

**CENTRAL UNIVERSITY OF HARYANA**  
**V<sup>th</sup> Semester U.G. (B.Voc.) Term End Examination Dec 2022**

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<b>Programme</b>	:	<b>B. Voc. - Retail and Logistics Management (RLM)</b>
<b>Semester</b>	:	<b>V (Regular/Reappear)</b>
<b>Paper Name</b>	:	<b>Soft Skills &amp; Personality Development</b>
<b>Paper Code</b>	:	<b>RLM-504</b>
<b>Maximum Marks</b>	:	<b>37.5</b>
<b>Maximum Time</b>	:	<b>3 hours</b>
<b>Batch</b>	:	<b>July 2020</b>

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**Note: Question No.1 is compulsory. Attempt one question from each unit.**

**Q1. Attempt any five questions:** (5x1.5=7.5)

- a) How to answer an impromptu question?
- b) Write a short note on an effective personality.
- c) Explain the determinants of soft skills.
- d) What are the benefits of positive attitude in today's competitive era of business?
- e) Define democratic leadership with example.
- f) Expand KOPPACT. Explain its role in communication.
- g) How to improve listening skills?
- h) State various types of business etiquette.

**UNIT I**

- Q2. A) Describe the concept of personality development. Also explain the determinants of personality development. (5)
- B) Explain basic interaction skills that are needed to communicate within society personal and family. (2.5)

or

- Q3. A) What is group discussion (GD)? Why GD is an important activity at various levels? (5)
- B) How can a manager productively manage his time? (2.5)

**UNIT II**

- Q4. A) Describe important leadership skills for workplace success. (5)
- B) Differentiate interpersonal and intrapersonal skills in detail. (2.5)

or

- Q5. A) Explain the tips to improve leadership skills. (5)
- B) Write a short note on trust, expectations and compatibility role in building team. (2.5)

### UNIT III

- Q6. A) Describe the concept of selling skills. Also discuss basic sales models. (5)  
B) Explain the elements that affect negotiation. (2.5)  
or
- Q7. A) Define negotiation. Mention its types and importance. (5)  
B) Distinguish the role of strategic selling and conceptual selling. (2.5)

### UNIT IV

- Q8. A) Elaborate integral parts of soft skills. Why soft skills are important in the workplace? (5)  
B) Enumerate the importance of hard skills in an organization. (2.5)  
or
- Q9. A) Illustrate how the same person's personality may change as a leader, a team player, a husband, a parent and a son. (5)  
B) Differentiate between soft skills and hard skills. (2.5)

**CENTRAL UNIVERSITY OF HARYANA**  
**V<sup>th</sup> Semester U.G. (B.Voc.) Term End Examination Dec 2022**

Programme	:	B. Voc. - Retail and Logistics Management (RLM)
Semester	:	V (Regular/Reappear)
Paper Name	:	ESSENTIALS OF E- COMMERCE
Paper Code	:	RLM-503
Maximum Marks	:	37.5
Maximum Time	:	3 hours
Batch	:	July 2020

**Question No.1 is compulsory. Attempt one question from each unit.**

**Q1. Attempt any five questions:** (5x1.5=7.5)

- a) Explain the role of security in e-commerce.
- b) Write about retail business using e-commerce.
- c) What are the advantages of business to consumer (B2C) business model?
- d) What are the advantages and disadvantages of a smart card?
- e) How does a mobile wallet work?
- f) Define payment gateway?
- g) What is the usefulness of e-CRM in business?
- h) How does search engine promote e-commerce?

**Unit I**

- Q2. A) Who are the stakeholders in e-commerce information system? Explain the benefits and limitations of e-commerce. (5)
- B) Discuss how economic factors affect e-commerce? (2.5)

or

- Q3. A) What is e-commerce? Discuss various applications of e-commerce. (5)
- B) Explain how e-commerce facilitates customization of products and services. (2.5)

**Unit II**

- Q4. A) What is B2B in e-commerce? What are the various business models of B2B? (5)
- B) Explain Peer-to-Peer (P2P) model with example? (2.5)

or

- Q5. A) Discuss the role of e-commerce in the supply chain management. (5)
- B) Differentiate between C2C and B2C e-commerce models. (2.5)

### UNIT III

- Q6. A) What is e-shopping? Explain various advantages and disadvantages of e-shopping? (5)  
B) Write a detailed note on online advertising. (2.5)  
or
- Q7. A) What is the concept of online marketing communications? Discuss the different online marketing strategies in e-commerce. (5)  
B) Discuss any case study in online service industry perspective. (2.5)

### UNIT IV

- Q8. A) "Once a company has acquired customer, the key to maximizing revenue is keeping them". Explain how e-commerce is helpful in customer retention? (5)  
B) Write about the security services that are to be offered in e-payment systems. Discuss any one e-payment system. (2.5)  
or
- Q9. A) Discuss different types of electronic payment system with examples. (5)  
B) What are the advantages and disadvantages of electronic payment system? (2.5)

**CENTRAL UNIVERSITY OF HARYANA**  
**III Semester U.G. (B.Voc.) Term End Examination January 2023**

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<b>Programme</b>	:	<b>B. Voc. - Retail and Logistics Management (RLM)</b>
<b>Semester</b>	:	<b>III (Regular/Reappear)</b>
<b>Paper Name</b>	:	<b>Retail Management - II</b>
<b>Paper Code</b>	:	<b>RLM-301</b>
<b>Maximum Marks</b>	:	<b>37.5</b>
<b>Maximum Time</b>	:	<b>3 hours</b>
<b>Batch</b>	:	<b>2021</b>

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**Note: Question No.1 is compulsory. Attempt one question from each Unit.**

Q1. Attempt any five questions: (5x1.5=7.5)

- a) Explain the concept of traditional retailing.
- b) Define category management.
- c) How to create a target market?
- d) Explain importance of store layout.
- e) Why retail price is important in business?
- f) Explain 4P's of merchandising.
- g) What are the factors involved in international retailing?
- h) Why do some international retail businesses fail?

**UNIT I**

- Q2. A) Enumerate the concept and types of merchandise product. (5)  
B) What is a business mission? Explain with example. (2.5)

or

- Q3. A) Discuss various steps of category management. (5)  
B) What is merchandising assortment? Explain with example. (2.5)

**UNIT II**

- Q4. A) Explain different types of store layouts and designs. (5)  
B) What are the factors affecting store layout? (2.5)

or

- Q5. A) What is visual merchandising? Explain objectives of visual merchandising. (5)  
B) Explain the tools of visual merchandising. (2.5)

### UNIT III

- Q6. A) Describe the role of retail information system for delivering the product. Also explain the features of retail information system. (5)
- B) Explain various applications of IT in retailing. (2.5)

or

- Q7. A) Describe the advantages and disadvantages of retail information system. (5)
- B) Elaborate various functions of merchandising management. (2.5)

### UNIT IV

- Q8. A) Explain the concept of international retailing. What are the factors that determine the entry strategy of international retailers? (5)
- B) Highlight various challenges of international retailing. (2.5)

or

- Q9. A) Enumerate opportunities and threats of international retailing. (5)
- B) Explain the role of retailing in nation's economy. (2.5)

**CENTRAL UNIVERSITY OF HARYANA**  
**III<sup>rd</sup> Semester U.G. (B.Voc.) Term End Examination January 2023**

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<b>Programme</b>	:	<b>B. Voc. - Retail and Logistics Management (RLM)</b>
<b>Semester</b>	:	<b>III (Regular/Reappear)</b>
<b>Course Name</b>	:	<b>Environmental Studies</b>
<b>Course Code</b>	:	<b>RLM-303</b>
<b>Maximum Marks</b>	:	<b>37.5</b>
<b>Maximum Time</b>	:	<b>3 hours</b>

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**Attempt any five questions selecting one question from each unit. Question 1 is compulsory.**

**Question 1: Define/Write a short note:** **(5x1.5)**

- a) Renewable energy resources
- b) Ecological pyramids
- c) Eutrophication
- d) Food Chain
- e) Chernobyl nuclear disaster
- f) Bhopal gas tragedy
- g) Acid rain
- h) Population explosion

**UNIT-I**

**Question 2:** **(5, 2.5)**

- A. What are the major causes and consequences of deforestation?
- B. How do different disciplines contribute to environmental studies?

