Code No: E12036/CBCS

FACULTY OF PHARMACY

B.Pharmacy III Semester (CBCS) (Backlog) Examination, November-2022
Subject: Pharmaceutical Engineering - I

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions. All questions carry equal marks.

1 (a) Explain the physical factors affecting selection of materials for plant onstruction. (7)
(b) Describe characteristics, advantages and dis-advantages of ferrous metals as material. (7)

2 (a) Differentiate between unit operation & unit process, and steady & unsteady states. (4)
(b) Explain the theories of corrosion and methods to prevent it. (10)

3 (a) Write the construction and working differential manometer. (7)
(b) Derive the equation for measurement of flow rate using orifice meter. (7)

4 (a) Write the working principle of heat exchangers. (6)
(b) Explain the functioning and uses of steam traps. (8)

5 (a) Write the construction and working of belt conveyor. 10)
(b) Differentiate between blowers and compressors. (4)

6 (a) Define pumps and classify them. (4)
(b) Explain the working principle of rotary pumps. (10)

7 (a) What is humidity chart and explain the methods of determining humidity? (9)
(b) Classify refrigerants and mention their properties. (5)

8 (a) Explain the methods of humidification and dehumidification. (8)
(b) Describe compression refrigeration cycle with help of diagram. (6)

9 (a) Write the mechanisms of filtrations. Explain the concept of filter aid. (6)
(b) Explain the construction and working of air filtration equipment. (8)

10 (a) Define centrifugation and classify centrifugation equipment. (4)
(b) Write the differences between perforated and non-perforated centrifuge. (10)

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Code No: E-12038/CBCS

FACULTY OF PHARMACY

B. Pharmacy III - Semester (CBCS) (Backlog) Examination, November 2022

Subject: Pharmaceutical Microbiology

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions. All questions carry equal marks.

1. (a) Explain various methods for isolation of microbes.
   (b) Write a note on dark field microscopic technique with suitable diagram.

2. (a) Elaborate the various methods used for microbial cell mass count.
   (b) Write about nutritional requirements of bacteria.

3. (a) Define staining. Explain in detail about simple staining.
   (b) Write a note on various methods used for cultivation of viruses.

4. (a) Define mutation. Write about different types of mutants.
   (b) Define mutants. Explain the various methods used for isolation of mutants.

5. (a) Define sterilization. Explain filtration sterilization method in detail.
   (b) Define Disinfectants. Write about classification of disinfectants.

6. (a) Write about working, uses and limitations of hot air oven.
   (b) Classify sterilization methods. Write a note of gaseous method of sterilization.

7. (a) Define Serology. Write about structure and classification of immunoglobulins.
   (b) Explain role of macrophages in detail

8. (a) Explain in detail about antigen – antibody reactions *in vitro* reactions.
   (b) Write a note on exotoxins and endotoxins.

9. (a) Write about significant symptoms, mode of transmission of the following
   (i) Cholera
   (ii) Diphthteria
   (iii) Malaria
   (b) Write about microorganisms observed in milk and their identification methods in milk.

10. (a) Write about significant symptoms, mode of transmission of the following
   (i) Whooping cough
   (ii) Influenza
   (iii) Plague
   (b) Write about Phosphatase test in detail

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Code No: E-12037/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examinations, November 2022
Subject: Environmental Science

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions. All questions carry equal marks.

1. Explain the role of individuals in the conservations water, forest and land resources.
2. Discuss the scope and importance of environmental studies.
3. Explain in detail about various types and levels of biodiversity.
4. Discuss in detail about a) hot spots b) endangered and endemic species of India.
5. Explain then cost benefit analysis of a process.
6. Discuss the role of Pharma industry in pollution.
7. Explain about the rain water harvesting watershed management.
8. Discuss the problems and consequences of population explosion.
9. Explain the two international conventions.
10. Discuss the Right to information Act, Coastal regulation Zone Act, Wild life protection Act.

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Code No: E-12035/CBCS

FACULTY OF PHARMACY

B. Pharmacy III Semester (CBCS) (Backlog) Examination, November 2022

Subject: Pharmaceutical Analysis – I (Chemical Analysis)

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions. All questions carry equal marks.

1. a) What is calibration? Why calibration of glassware is necessary? How do you calibrate a burette?
   b) Explain about methods of expressing concentrations.

2. a) Explain about statistical treatment of analytical data. write notes on rejection of doubtful value.
   b) Explain accuracy, precision and error with examples?

3. a) Discuss theory of neutralization indicators.
   b) Explain terms acidimetry and alkalimetry with examples.

4. a) Explain about Arhenius and Lewis theory of acids and bases.
   b) Write a note on common ion effect.

5. a) Explain volhards method for determination of chlorides.
   b) Explain about co-precipitation and post precipitation with examples.

