OR)

12. Write a note on VSEPR Theory and write its limitations

13. Explain John-teller effect with suitable examples

(OR)

14. Explain Molecular Orbital Theory of bonding in Octahedral complexes.

15. Explain the determination of formation constants by P^H Metric method.

(OR)

16. Explain HSAB principle

17. Discuss Preparation & Synthesis of S-N

(OR)

18. Discuss Preparation & Synthesis of B-N cyclic compounds

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Analytical Chemistry /Organic Chemistry	Pass Mark	: 28
Title of Paper	: **Physical Chemistry**	Duration	: 3 Hrs
Paper Code	: R25ACH104/R25OCH104	Time	: 9am to 12pm
W.E.F	: 2025-26	Date	: 16/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Write a short note on operators.

2. Define fugacity and its determination.

3. Write a short note on first and second law of thermodynamics.

4. Derive rate law for decomposition of acetaldehyde.

5. Explain Kelvin equation.

6. Write a short note on micelles and reverse micelles.

7. Calculate the potential of concentration cells without transference.

8. Derive Nernst equation.

SECTION-B

II. Answer ALL the following Questions **5X10=50M**

9. Explain the behaviour of particle in one dimensional box.

[OR]

10. Explain the derivations of wave equation using operator concept.

11. Derive Clausius-Clapeyron equation.

[OR]

12. Derive Gibbs Duhem equation.

13. Discuss primary salt effect.

[OR]

14. Explain collision theory with its limitations.

15. Derive BET equation.

[OR]

16. i) Write a short note on critical micelle concentration.
ii) Derive Young Laplace equation.

17. Write a note on Debye Huckel Onsagar equation, its verification and limitations.

[OR]

18. i) Define liquid junction potential and its determination.
ii) Derive the equation for solubility product from EMF data.

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Analytical Chemistry /Organic Chemistry	Pass Mark	: 28
Title of Paper	: **Physical Chemistry-I**	Duration	: 3 Hrs
Paper Code	: R22ACH104A/R22OCH104A	Time	: 9am to 12pm
W.E.F	: 2022-23	Date	: 16/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Write a short note on Operators

2. Explain I Law of thermodynamics

3. Calculate the entropy change in reversible & irreversible process.

4. Write a note on Activated Complex Theory

5. Explain the classification of surface active agents.

6. Write a short note on Micro Emulsions

7. Explain the measurement of ph from emf data.

8. Define liquid junction potential and write its determination.

SECTION-B

II. Answer ALL the following Questions **5X10=50M**

9. Derive Schrodinger wave Equation

(OR)

10. Explain the behaviour of particle in one dimension box

11. Derive clausius clayperon equation.

(OR)

12. Derive Gibbs-Duhem equation.

13. Discuss primary salt effects.

(OR)

14. Explain collision theory and its limitations

15. Derive BET equation & its applications.

(OR)

16. Derive Young Laplace Equation.

17. Explain Concentraion cells and calculate the potential of concentration cells with Transference

(OR)

18. Derive Debeye Huckle Onsagar equation, its verification & limitations

Room No: _____ Regd No: _____

KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [ACH/OCH]	Max Marks	: 70
Subject	: Chemistry	Pass Mark	: 28
Title of Paper	: **Personality Development Through Life Enlightenment Skills**	Duration	: 3 Hrs
Paper Code	: R22ACH105/R22OCH105	Time	: 9am to 12pm
W.E.F	: 2022-23	Date	: 18/02/2026

SECTION-A

I. Answer any FIVE of the following Questions. **5X14=70M**

1. Explain the concept of personality and dimensions of personality in detail.

(OR)

2. Summarize the theories of personality development.(Freud &Erickson)

3. Can you write a brief outline of Attitude and Types of Attitudes?

(OR)

4. Compare the Theories of Motivation explained by Maslow and Herzberg.

5. Explain meaning and importance of social skills, soft skills, hard skills and life skills.

(OR)

6. Briefly explain about work ethics and good manners & etiquette.

7. Analyse the aspects of Holistic Development of personality as envisaged in Bhagavad Gita.

(OR)