OR

- A. What is soil erosion? Discuss different types of soil erosion.
- B. What are the scopes of environmental studies?

**UNIT-II**

**Question 3:** **(5, 2.5)**

- A. Define biodiversity. Explain genetic diversity, species diversity and ecosystem diversity.
- B. Discuss the process of ecological succession.

OR

- A. What are biotic and abiotic components of an ecosystem?
- B. What is meant by in situ and ex situ conservation of biodiversity? Give examples.

**UNIT-III**

**Question 4:** **(5, 2.5)**

- A. Briefly describe the sources, effects and control of air pollution.

B. Discuss the salient features of Wildlife (Protection) Act, 1972.

OR

A. Discuss the natural formation and occurrence of ozone in the atmosphere. How is ozone layer depleted?

B. Give an account of the adverse effects and control of water pollution.

#### UNIT-IV

**Question 5:**

**(5, 2.5)**

A. What are the factors influencing population size?

B. Write a note on Chipko movement.

OR

A. How does information technology play a role in environment and human health?

B. Discuss the influence of environmental parameters and pollution on human health.



**CENTRAL UNIVERSITY OF HARYANA**  
**III Semester U.G. (B.Voc.) Term End Examination January 2023**

<b>Programme</b>	:	<b>B. Voc. - Retail and Logistics Management (RLM)</b>
<b>Semester</b>	:	<b>III (Regular/Reappear)</b>
<b>Paper Name</b>	:	<b>Business Communication - II</b>
<b>Paper Code</b>	:	<b>RLM-304</b>
<b>Maximum Marks</b>	:	<b>37.5</b>
<b>Maximum Time</b>	:	<b>3 hours</b>
<b>Batch</b>	:	<b>2021</b>

**Note: Question No.1 is compulsory. Attempt one question from each Unit.**

Q1. Attempt any five questions:

(5x1.5=7.5)

- a) What is the role of prewriting in business letter?
- b) What are the sources of publicity?
- c) Explain solicited and unsolicited inquiry letters.
- d) Is agreement necessary for a contract?
- e) What is self motivation skill?
- f) Explain different types of consumer rights.
- g) How do you explain a memorandum?
- h) What is the importance of source image in persuasive communication?

**UNIT I**

Q2. A) What is e-mail communication? Write an e-mail to your manager regarding misbehaviour of an employee. (5)

B) What is office automation? Explain the role of digitalization in office automation. (2.5)

Or

Q3. A) Discuss digital literacy and explain the role of digital literacy in workplace success. (5)

B) What is AIDA model in marketing? Explain in brief. (2.5)

**UNIT II**

Q4. A) What is plagiarism? Explain the various types of plagiarism. (5)

B) What is global business etiquette? How to follow proper business etiquette in India? (2.5)

Or

Q5. A) What is contract? Discuss various elements of valid contract. (5)

B) What is NET etiquette? Explain the importance of NET etiquette. (2.5)

### UNIT III

- Q6. A) What is resignation letter? How to write resignation letter to any organization? (5)  
B) Explain scientific writing. What is the role of scientific writing in personal image building? (2.5)

Or

- Q7. A) Write a summary and review of Shrimad Bhagawat Geeta. (5)  
B) What is business proposal? Elaborate various components of business proposal. (2.5)

### UNIT IV

- Q8. A) Discuss the concept of selling skills. Also explain the characteristics of selling. (5)  
B) What is oral presentation? Write 4'P of an effective oral presentation. (2.5)

Or

- Q9. A) Define negotiation. Elaborate types and importance of negotiation. (5)  
B) What is persuasive communication? Explain the role of persuasive communication at workplace success. (2.5)

**CENTRAL UNIVERSITY OF HARYANA**  
**III<sup>rd</sup> Semester U.G. (B.Voc.) Term End Examination Jan. 2023**

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<b>Programme</b>	:	<b>B. Voc. - Retail and Logistics Management (RLM)</b>
<b>Semester</b>	:	<b>III (Regular/Reappear)</b>
<b>Course Name</b>	:	<b>Environmental Studies</b>
<b>Course Code</b>	:	<b>RLM-303</b>
<b>Maximum Marks</b>	:	<b>37.5</b>
<b>Maximum Time</b>	:	<b>3 hours</b>

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**Attempt any five questions selecting one question from each unit. Question 1 is compulsory.**

**Question 1: Define/Write a short note:** **(5x1.5)**

- a) Renewable energy resources
- b) Ecological pyramids
- c) Eutrophication
- d) Food Chain
- e) Chernobyl nuclear disaster
- f) Bhopal gas tragedy
- g) Acid rain
- h) Population explosion

**UNIT-I**

**Question 2:** **(5, 2.5)**

- A. What are the major causes and consequences of deforestation?
- B. How do different disciplines contribute to environmental studies?

OR

- A. What is soil erosion? Discuss different types of soil erosion.
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**UNIT-II**

**Question 3:** **(5, 2.5)**

- A. Define biodiversity. Explain genetic diversity, species diversity and ecosystem diversity.
- B. Discuss the process of ecological succession.

OR

- A. What are biotic and abiotic components of an ecosystem?
- B. What is meant by in situ and ex situ conservation of biodiversity? Give examples.

**UNIT-III**

**Question 4:** **(5, 2.5)**

- A. Briefly describe the sources, effects and control of air pollution.

B. Discuss the salient features of Wildlife (Protection) Act, 1972.

OR

A. Discuss the natural formation and occurrence of ozone in the atmosphere. How is ozone layer depleted?

B. Give an account of the adverse effects and control of water pollution.

#### UNIT-IV

**Question 5:**

**(5, 2.5)**

A. What are the factors influencing population size?

B. Write a note on Chipko movement.

OR

A. How does information technology play a role in environment and human health?

B. Discuss the influence of environmental parameters and pollution on human health.

**CENTRAL UNIVERSITY OF HARYANA**  
**III Semester U.G. (B.Voc.) Term End Examination Jan 2023**

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<b>Programme</b>	:	<b>B. Voc. - Retail and Logistics Management (RLM)</b>
<b>Semester</b>	:	<b>III (Regular/Reappear)</b>
<b>Paper Name</b>	:	<b>Business Communication - II</b>
<b>Paper Code</b>	:	<b>RLM-304</b>
<b>Maximum Marks</b>	:	<b>37.5</b>
<b>Maximum Time</b>	:	<b>3 hours</b>
<b>Batch</b>	:	<b>2021</b>

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**Note: Question No.1 is compulsory. Attempt one question from each Unit.**

Q1. Attempt any five questions: (5x1.5=7.5)

- a) What is the role of prewriting in business letter?
- b) What are the sources of publicity?
- c) Explain solicited and unsolicited inquiry letters.
- d) Is agreement necessary for a contract?
- e) What is self motivation skill?
- f) Explain different types of consumer rights.
- g) How do you explain a memorandum?
- h) What is the importance of source image in persuasive communication?