6. a) Define buffer by giving examples. How does a buffer resist change in pH?
   b) What is redox potential, explain principle involved in permanganometric titrations.

7. How do you prepare and standardize. Following solutions.
   a) 0.01M EDTA
   b) 0.1 N HClO4
   c) Write principle and procedure involved in assay of calcium gluconate.

8. a) How do you estimate hardness of water using complexometry.
   b) Explain the principle, procedure in iodometric titrations.

9. i) Define the terms
   A) Mole. B) Emperical formula. C) Molecular formula. D) Theoretical yield.
   ii) Calculate the percentage composition of elements in $K_2Cr_2O_7$ [K=39, Cr=52, O=16].

10. a) Calculate the percentage composition of elements in $Na_2S_2O_3$ [Na=23,s=32,o=16]
    b) How will you balance following equation by applying Ion-electron method?

$$KMnO_4+FeS0_4+H_2SO_4 \leftrightarrow Fe_2(SO_4)_3+K_2SO_4+MnSO_4+H_2O$$

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Code No: E12034/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, November 2022
Subject: Pharmaceutical Organic Chemistry - II

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions. All questions carry equal marks.

1 Explain Huckle's rule and stability of benzene in detail. (14)

2 Write the preparation and reactions of phenols. Explain in detail about the acidity of phenols. (14)

3 What is geometrical isomerism? Explain the sequence of rules to determine E- & Z- configuration with suitable examples. (14)

4 Define optical activity & plane polarized light. Discuss in detail about conditions required for optical activity. (14)

5 Write the resonance structures, preparation (any two) and reactions (any four) of furan.(14)

6 (a) Write the preparation and reactions of pyridine. (10)
(b) Write the structure and uses of medicinal compounds (any two) containing quinolone. (4)

7 (a) Discuss any two methods of preparationeach for thiazole and pyrazole. (10)
(b) Write the structure and uses of medicinal compounds (each one) containing the following heterocyclic compounds: Benzofutan imidazole. (4)

8 (a) Explain any two methods of preparation each for benzimidazole and imidazole. (10)
(b) Write the structure and uses of medicinal compounds (each one) containing the following heteroyclic compounds: Thiazole and benzopyran. (4)

9 Describe the mechanism of the following reactions:
(a) Oppenauer oxidation (b) Beckmann rearrangement (8)
Write two applications for each of the following reagents:
(c) NBS (d) Perchloric acid. (6)

10 Explain the mechanism of the following reaction:
(a) MPV reduction (b) ArndEistert synthesis (8)
(b) Selenium oxide (d) Lead tetraacetate. (6)

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Code No. D-8201/CBCS

FACULTY OF PHARMACY

B. Pharmacy III - Semester (CBCS) (Backlog) Examinations,
February / March 2022

Subject: Environmental Studies

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions: **(5 x 14 = 70 Marks)**

1. Discuss the role of individuals in the conservations of water, forest and energy resources.
2. Explain the structure and functions of ecosystem.
3. Explain in briefly about medicinal and economic value of biodiversity.
4. Discuss in detail about threats to biodiversity in India.
5. Describe hazardous waste management in detail.
6. Explain the structure and functions of greenhouse gases.
7. Explain the effects of human activities in quality of environment.
8. Discuss the problems and consequences of population explosion.
9. Discuss the government regulatory bodies in monitoring the environmental regulations.
10. Explain the Air Act, Coastal regulation Zone Act, forest conservation act.

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Code No. D-8200/CBCS

FACULTY OF PHARMACY

B. Pharmacy III Semester (CBCS) (Backlog) Examination,
February / March 2022

Subject: Pharmaceutical Engineering - I

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions. **(5 x 14 = 70 Marks)**

1 (a) Explain the chemical and safety factors affecting selection of materials for plant construction.
(b) Describe characteristics, advantages and dis advantages of plastic as material.

2 (a) Define and classify corrosion.
(b) Explain the factors influencing corrosion.
(c) Explain dimensional analysis.

3 (a) Write the construction and working Venturi meter.
(b) Derive the equation for measurement of pressure using simple manometer.

4 (a) Write the working principle of heat interchangers.
(b) Explain the phenomena of foam formation and its prevention.

5 (a) Write the construction and working of pneumatic conveyor.
(b) Differentiate between pipes and tubes.

6 (a) Define valves and classify them.
(b) Explain the working principle of reciprocating pumps.

7 (a) Write the construction and working of air-conditioner.
(b) Explain concept of refrigeration load.

8 (a) Explain brine systems and their application in pharmacy.
(b) Describe absorption refrigeration cycle with help of diagram.

9 (a) Define filtration. Classify filtration equipment.
(b) Write the equipment parts and their working of frame and plate filter press.