8. Examine Personality of Role Model as said in Bhagavad Gita.

9. How would you like to classify the Types of Stress and Relaxation Techniques?

(OR)

10. Explain the Historical Perspective of Yoga in brief.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: IM.SC(OCH) /M.Sc [ACH]	Max Marks	: 70
Subject	: /Chemistry	Pass Mark	: 28
Title of Paper	: **Personality Development Through Life Enlightenment Skills**	Duration	: 3 Hrs
Paper Code	: R22ACH105A/R22OCH105A	Time	: 9am to 12pm
W.E.F	: 2024-25	Date	: 18/02/2026

SECTION-A

I. Answer any FIVE of the following Questions. **5X4=20M**

1. a) The concept of success and failure

b) Nature of motivation/motive

c) Explain the term Attitude

d) What is meant by the term Emotional Intelligence?

e) Why Work Ethics are important in any organizations?

f) Time Management

g) Types of Pranayama

h) List out the Meditation techniques

SECTION-B

II. Answer any FIVE of the following Questions. **5X10=50M**

2. Summarize the Theories of Personality development.(Freud &Erickson).

(OR)

3. Explain the concept of SWOT analysis

4. Define attitude. Explain the ways to develop positive attitude.

(OR)

5. Compare the Theories of Motivation explained by Maslow and Herzberg.

6. Apply Good manners and etiquette at work place.

(OR)

7. Identify the qualities of a successful leader.

8. Analyse the aspects of Holistic Development of personality as envisaged in Bhagavad Gita

(OR)

9. Examine Personality of Role Model as said in Bhagavad Gita.

10. Explain the Historical Perspective of Yoga in brief.

(OR)

11. How would you like to classify the Types of Stress and Relaxation Techniques?

[P.T.O]

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class : I M.Sc [Data Science]
Subject : Computers
Title of Paper : **Programming With R and Python**
Paper Code : R23DS101A
W.E.F : 2023-24

Max Marks : 70
Pass Mark : 28
Duration : 3 Hrs
Time : 9am to 12pm
Date : 09/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Define I/O statements in Python.
2. Difference between Membership and Identity operators.
3. Define List in Python with Examples.
4. What is Exception in Python?
5. How to represents Dictionaries with example.
6. Define Array in R.
7. Write steps to implement R-Scatterplots.
8. Define class syntax in python.

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain operators in python with example.

[OR]

10. Explain Iterative statements in python with example.

11. Define Function. Explain different types of arguments in python.

[OR]

12. Explain Difference between Pass by value and Pass by reference.

13. Discuss about Inheritance in python with example.

[OR]

14. Explain Tuple operations in python.

15. What are the Data Types supports in R.

[OR]

16. Write a Steps to create Data Frames using R.

17. Explain about various charts implement in R.

[OR]

18. Explain about Read and Write operations in CSV file using R.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [Data Science]	Max Marks	: 70
Subject	: Computers	Pass Mark	: 28
Title of Paper	: **Data Structures**	Duration	: 3 Hrs
Paper Code	: R23DS102A	Time	: 9am to 12pm
W.E.F	: 2023-24	Date	: 11/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. What is Time–Space Tradeoff?
2. List different control structures used in algorithms.
3. What is Pattern Matching?
4. What is Bubble Sort?
5. Differentiate Stack and Queue.
6. Define Priority Queue.
7. What is AVL Tree?
8. What is Graph Traversal?

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain Elementary Data Organization and Data Structures in detail.

[OR]

10. Write and explain algorithmic notation and control structures.

11. Explain Selection Sort.

[OR]

12. Explain Linear Search and Binary Search algorithms.

13. Explain Quick Sort and Recursion.

[OR]

14. Explain Linked List representation, traversal and searching.

15. Explain Binary Trees and their representations.

[OR]

16. Explain AVL Trees with rotations.

17. Explain Graph representations (Sequential & Linked).

[OR]

18. Explain Merge Sort and Radix Sort

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [Data Science]	Max Marks	: 70
Subject	: Computers	Pass Mark	: 28
Title of Paper	: **Probability and Statistics**	Duration	: 3 Hrs
Paper Code	: R23DS103A	Time	: 9am to 12pm
W.E.F	: 2023-24	Date	: 13/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Define conditional probability.
2. Explain independence of events.
3. Define expectation of a random variable.
4. Write a note on Poisson distribution and its applications.
5. Explain significance level in hypothesis testing.
6. What is F–distribution? State its applications.
7. Define coefficient of correlation.
8. What is interval estimation?