**UNIT I**

- Q2. A) What is e-mail communication? Write an e-mail to your manager regarding misbehaviour of an employee. (5)
- B) What is office automation? Explain the role of digitalization in office automation. (2.5)

Or

- Q3. A) Discuss digital literacy and explain the role of digital literacy in workplace success. (5)
- B) What is AIDA model in marketing? Explain in brief. (2.5)

**UNIT II**

- Q4. A) What is plagiarism? Explain the various types of plagiarism. (5)
- B) What is global business etiquette? How to follow proper business etiquette in India? (2.5)

Or

- Q5. A) What is contract? Discuss various elements of valid contract. (5)
- B) What is NET etiquette? Explain the importance of NET etiquette. (2.5)

### UNIT III

- Q6. A) What is resignation letter? How to write resignation letter to any organization? (5)  
B) Explain scientific writing. What is the role of scientific writing in personal image building? (2.5)

Or

- Q7. A) Write a summary and review of Shrimad Bhagawat Geeta. (5)  
B) What is business proposal? Elaborate various components of business proposal. (2.5)

### UNIT IV

- Q8. A) Discuss the concept of selling skills. Also explain the characteristics of selling. (5)  
B) What is oral presentation? Write 4'P of an effective oral presentation. (2.5)

Or

- Q9. A) Define negotiation. Elaborate types and importance of negotiation. (5)  
B) What is persuasive communication? Explain the role of persuasive communication at workplace success. (2.5)

**CENTRAL UNIVERSITY OF HARYANA**  
**III Semester U.G. (B.Voc.) Term End Examination Jan 2023**

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<b>Programme</b>	:	<b>B. Voc. - Retail and Logistics Management (RLM)</b>
<b>Semester</b>	:	<b>III (Regular/Reappear)</b>
<b>Paper Name</b>	:	<b>Principles of Marketing</b>
<b>Paper Code</b>	:	<b>RLM-302</b>
<b>Maximum Marks</b>	:	<b>37.5</b>
<b>Maximum Time</b>	:	<b>3 hours</b>
<b>Batch</b>	:	<b>2021</b>

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**Note: Question No.1 is compulsory. Attempt one question from each Unit.**

Q1. Attempt any five questions: (5x1.5=7.5)

- a) Explain the concepts of need, want and demand with example.
- b) Differentiate between micro and macro environment of business.
- c) What are convenience goods?
- d) What is meant by behavioural segmentation?
- e) Differentiate between advertising and sales promotion.
- f) Highlight skimming strategy of pricing with an example.
- g) Mention the elements of service encounter.
- h) Brief the role of physical evidence in service marketing.

**UNIT I**

- Q2. A) What is marketing mix? Discuss the various elements of the marketing mix. (5)  
B) Discuss the important external micro factors in marketing. (2.5)

Or

- Q3. A) "Firms which systematically analyse and diagnose the environment are more effective than those which don't". Elucidate. (5)  
B) Discuss the nature and importance of marketing. (2.5)

**UNIT II**

- Q4. A) What is meant by market segmentation? State and explain the importance of market segmentation. (5)  
B) How product positioning is important in marketing? (2.5)

Or

- Q5. A) What do you mean by product development? Discuss the various stages involved in the development of new product. (5)  
B) Explain the meaning and features of non-durable goods. (2.5)

**UNIT III**

- Q6. A) Discuss the importance of pricing as a part of marketing mix. Also discuss the pricing strategies for a new product. (5)  
B) What is the meaning of pricing? Discuss the objectives of pricing. (2.5)

Or

- Q7. A) Elaborate the concept of channel of distribution. Explain the factors that govern the choice of a channel of distribution. (5)  
B) What are the factors affecting promotion mix? (2.5)

**UNIT IV**

- Q8. A) What is customer expectation? Explain the factors that influence customer expectation of service. (5)  
B) What do you mean by product? Differentiate between physical goods and services. (2.5)

Or

- Q9. A) Discuss in detail 7Ps framework in marketing of services. Describe your answer in the context of marketing a luxury hotel. (5)  
B) Highlight various decision-making roles in the buying decision making process. (2.5)



**CENTRAL UNIVERSITY OF HARYANA**  
**III Semester U.G. (B.Voc.) Term End Examination Jan 2023**

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<b>Programme</b>	:	<b>B. Voc. - Retail and Logistics Management (RLM)</b>
<b>Semester</b>	:	<b>III (Regular/Reappear)</b>
<b>Paper Name</b>	:	<b>Retail Management - II</b>
<b>Paper Code</b>	:	<b>RLM-301</b>
<b>Maximum Marks</b>	:	<b>37.5</b>
<b>Maximum Time</b>	:	<b>3 hours</b>
<b>Batch</b>	:	<b>2021</b>

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**Note: Question No.1 is compulsory. Attempt one question from each Unit.**

Q1. Attempt any five questions: (5x1.5=7.5)

- a) Explain the concept of traditional retailing.
- b) Define category management.
- c) How to create a target market?
- d) Explain importance of store layout.
- e) Why retail price is important in business?
- f) Explain 4P's of merchandising.
- g) What are the factors involved in international retailing?
- h) Why do some international retail businesses fail?

**UNIT I**

- Q2. A) Enumerate the concept and types of merchandise product. (5)  
B) What is a business mission? Explain with example. (2.5)

or

- Q3. A) Discuss various steps of category management. (5)  
B) What is merchandising assortment? Explain with example. (2.5)

**UNIT II**

- Q4. A) Explain different types of store layouts and designs. (5)  
B) What are the factors affecting store layout? (2.5)

or

- Q5. A) What is visual merchandising? Explain objectives of visual merchandising. (5)  
B) Explain the tools of visual merchandising. (2.5)

### UNIT III

- Q6. A) Describe the role of retail information system for delivering the product. Also explain the features of retail information system. (5)
- B) Explain various applications of IT in retailing. (2.5)

or

- Q7. A) Describe the advantages and disadvantages of retail information system. (5)
- B) Elaborate various functions of merchandising management. (2.5)

### UNIT IV

- Q8. A) Explain the concept of international retailing. What are the factors that determine the entry strategy of international retailers? (5)
- B) Highlight various challenges of international retailing. (2.5)

or

- Q9. A) Enumerate opportunities and threats of international retailing. (5)
- B) Explain the role of retailing in nation's economy. (2.5)



Central University of Haryana  
Semester V Term End Examination December, 2022

B.Voc. Programmes

Branch: Biomedical Sciences

Course Code: BMS-501

Course Title: Medical Genetics (Regular/Reappear)

Max Time: 3h

Max Marks: 50

**Instructions:**

Question Number one (PART-I) is compulsory and carries total 10 marks (Each sub Question carries one Mark).

Question Numbers 2(two) to 5(five) carry ten marks each with internal choice.