10 (a) Write the theory of centrifugation. Mention application of centrifugation.
(b) Write the equipment parts and their working of continuous centrifuge.

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Code No. D-8199/CBCS

FACULTY OF PHARMACY

B. Pharmacy III - Semester (CBCS) (Backlog) Examination,
February / March 2021

Subject: Pharmaceutical Microbiology

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions. **(5 x 14 = 70 Marks)**

1 (a) Elaborate any two biochemical tests for identification of bacteria.
(b) Describe the growth of bacterial population with the help of growth curve.

2 (a) Write a note on electron microscopic methods.
(b) Explain various methods used for preservation of pure culture.

3 (a) Write about lysogenic cycle of virus reproduction.
(b) Define staining. Explain any two differential staining techniques in detail.

4 (a) Write about mechanisms used to repair mutagenesis.
(b) Write about IMViC test.

5 (a) Write a note on sterilization indicators.
(b) Define disinfectants. Write about the phenol coefficient test.

6 (a) Explain applications of disinfectants and the various factors influencing their efficiency.
(b) Define sterilization. Explain in detail radiation method of sterilization.

7 (a) Describe about cell mediated immunity in detail.
(b) Write in detail about antigen – antibody reactions and their application.

8 (a) Write a note on different antigens of bacterial cells with suitable examples
(b) Explain in detail about phagocytosis with suitable diagram.

9 (a) Write a note on
i) Malaria ii) Whooping cough iii) Poliomyelitis
(b) Write about various methods used for identification of microbes present in milk.

10 (a) Define communicable diseases. Write a note on influenza.
(b) Write a note on microbiology of water.

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Code No. D-8198/CBCS

FACULTY OF PHARMACY

B. Pharmacy III - Semester (CBCS) (Backlog) Examination,
February / March 2022
Subject: Pharmaceutical Analysis – I (Chemical Analysis)

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions: **(5 x 14 = 70 Marks)**

1 (i) Define the following terms:
(A) Significant Figure (B) Relative error (C) Equivalence point (D) Indicator
(ii) What are primary and secondary standards? Write ideal properties of primary standard

2 (i) write a note on rejection of doubtful values
(ii) How to calibrate a burette
(iii) Calculate the weight of sodium hydroxide in 1N solution, required to neutralize 25ml of 1N sulphuric acid

3 (i) Explain about different theories of acids and base
(ii) Derive an equation to calculate the P^H value of an aqueous solution of a salt of weak acid and strong base.
(iii) Calculate the ph of 0.05 M solution of sodium acetate
(The dissociation constant of acetic acid is 1.8×10^{-5})

4 (i) Discuss the theorys of neutralization indicators.
(ii) Define a buffer by giving examples. How does a buffer resist change in P^H

5 (i) Describe the various steps involved in gravimetric analysis.
(ii) How do you prepare and standardize 0.1N KMnO4 solution.

6 (i) Explain Mohrs method for determination of chlorides.
(ii) What is oxidation-reduction potential? How it is determined in a redox system?

7 (i) How do you estimate hardness of water using complexometry
(ii) Explain the principle, procedure in iodometric and iodimetric titrations.

8 (i) Explain theory and applications of non aqueous titrations.
(ii) Write a note on masking and demasking agents.

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9 (i) How many moles of glucose are present in 540gm of glucose?
(ii) Describe mole concept and Avogadro's number.
(iii) 0.20gm of a carbon compound on combustion gave 0.361 gm of co_2 and 0.147 gm of water. Calculate the empirical formula of the compound.

10 (i) Calculated the percentage composition of elements in Na_2SO_4.
(ii) Write briefly about theoretical yield and percentage yield with examples.
(iii) Write the mass balance equation for the following.

A) $NH_4OH + H_2SO_4 \longrightarrow (NH_4)_2SO_4 + H_2O$

B) $CaCl_2 + NaNO_3 \longrightarrow Ca(NO_3)_2 + NaCl$

C) $C_6H_{12}O_6 + H_2SO_4 \longrightarrow C_2H_5OH + CO_2$

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Code No. D8197/CBCS

FACULTY OF PHARMACY

B. Pharmacy III Semester (CBCS) (Backlog) Examination, February 2022

Subject: Pharmaceutical Organic Chemistry-II

Time: 3 Hours **Max. Marks: 70**

Note: Answer any five questions. **(5 x 14 = 70 Marks)**

1 Explain the mechanism involved in nitration and Friedel-Crafts acylation of benzene.

2 What are poly nuclear aromatic hydrocarbons? Write the resonance structures, preparation and electrophilic substitution reactions of naphthalene.

3 Explain about absolute configuration with special emphasis on sequence of rules to determine R- & S- configuration with suitable examples.

4 Describe the following terms:

Chirality, Conformational isomerism, Enantiomerism and Resolution.