SECTION-B

II. Answer the following Questions **5X10=50M**

9. State and prove Bayes' theorem.

[OR]

10. Explain axioms of probability and derive addition theorem of probability.

11. Explain binomial distribution and obtain its mean and variance.

[OR]

12. Explain Poisson distribution and its applications.

13. Explain testing of hypothesis on a single population proportion.

[OR]

14. Explain comparing two population proportions using large sample test.

15. Explain comparing two variances using F–test.

[OR]

16. Explain comparing two means for independent samples assuming equal variances.

17. Explain simple linear regression model and estimation of parameters.

[OR]

18. Explain least squares method for fitting a regression line.

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [Data Science]	Max Marks	: 70
Subject	: Computers	Pass Mark	: 28
Title of Paper	: **Database Management System**	Duration	: 3 Hrs
Paper Code	: R23DS104 ~~VI~~	Time	: 9am to 12pm
W.E.F	: 2023-24	Date	: 16/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. Define Data Model. List the different types of data models used in DBMS. (CO1)
2. What are the advantages of using the DBMS approach? (CO1)
3. Write a short note on JOIN and DIVISION operations in relational Algebra. (CO2)
4. Write about INSERT and DELETE statements in SQL. (CO2)
5. Write a short note on Boyce-Codd Normal Form. (CO3)
6. Explain about Algorithms for Relational Database Schema Design. (CO3)
7. Describe Hashing Techniques. (CO4)
8. Illustrate the concept of Multiple Granularity Locking. (CO5)

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain about the Three Schema Architecture with neat diagram and Data Independence. (CO1)

[OR]

10. Explain the concepts of Generalization and Specialization with examples. (CO1)

11. Explain about Relational Model Constraints and Relational Database Schemas. (CO2)

[OR]

12. Explain about Triggers and Views in SQL. (CO2)

13. What is Normalization? Explain 1NF and 2NF. (CO3)

[OR]

14. Explain 4NF and 5NF with suitable examples. (CO3)

15. Explain about RAID Technology. (CO4)

[OR]

16. Explain Single-Level Ordered Indexes and Multi-level Indexes in detail. (CO4)

17. Explain transaction concepts and related system concepts. (CO5)

[OR]

18. What is Concurrency Control? Explain Two Phase Locking Techniques. (CO5)

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KAKARAPARTI BHAVANARAYANA COLLEGE (AUTONOMOUS)

PG I – SEMESTER END EXAMINATIONS

Class	: I M.Sc [Data Science]	Max Marks	: 70
Subject	: Computers	Pass Mark	: 28
Title of Paper	: **Operating Systems**	Duration	: 3 Hrs
Paper Code	: R23DS105A	Time	: 9am to 12pm
W.E.F	: 2023-24	Date	: 18/02/2026

SECTION-A

I. Answer any FIVE of the following Questions **5X4=20M**

1. What are system calls? Mention their types.
2. What is process scheduling?
3. What is the Critical Section Problem?
4. List the four necessary conditions for deadlock.
5. What is memory management.
6. List page replacement algorithms.
7. What is free-space management?
8. What is communication protocol?

SECTION-B

II. Answer the following Questions **5X10=50M**

9. Explain the functions and services of an Operating System in detail.

[OR]

10. Discuss CPU scheduling concepts and scheduling criteria.

11. Discuss classical synchronization problems (Producer–Consumer)

[OR]

12. Describe deadlock prevention and avoidance techniques.

13. Describe paging and structure of page table.

[OR]

14. Explain page replacement algorithms (FIFO, LRU, Optimal).

15. Explain file-system implementation and allocation methods.

[OR]

16. Explain disk scheduling algorithms (FCFS, SSTF, SCAN, C-SCAN).

17. Explain Android operating system architecture and features.

[OR]

18. Discuss network structures and communication models.