**PART -I**

Q. No.1 Fill in the blank (Attempt any ten)

(10 marks)

- Expand LOD
- Huntington disease is a genetic disease. (True/False)
- Individualized drug therapy
- Oncogenes
- Genetic drift
- Barr bodies
- Genomic imprinting
- How many genes are present in mitochondrial genome in humans?
- Karyogram
- Full form of FISH is .....
- Pharmacogenomics
- Multifactorial disorder
- If the centromere occurs in the middle of chromosome, the chromosome is said to be.....
- Founder effect

**PART -II**

Q. No.2

Write short note on any four of the following? (2.5X4=10)

- Triple repeat mutation
- SNPs
- Tandem repeat polymorphism
- SINEs
- Microsatellite

OR

Q. No 2

Describe in detail how we can detect and measure the genetic variation? (10)

Q. No.3

- Write a short note on Mendelian principles? (5)
- Write a short note on mitochondrial genes and mitochondrial disorders? (5)

OR

**Q. No 3**

- a) Write a note on sex linked inactivation? (3)
- b) What are the factors that affect the expression of disease-causing genes? Explain one. (7)

**Q. No.4**

- a) What is banding. Describe its different types? (5)
- b) Describe how recombination frequency help us determine the location of genes? (5)

OR

**Q. No .4**

Write a detailed note on the abnormalities related to chromosome structure and number?  
(10)

**Q. No .5**

- a) Write a short note on disorders caused by defects in protein metabolism? (5)
- b) Write a note on prenatal diagnosis of genetic disorders (5)

OR

**Q. No .5**

- a) Describe any three classes of cancer genes? (5)
- b) Write a detailed note on disorders caused by defects in lipid metabolism? (5)



Central University of Haryana  
Semester V Term End Examination, December 2022  
B.Voc. Programmes  
Branch: Biomedical Sciences

Course Code: BMS-502  
Course Title: Molecular Biology (Regular/Reappear)

Max Time: 3h  
Max Marks: 37.5

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 7 marks (Each sub Question carries one Mark).

Question Numbers 2(two) to 4(four) carry ten marks each with internal choice.

**PART -I**

Q. No.1 Fill in the blank (Attempt **any seven**) **(7 marks)**

- ..... is enzyme of involved in polyadenylation.
- Repressor always binds to the sequence called.....
- Initiator t-RNA bind to ..... site of ribosome
- DNA replication is carried in direction.....
- ..... and..... are three start codon in prokaryotes.
- DNA transcription takes place in.....
- ..... pair of nucleotides are present in one helical turn of DNA
- Fredrick Griffith experiment involving streptococcus pneumonia lead to the discovery of .....
- ..... main DNA replication enzyme in prokaryotes
- ..... and ..... are two elongation factor.

**PART -II**

**Q. No.2**

Write Function of any five following factors:

**(10 marks)**

- |                      |  |
|----------------------|--|
| (i) Sigma factor     | (ii) RNA polymerase                      |
| (iii) DNA polymerase | (iv) Dicer                               |
| (v) Topoisomerase    | (vi) Spliceosome                         |
| (vii) CAP site       | (viii) Solution I ( Glucose, EDTA, TRIS) |

OR

**Q. No.2**

a) What is genetic code? Discuss the characteristics of genetic code.

**(5 marks)**

b) Discuss Meselson and Stahl experiment.

**(5 marks)**

**Q. No.3**

a) Draw diagram of t-RNA molecule.

**(4 marks)**

b) Draw prokaryotic promoter.

**(3 marks)**

c) Draw ribosome indications with all sites involved in translation.

**(3 marks)**

OR

**Q. No 3**

Explain the mechanism of 5' capping of tRNA in eukaryotes?

**(10 marks)**

**Q. No.4**

Discuss prokaryotic gene regulation with respect of lac operon?

**(10.5 marks)**

OR

**Q. No .4**

Discuss prokaryotic gene regulation with respect of tryptophan operon?

**(10.5 marks)**



Central University of Haryana  
Semester V Term End Examination, December 2022

B.Voc. Programmes

Branch: Biomedical Sciences

Course Code: BMS-503

Course Title: Medical Biotechnology (Regular/Reappear)

Max Time: 3h

Max Marks: 50

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 7 marks (Each sub-question carries one Mark).

Question Numbers 2 (two) to 4 (four) carry ten marks each with internal choice.

**PART -I**

Q. No.1 Define the following (Attempt **any seven**)

**(7 marks)**

- a) Nude mice
- b) Expand ADA
- c) DNA probes
- d) Antisense molecules
- e) Oncomouse
- f) cDNA library
- g) Cosmids
- h) Knockout mice
- i) Vegetable vaccines
- j) Expand HAC

**PART -II**

Q. No.2

- a) Mention different types of cloning vectors and the size of the insert DNA that can be accommodated in these cloning vectors? (5)
- b) What is difference between endonuclease and exonuclease? (2.5)
- c) Describe the difference between bacterial plasmids and chromosome? (2.5)

OR

Q. No.2

- a) Describe the procedure for obtaining a desired gene? (5)
- b) What are restriction enzymes? How they are named? (5)

Q. No.3

- a) Explain how insulin can be formed by the principle of recombinant DNA technology?  
(6)
- b) Describe in detail the process of PCR? (4.5)

OR

Q. No 3

- a) Explain the difference between DNA vaccine, mRNA vaccine and subunit vaccine? (6)
- b) Explain how the SARS-CoV-2 can be detected by using diagnostic kits (4.5)

**Q. No.4**

- a) What are transgenic animals? Describe the techniques by which they can be produced? (5)
- b) Citing one disease, describe the application of gene therapy? (5)

Or

**Q. No.4**

- a) Describe how thymidine kinase is used as a biomarker to confirm the transfer DNA into new cells? (5)
- b) What is the principle of gene therapy? How it has been used in the treatment of ADA? (5)





Central University of Haryana  
Semester V Term End Examination January, 2023

B.Voc. Programmes  
Branch: Biomedical Sciences

Course Code: BMS-301

Course Title: Metabolism of Biomolecules (Regular/Reappear)

Max Time: 3h

Max Marks: 50

**Instructions:**

Question Number **one (PART-I)** is compulsory and carries total 10 marks (Each sub Question carries **two Marks**).

Question Numbers 2(two) to 5(five) carry ten marks each with internal choice.

**PART -I**

Q. No.1 Fill in the blank (Attempt **any five**)

**(10 marks)**

- Lactose intolerance
- Maple Syrup urine disease
- Phenylketonuria
- Name two ketogenic amino acids.
- What is Gout?
- Discuss the relationship of ketone bodies production with Diabetes Mellitus and starvation.
- Describe the allosteric regulation of aspartate transcarbamoylase by CTP and ATP.

**PART -II**

**Q. No.2**

- Draw the general scheme of pentose phosphate pathway? (5)
- Describe the anaerobic fate of pyruvate? (5)

OR

**Q. No 2**

Draw and describe in detail the citric acid cycle? (10)

**Q. No.3**

What is beta oxidation? How many ATP are synthesised on complete oxidation of one Palmitic acid? (10)

OR

**Q. No 3**

What are ketone bodies? Write its biosynthesis pathway. (10)

**Q. No.4**

Signifying the importance of urea cycle, describe in detail the urea cycle? (10)

OR

**Q. No .4**

Write a detailed note on catabolic pathway of phenylalanine? (10)

**Q. No .5**

Outline the *denovo* synthesis of AMP and GMP. (10)

OR

**Q. No .5**

Write a short note on

- a) (a) Lesch-Nyhan Syndrome. (5)
- (b) Adenosine Deaminase (ADA). (5)



**Central University of Haryana**  
**Semester III Term End Examination January, 2023**  
**B.Voc. Programmes**  
**Branch: Biomedical Sciences**

Course Code: BMS-302  
Course Title: Microbiology (Regular/Reappear)

**Max Time: 3h**  
**Max Marks: 50**

**Instructions:**

Question Number 1(one) (**PART-I**) is compulsory and carries total of ten marks (Each sub-Question carries two marks).

Question Numbers 2(two) to 5(Five) carry ten marks each with internal choice.

**PART -I**

Q. No.1 Briefly explain the contribution of the following scientists in microbiology (**ANY FIVE**).  
(2x5=10 marks)

- a) Francesco Redi and John Needham
- b) John Tyndall and Joseph Lister
- c) Lazzaro Spallanzani and Theodore Schwann
- d) Louis Pasteur in conflict over spontaneous generation and microbiology
- e) Alexander Fleming and Howard Florey
- f) Robert Koch and Joseph Lister
- g) Ernst Chain and Norman Heatley

**PART -II**

**Q. No.2**

- a) Describe the Lytic **OR** Lysogenic cycle with a suitable diagram. (5 marks)
- b) Briefly discuss a Fluid Mosaic Model **OR** bacterial cell with a well-labelled diagram.  
(5 marks)

**Q. No.3**

- a) Write down **FIVE** differences between Exotoxins and Endotoxins **OR** pathogenesis of the viral disease. (5 marks)
- b) Briefly describe the therapeutic index **OR** Dilution susceptibility test. (5 marks)

**Q. No 4**

- a) Describe the mechanism of drug resistance with a suitable diagram? (5 marks)
- b) Briefly explain the mode of action of common antiviral drugs with a suitable diagram. (5 marks)

**OR**

**Q. No 4**

Write short notes on any **TWO** of the following: (5x2=10)

- a) Five differences between gram-positive and gram-negative bacteria
- b) Shape and arrangement of bacteria
- c) Five differences between prokaryote and eukaryote
- d) Inhibitors of cell wall synthesis



**Q. No.5**

Give the following details of any **TWO** diseases (5x2=10 marks)

- a) Causative agent/etiology
  - b) Clinical symptoms
  - c) Diagnosis
  - d) Treatment
  - e) Prevention
- i- Staphylococcal food poisoning
  - ii- Amoebiasis
  - iii- Malaria
  - iv- Gonorrhoea
  - v- Tuberculosis



**CENTRAL UNIVERSITY OF HARYANA**

End Semester Examinations January 2023

**Programme: B. Voc. Biomedical Sciences**

**Session: 2022-23**

**Semester: III**

**Max. Time: 3 Hours**

**Course Title: Concepts in Chemistry-III**

**Max. Marks: 25**

**Course Code: BMS-303 (Reappear)**

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**Instructions:**

1. All questions are mandatory.
2. Question no. 1 has eight parts and students need to answer any five. Each part carries one Mark.

Q 1. (5X1=5)

- a) Explain Saytzeff rule.
- b) What is Hofmann rule?
- c) Why don't benzaldehyde undergo aldol condensation?
- d) Which alkene gives only acetone on ozonolysis?
- e) Name different types of organic reactions.
- f) Out of  $S_N^1$  and  $S_N^2$ , which follows single step mechanism?
- g) What are condensation reactions?
- h) Name the steps involved in free radical mechanism.

Q 2. (1X5=5)

- a) Differentiate between E1 and E2 elimination.

or

- b) Write a short note on  $S_N^2$  Reactions.

Q 3. (1X5=5)

- a) Write a short note on Sigmatropic Reactions.

or

- b) Write a short note on cycloaddition Reactions.

Q 4. (1X5=5)

- a) Write a short note on Aldol Reaction.

or

- b) Write a short note on Fischer-Indole Synthesis.

Q 5. (1X5=5)

- a) Write a short note on Diels- Alder Reaction.

or

- b) Write a short note on Sonogashira Reactions.





CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations January 2023

Programme: B. Voc. Biomedical Sciences

Session: 2022-23

Semester: III

Max. Time: 3 Hours

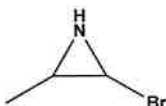
Course Title: Reactions in Organic Chemistry

Max. Marks: 25

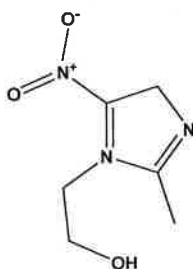
Course Code: BMS-303 (Regular)

**Instructions:** All questions are compulsory. Each question carries 5 marks.

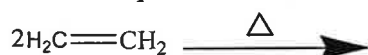
1. Attempt any five. Each part carries one mark.
- a) Write an example of a concerted addition reaction.
- b) Write the name of the following compound:



- c) Identify the heterocyclic compound in the following drug:



- d) Write the product for the following reaction:



- e) State Lambert- Beer's Law.
- f) Arrange the primary, secondary, tertiary, and methyl radicals in the increasing order of reactivity.
- g) Comment on the aromaticity of furan.
2. Write differences between unimolecular and bimolecular substitution reactions.
- Or
- Explain the factors affecting the pathways of reactions.
3. Write a short note on Pericyclic reactions.
- or
- Write a note on the Jablonskii diagram.
4. Write a note on the synthesis and reactions of pyrrole.
- or
- Write a note on the synthesis and reactions of Indole.
5. Write a note on the Diels- Alder Reaction.
- or
- Write a short note on the Suzuki coupling reaction.



CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations January 2023

Programme: B. Voc. Biomedical Sciences

Session: 2022-23

Semester: 3<sup>rd</sup>

Max. Time: 3 Hours

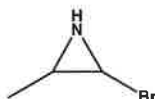
Course Title: Reactions in Organic Chemistry

Max. Marks: 25

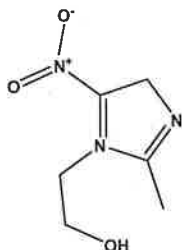
Course Code: BMS-303 (Regular)

**Instructions:** All questions are compulsory. Each question carries 5 marks.

1. Attempt any five. Each part carries one mark.
- Write an example of a concerted addition reaction.
  - Write the name of the following compound:



- Identify the heterocyclic compound in the following drug:



- Write the product for the following reaction:  
$$2\text{H}_2\text{C}=\text{CH}_2 \xrightarrow{\Delta}$$
  - State Lambert-Beer's Law.
  - Arrange the primary, secondary, tertiary, and methyl radicals in the increasing order of reactivity.
  - Comment on the aromaticity of furan.
2. Write differences between unimolecular and bimolecular substitution reactions.
- Or
- Explain the factors affecting the pathways of reactions.
3. Write a short note on Pericyclic reactions.
- or
- Write a note on the Jablonskii diagram.
4. Write a note on the synthesis and reactions of pyrrole.
- or
- Write a note on the synthesis and reactions of Indole.
5. Write a note on the Diels-Alder Reaction.
- or
- Write a short note on the Suzuki coupling reaction.



**CENTRAL UNIVERSITY OF HARYANA**

End Semester Examinations January 2023

**Programme: B. Voc. Biomedical Sciences**

**Session: 2022-23**

**Semester: 3<sup>rd</sup>**

**Max. Time: 3 Hours**

**Course Title: Concepts in Chemistry-III**

**Max. Marks: 25**

**Course Code: BMS-303 (Reappear)**

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**Instructions:**

1. All questions are mandatory.
2. Question no. 1 has eight parts and students need to answer any five. Each part carries one Mark.

Q 1. (5X1=5)

- a) Explain Saytzeff rule.
- b) What is Hofmann rule?
- c) Why don't benzaldehyde undergo aldol condensation?
- d) Which alkene gives only acetone on ozonolysis?
- e) Name different types of organic reactions.
- f) Out of  $S_N^1$  and  $S_N^2$ , which follows single step mechanism?
- g) What are condensation reactions?
- h) Name the steps involved in free radical mechanism.

Q 2. (1X5=5)

- a) Differentiate between E1 and E2 elimination.
- or
- b) Write a short note on  $S_N^2$  Reactions.

Q 3. (1X5=5)

- a) Write a short note on Sigmatropic Reactions.
- or
- b) Write a short note on cycloaddition Reactions.

Q 4. (1X5=5)

- a) Write a short note on Aldol Reaction.
- or
- b) Write a short note on Fischer-Indole Synthesis.

Q 4. (1X5=5)

- a) Write a short note on Diels- Alder Reaction.
- or
- b) Write a short note on Sonogashira Reactions.





**Central University of Haryana**  
**Semester III Term End Examination January, 2023**  
**B.Voc. Programmes**  
**Branch: Biomedical Sciences**

Course Code: BMS-302  
Course Title: Microbiology (Regular/Reappear)

**Max Time: 3h**  
**Max Marks: 50**

**Instructions:**

Question Number 1(one) (**PART-I**) is compulsory and carries total of ten marks (Each sub-Question carries two marks).

Question Numbers 2(two) to 5(Five) carry ten marks each with internal choice.

**PART -I**

Q. No.1 Briefly explain the contribution of the following scientists in microbiology (**ANY FIVE**).  
(2x5=10 marks)

- a) Francesco Redi and John Needham
- b) John Tyndall and Joseph Lister
- c) Lazzaro Spallanzani and Theodore Schwann
- d) Louis Pasteur in conflict over spontaneous generation and microbiology
- e) Alexander Fleming and Howard Florey
- f) Robert Koch and Joseph Lister
- g) Ernst Chain and Norman Heatley

**PART -II**

**Q. No.2**

- a) Describe the Lytic **OR** Lysogenic cycle with a suitable diagram. (5 marks)
- b) Briefly discuss a Fluid Mosaic Model **OR** bacterial cell with a well-labelled diagram.  
(5 marks)

**Q. No.3**

- a) Write down **FIVE** differences between Exotoxins and Endotoxins **OR** pathogenesis of the viral disease. (5 marks)
- b) Briefly describe the therapeutic index **OR** Dilution susceptibility test. (5 marks)

**Q. No 4**

- a) Describe the mechanism of drug resistance with a suitable diagram? (5 marks)
- b) Briefly explain the mode of action of common antiviral drugs with a suitable diagram. (5 marks)

**OR**

**Q. No 4**

Write short notes on any **TWO** of the following: (5x2=10)

- a) Five differences between gram-positive and gram-negative bacteria
- b) Shape and arrangement of bacteria
- c) Five differences between prokaryote and eukaryote
- d) Inhibitors of cell wall synthesis

**Q. No.5**

Give the following details of any **TWO** diseases (5x2=10 marks)

- a) Causative agent/etiology
  - b) Clinical symptoms
  - c) Diagnosis
  - d) Treatment
  - e) Prevention
- i- Staphylococcal food poisoning
  - ii- Amoebiasis
  - iii- Malaria
  - iv- Gonorrhoea
  - v- Tuberculosis



**III Semester UG Term End Semester Examination December. 2022**

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<b>Name of Programme</b>	<b>: B. Voc (Industrial Waste Management)</b>		
<b>Year &amp; Semester</b>	<b>: Dec. 2022, Semester-III</b>		
<b>Course Name</b>	<b>: Microbiology</b>		
<b>Course Code</b>	<b>:IWM-303</b>		
<b>Maximum Marks</b>	<b>:50</b>	<b>Duration</b>	<b>: 3Hrs</b>

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**Attempt any five questions selecting one question from each unit. Question 1 is compulsory.**

**Question 1. Define/write a short note on any five:-** (2x5)

- a. Eukaryotes
- b. Name any 4 gram + bacteria
- c. What are various characteristics of bio indicators
- d. Give names of microorganism involved in carbon cycle.
- e. Name any 4 microorganisms involved in bioleaching
- f. Biogas
- g. What is viral infection?
- h. What are nosocomial infections?

**UNIT-I**

**Question 2.** (6,4)

- A. Discuss about bacteria as a bioindicator in detail. Explain various test for detection of E.Coli.
- B. What are biosensors? Explain various types and application of biosensors in environmental pollution detection.

OR

- A. How microbes help in environmental protection?
- B. Write a note on management of resources by microbes.

**UNIT-II**

**Question 3.** (6, 4)

- A. Discuss various steps involved in sulphur cycle.
- B. How microbes helps in cycling of phosphorous from phosphates rocks.

OR

- A. Explain biodegradation of simple and cyclic aliphatic organic compounds (xenobiotics)
- B. Differentiate between bioaccumulation and biodegradation techniques

### UNIT-III

#### Question 4.

(6, 4)

- A. Explain microbial leaching of low grade minerals
- B. Differentiate between bioethanol and biogas.

OR

- A. How biodegradation helps in petroleum pollutants degradation.
- B. How thermophiles and acidophiles help in waste treatment of different industries.

### UNIT-IV

#### Question. 5.

(6, 4)

- A. What are opportunistic and nosocomial infections?
- B. Write a note on development and spread of infectious diseases.

OR

- A. Write a note on protozoan infection.
- B. How candida causes infection? Describe in detail.

**III<sup>rd</sup> Semester UG Term End Semester Examination Jan. 2023**

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<b>Name of Programme</b>	<b>: B.Voc. (Industrial Waste Management)</b>	
<b>Year &amp; Semester</b>	<b>: Jan. 2023, Semester-III</b>	
<b>Course Name</b>	<b>: Fundamentals of Mathematics and Statistics</b>	
<b>Course Code</b>	<b>: IWM-302</b>	
<b>Maximum Marks</b>	<b>: 25</b>	<b>Duration: 3Hrs</b>

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**Attempt any five questions selecting one question from each unit. Question 1 is compulsory.**

**Question 1: Do any five: (1x5)**

- A. If  $A = \{1,2,3,4\}$ ,  $B = \{3,4,5,6\}$ ,  $C = \{5,6,7,8,9\}$ . Find  $A \cap (B \cup C)$ .
- B. Give an example of relation which is reflexive and symmetric but not transitive.
- C. If  $4/11$  is the probability of an event, what is the probability of event 'Not A'?
- D. Differentiate  $\tan(2x+3)$  with chain rule method.
- E. Differentiate between descriptive and inferential statistics.
- F. What is skewness in the descriptive statistics?
- G. Give the comparison between a line graph and pie chart.
- H. What is the mean of the data: 32,34,36,44,56,58,46?

**UNIT-I**

**Question 2: (2, 3)**

- A. If 636 Rs. is divided among A, B, C. A gets 20% more than B and B gets 25% less than C. Find out the share of C.
- B. At what rate of compound interest per annum a sum of 1200 becomes 1348.3 in 2 years?

OR

- A. A dealer sold a camera for Rs 1080 gaining  $1/8$  of its cost price. Find the cost price of the camera.
- B. Find two consecutive positive integers the sum of whose squares is 365.

**UNIT-II**

**Question 3: (2,3)**

- A. Find the unit vector in the direction of the sum of vectors  $\vec{a} = 2\hat{i} - 2\hat{j} - 5\hat{k}$  and  $\vec{b} = 2\hat{i} + \hat{j} + 3\hat{k}$ .
- B. If  $\vec{a} = 5\hat{i} - \hat{j} - 3\hat{k}$  and  $\vec{b} = \hat{i} + 3\hat{j} - 5\hat{k}$ , then show that the vectors  $\vec{a} + \vec{b}$  and  $\vec{a} - \vec{b}$  are perpendicular.

OR

- A. Find the direction cosines of the line passing through two points  $(-2, 4, -5)$  and  $(1, 2, 3)$ .
- B. What is bar graph? What are the properties and uses of bar graph?

**UNIT-III**

**Question 4:**

**(2, 3)**

- A. What are nominal, ordinal, interval and ratio scales?
- B. What is an ogive? How to draw less than ogive curve?

OR

- A. What is histogram? When a histogram is skewed to right and to left?
- B. Differentiate between classification and tabulation of data.

**UNIT-IV**

**Question 5:**

**(2, 3)**

- A. Give the comparative study of measures of central tendency.
- B. Find the median of the following data:

Marks	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of students	5	15	25	20	7	8	10

OR

- A. Find the mean deviation about mean for the data: 38, 70, 40, 48, 55, 42, 63, 54, 46, 44.
- B. Find the variance and standard deviation of the following data:  
6, 8, 10, 12, 14, 16, 18, 20, 22.

**III Semester UG Term End Semester Examination January 2023**

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<b>Name of Programme</b>	<b>: B. Voc (Industrial Waste Management)</b>		
<b>Year &amp; Semester</b>	<b>: Dec. 2022, Semester-III</b>		
<b>Course Name</b>	<b>: Microbiology</b>		
<b>Course Code</b>	<b>:IWM-303</b>		
<b>Maximum Marks</b>	<b>:50</b>	<b>Duration</b>	<b>: 3Hrs</b>

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**Attempt any five questions selecting one question from each unit. Question 1 is compulsory.**

**Question 1. Define/write a short note on any five:-** (2x5)

- a. Eukaryotes
- b. Name any 4 gram + bacteria
- c. What are various characteristics of bio indicators
- d. Give names of microorganism involved in carbon cycle.
- e. Name any 4 microorganisms involved in bioleaching
- f. Biogas
- g. What is viral infection?
- h. What are nosocomial infections?

**UNIT-I**

**Question 2.** (6,4)

- A. Discuss about bacteria as a bioindicator in detail. Explain various test for detection of E.Coli.
- B. What are biosensors? Explain various types and application of biosensors in environmental pollution detection.

OR

- A. How microbes help in environmental protection?
- B. Write a note on management of resources by microbes.

## UNIT-II

### Question 3.

(6, 4)

- A. Discuss various steps involved in sulphur cycle.
- B. How microbes helps in cycling of phosphorous from phosphates rocks.

OR

- A. Explain biodegradation of simple and cyclic aliphatic organic compounds (xenobiotics)
- B. Differentiate between bioaccumulation and biodegradation techniques

## UNIT-III

### Question 4.

(6, 4)

- A. Explain microbial leaching of low grade minerals
- B. Differentiate between bioethanol and biogas.

OR

- A. How biodegradation helps in petroleum pollutants degradation.
- B. How thermophiles and acidophiles help in waste treatment of different industries.

## UNIT-IV

### Question. 5.

(6, 4)

- A. What are opportunistic and nosocomial infections?
- B. Write a note on development and spread of infectious diseases.

OR

- A. Write a note on protozoan infection.
- B. How candida causes infection? Describe in detail.

**CENTRAL UNIVERSITY OF HARYANA**  
**V Semester UG Term End Semester Examination Dec.,2022**

<b>Name of Programme</b>	<b>: B. Voc. (Industrial Waste Management)</b>
<b>Year &amp; Semester</b>	<b>: Dec. 2022, Semester-V</b>
<b>Course Name</b>	<b>: Industrial health and safety</b>
<b>Course Code</b>	<b>: IWM-501</b>
<b>Maximum Marks</b>	<b>: 25</b> <span style="float: right;"><b>Duration: 3Hrs</b></span>

Attempt any five questions selecting one question from each unit. Question 1 is compulsory.

**Que. 1 Define/write a short note on any five: -** **(1x5)**

- (a) Brass founder's ague disease
- (b) Phossy jaw disease
- (c) Housekeeping
- (d) Chemical hazard
- (e) Air supplied respirators
- (f) Intermittent inspection
- (g) OSHAS
- (h) Classification of hazardous waste

**UNIT-I**

**Que. 2** **(3,2)**

- (a) Define occupational disease. Write any four occupational respiratory disease.
- (b) Write importance of safety education and training?

OR

- (a) What is safety promotion? How do you promote safety?
- (b) What is the role of management in industrial safety?

**UNIT-II**

**Que. 3** **(3,2)**

- (a) Write a note on major accident hazards in details.
- (b) What is Ergonomics? Why it is important?

OR

- (a) Explain transportation and storage of hazardous chemicals in details.
- (b) How can manual handling risks be reduced?

**UNIT-III**

**Que. 4** **(3, 2)**

- (a) Discuss non respiratory protective equipment in details.
- (b) Discuss types of safety inspections.

OR

- (a) What is safety audit? Why is safety audit important?
- (b) What are the need and scope of off-site emergency plan?

**UNIT-IV**

**Que. 5** **(5)**

- (a) Explain the Hazardous Waste (Management, Handling, Transboundary Movement) Rules, 1989 in details.

OR

- (b) Discuss the Factory Act 1948 in details.





Vth Semester UG Term End Semester Examination Dec. 2022

Name of Programme : B.Voc. (Industrial Waste Management)

Year & Semester : Dec. 2022, Semester-V

Course Name : Instrumentation and Techniques-II

Course Code : IWM-503

Maximum Marks : 50

Duration: 3Hrs

Attempt any five questions selecting one question from each unit. Question 1 is compulsory.

Question 1: Define/Write a short note: (2x5)

- A. Angular Velocity
- B. Preparative centrifugation
- C. Beer-Lambert's law
- D. Resolving power
- E. Positron decay
- F. Retardation factor
- G. Reverse phase chromatography
- H. Fluorescence

UNIT-I

Question 2: (6, 4)

- A. What is the principle of centrifugation? How does a laboratory centrifuge work?
- B. What is differential centrifugation and how does it work?

OR

- A. What is sedimentation coefficient? What are the characteristics of sedimentation coefficient?
- B. Differentiate between rate zonal and isopycnic centrifugation,

UNIT-II

Question 3: (6, 4)

- A. Write a detailed note on ion exchange chromatography.
- B. What are the advantages and disadvantages of paper chromatography?

OR

- A. Show the schematic diagram of gas chromatography. Explain the function of its components.

B. Explain the principle and working of high-performance liquid chromatography (HPLC).

**UNIT-III**

**Question 4:**

**(6, 4)**

- A. Explain the principle and working of Atomic Absorption Spectrophotometry.
- B. Differentiate between light microscope and electron microscope.

**OR**

- A. Write a detailed note on UV-Visible spectrophotometer.
- B. What are the factors that cause interference in AAS?

**UNIT-IV**

**Question 5:**

**(6, 4)**

- A. Explain principle and working of Geiger Muller counter.
- B. Define radioactivity. What are different types of radioactive decay?

**OR**

- A. Write a detailed note on scintillation counter.
- B. Explain different types and applications of Geiger Muller detector.

V Semester UG Term End Semester Examination Dec., 2022

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Name of Programme	: B. Voc (Industrial Waste Management)	
Year & Semester	: Dec. 2022, Semester-V	
Course Name	: Wastewater Management	
Course Code	:IWM-502	
Maximum Marks	:50	Duration : 3Hrs

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Attempt any five questions selecting one question from each unit. Question 1 is compulsory.

Question 1. Define/write a short note on any five:- (2x5)

- Name any two advanced wastewater treatment technique
- Explain bacterial population growth curve with various phases.
- Differentiate between colloidal solids and dissolved solids.
- Write formula for COD and BOD calculations.
- Differentiate between MBR and MBBR techniques
- Advantages of ASP
- Diagram of RBC
- Photocatalysis

UNIT-I

Question 2. (6, 4)

- Explain self-purification of water bodies.
- What are various methods for sampling of wastewater?

OR

- Give discharge standards for manganese, fluoride, iron, mercury.
- Explain various sources of water pollution.

UNIT-II

Question 3. (6, 4)

- Explain theory and design of sedimentation tank.

- B. Differentiate between coagulation and flocculation processes. Write various criteria for selection of suitable coagulant.

OR

- A. What are preliminary wastewater treatment techniques?  
B. Differentiate between neutralization and equalization techniques used in treatment of wastewater

### UNIT-III

**Question 4.**

(6, 4)

- A. The sewage of 4.5 MLD is flowing from a primary clarifier to a standard rate of trickling filter. The 5-day BOD of the influent is 160 mg/L. The value of the adopted organic loading is to be 160 gm/m<sup>3</sup>/d and surface loading 2000 L/m<sup>2</sup>/d. determine the volume of the filter and its depth. Also calculate the efficiency of this filter unit.  
B. Explain basic theory and design of activated sludge process

OR

- A. Design suitable dimensions of circular trickling filter units for treating 5 MLD sewage. The BOD of sewage is 150 mg/L. Also design its rotary distribution system. Assume organic loading is 1500 kg/ha-meter/d and depth of filter is 2 m.  
B. What is root zone treatment? How it helps in treatment of wastewater?

### UNIT-IV

**Question. 5.**

(6, 4)

- A. What is membrane fouling and how can we clean it? What are various mitigation techniques to treat fouled membrane?  
B. Differentiate between ozone/UV and ozone/hydrogen peroxide techniques

OR

- A. Differentiate between electrodialysis and ion exchange methods.  
B. Explain various methods used in nitrogen and phosphorous removal.

**III Semester UG Term End Semester Examination Jan.,2023**

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**Name of Programme : B. Voc. (Industrial Waste Management)**

**Year & Semester : Jan. 2023, Semester-III**

**Course Name : Environmental Chemistry**

**Course Code : IWM-301**

**Maximum Marks : 50**

**Duration: 3Hrs**

**Attempt any five questions selecting one question from each unit. Question 1 is compulsory.**

**Que. 1 Define/write a short note on any five: - (2x5)**

- (a) Define Gibbs free energy.
- (b) Define Activity.
- (c) Define global warming.
- (d) Define nuclear winter.
- (e) Define Chelation.
- (f) Describe water acidity.
- (g) Describe significance of C : N ratio.
- (h) What is alkalinity?

**UNIT-I**

**Que. 2**

**(6,4)**

- (a) What are first order reactions? Also derive expressions for rate constant and half life period of first order reaction
- (b) Define chemical potential and fugacity. Also derive expressions for it.

**OR**

- (a) What are zero order reactions? Also derive expressions for rate constant and half life period for zero order reaction.
- (b) What is chemical equilibrium? Also discuss equilibrium constant.

**UNIT-II**

**Que. 3**

**(6,4)**

- (a) What is ozone layer depletion? Discuss factor responsible for ozone depletion and its effect on environment.
- (b) Define Acid rain. Also write factor responsible for acid rain and its effect on environment.

**OR**

- (a) What is green house effect? Discuss green house gases which are mainly responsible.
- (b) What is photochemical smog? Draw flow chart for formation of photochemical smog .

**UNIT-III**

**Que. 4**

**(6,4)**

- (a) Discuss water acidity and alkalinity in detail.
- (b) Define BOD. What are determination methods of BOD?

**OR**

- (a) What is COD? What are determination methods of COD and DO?
- (b) Explain water pollution due to heavy metals.

**UNIT-IV**

**Que. 5**

**(6,4)**

- (a) Define Trace elements. Write down importance and classification of trace elements in soil.
- (b) What are the essential nutrients for plants?

**OR**

- (a) Define Soil. What are organic and inorganic components of soil?
- (b) Define physio-chemical composition of soil in detail.

**III<sup>rd</sup> Semester UG Term End Semester Examination Jan. 2023**

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<b>Name of Programme</b>	<b>: B.Voc. (Industrial Waste Management)</b>	
<b>Year &amp; Semester</b>	<b>: Jan. 2023, Semester-III</b>	
<b>Course Name</b>	<b>: Fundamentals of Mathematics and Statistics</b>	
<b>Course Code</b>	<b>: IWM-302</b>	
<b>Maximum Marks</b>	<b>: 25</b>	<b>Duration: 3Hrs</b>

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**Attempt any five questions selecting one question from each unit. Question 1 is compulsory.**

**Question 1: Do any five:** **(1x5)**

- A. If  $A = \{1,2,3,4\}$ ,  $B = \{3,4,5,6\}$ ,  $C = \{5,6,7,8,9\}$ . Find  $A \cap (B \cup C)$ .
- B. Give an example of relation which is reflexive and symmetric but not transitive.
- C. If  $4/11$  is the probability of an event, what is the probability of event 'Not A'?
- D. Differentiate  $\tan(2x+3)$  with chain rule method.
- E. Differentiate between descriptive and inferential statistics.
- F. What is skewness in the descriptive statistics?
- G. Give the comparison between a line graph and pie chart.
- H. What is the mean of the data: 32,34,36,44,56,58,46?

**UNIT-I**

**Question 2:** **(2, 3)**

- A. If 636 Rs. is divided among A, B, C. A gets 20% more than B and B gets 25% less than C. Find out the share of C.
- B. At what rate of compound interest per annum a sum of 1200 becomes 1348.3 in 2 years?

OR

- A. A dealer sold a camera for Rs 1080 gaining  $1/8$  of its cost price. Find the cost price of the camera.
- B. Find two consecutive positive integers the sum of whose squares is 365.

**UNIT-II**

**Question 3:** **(2,3)**

- A. Find the unit vector in the direction of the sum of vectors  $\vec{a} = 2\hat{i} - 2\hat{j} - 5\hat{k}$  and  $\vec{b} = 2\hat{i} + \hat{j} + 3\hat{k}$ .
- B. If  $\vec{a} = 5\hat{i} - \hat{j} - 3\hat{k}$  and  $\vec{b} = \hat{i} + 3\hat{j} - 5\hat{k}$ , then show that the vectors  $\vec{a} + \vec{b}$  and  $\vec{a} - \vec{b}$  are perpendicular.

OR

- A. Find the direction cosines of the line passing through two points  $(-2,4, -5)$  and  $(1,2,3)$ .  
 B. What is bar graph? What are the properties and uses of bar graph?

### UNIT-III

#### Question 4:

(2, 3)

- A. What are nominal, ordinal, interval and ratio scales?  
 B. What is an ogive? How to draw less than ogive curve?

OR

- A. What is histogram? When a histogram is skewed to right and to left?  
 B. Differentiate between classification and tabulation of data.

### UNIT-IV

#### Question 5:

(2, 3)

- A. Give the comparative study of measures of central tendency.  
 B. Find the median of the following data:

Marks	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of students	5	15	25	20	7	8	10

OR

- A. Find the mean deviation about mean for the data: 38,70,40,48,55,42,63,54,46,44.  
 B. Find the variance and standard deviation of the following data:  
 6,8,10,12,14,16,18,20,22.