5 Write the resonance structures, preparation (any two) and reactions (any four) of pyrrole.

6 (a) Write the preparation and reactions of isoquinoline.
(b) Write the structure and uses of medicinal compounds (any two) containing pyridine.

7 (a) Discuss any two methods of preparation each for thiazole and imidazole.
(b) Write the structure and uses of medicinal compounds (each one) containing the following heterocyclic compounds: Triazole and penam.

8 (a) Explain any two methods of preparation each for pyrazole and oxazole.
(b) Write the structure and uses of medicinal compounds (each one) containing the Following heterocyclic compounds: Cephem and tetrazole.

9 (a) Describe the mechanism of the following reactions:
(a) Hoffman's rearrangement (b) Birch reduction.
(b) Write two applications for each of the following reagents:
(a) Lead tetraacetate (b) Sodium periodate.

10 (a) Describe the mechanism of the following reactions:
(a) MPV reduction (b) Fries rearrangement.
(b) Write two applications for each of the following reagents:
(a) Lithium aluminium hydride (b) Selenium oxide.

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Code No. 12308/CBCS

FACULTY OF PHARMACY

B. Pharmacy III Semester (CBCS) (Backlog) Examination, September 2021

Subject: Pharmaceutical Organic Chemistry-II

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4 x $17^{1/2}$ = 70 Marks)**

1 Explain Huckle's rule and stability of benzene in detail.

2 Write the preparation and reactions of phenols. Explain in detail about the acidity of phenols.

3 What is geometrical isomerism? Explain the sequence of rules to determine E- & Z- configuration with suitable examples.

4 Define optical activity & plane polarized light. Discuss in detail about conditions required for optical activity.

5 Write the resonance structures, preparation (any two) and reactions (any four) of furan.

6 (a) Write the preparation and reactions of pyridine.
(b) Write the structure and uses of medicinal compounds (any two) containing quinolone.

7 (a) Discuss any two methods of preparation each for thiazole and pyrazole.

(b) Write the structure and uses of medicinal compounds (each one) containing the following heterocyclic compounds: Benzofuran and imidazole.

8 (a) Explain any two methods of preparation each for benzimidazole and imidazole.
(b) Write the structure and uses of medicinal compounds (each one) containing the following heterocyclic compounds: Thiazole and benzopyran.

9 (a) Describe the mechanism of the following reactions:
(a) Oppenauer oxidation (b) Beckmnn rearrangement.
(b) Write two applications for each of the following reagents:
(a) NBS (b) Perchloric acid.

10 (a) Explain the mechanism of the following reactions:
(a) MPV reduction (b) Arndt-Eistert synthesis.
(b) Write two applications for each of the following reagents:
(a) Selenium oxide (b) Lead tetraacetate.

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Code No.12309/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination,
September 2021
Subject: Pharmaceutical Analysis – I (Chemical Analysis)

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4 X $17^{1/2}$ = 70 Marks)**

1. (a) Define the concept of error. Explain about various sources of errors and their rectification.
   (b) Write a note on rejection of doubtful values.

2. What is Calibration? How do you calibrate burettes, pipettes and volumetric flasks.

3. (a) Discuss the theories of neutralization Indicators.
   (b) Explain about neutralization curve for a titration between strong acid and strong base.

4. (a) Explain about different theories of acid and base.
   (b) Write notes on solubility product and common ion effect.

5. (a) Describe various steps involved in gravimetric Analysis.
   (b) Write a note on adsorption Indicators,

6. (a) What is redox potential? Explain principle involved in permanganometric Titration.
   (b) Define the terms Iodimetry and Iodometry. How do you prepare and standardize O-1NI_2 solution.

7. (a) How do you prepare and standardize 0.1N $HCLO_4$?
   (b) Write a note on masking and demasking agents.

8. (a) Explain about various methods of complexometric titrations.
   (b) Explain theory and applications of non-acqeous titration.

9. Define the terms molarity and normality. How do you prepare 10ml each of 0.1N NaoH, 0.1N$H_2 80_4$, 0.1NI_2 and 0.1N eDTA.

10. (a) Define the terms empirical formula and molecular formula with examples.
    (b) Write balanced chemical equations for following:
        (i) Reaction between Sodium Nitrate and Sulpheric acid.
        (ii) Reaction between Sodium thiosulphate and Iodine.
        (iii) Rection between zinc chloride and EDTA.
    (c) Calculate volume of water required to prepare 15% phosphoric acid from 80% phosphoric acid.

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Code No.12310/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, September 2021

Subject: Pharmaceutical Engineering - I

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4 X $17^{1/2}$ = 70 Marks)**

1. Define the concepts of dimentional analysis, unit operation and unit process, steady and unsteady states. Dimentationless formula with examples.

2. Explain the characteristics and applications of glass and iron as material of plant construction.

3. (a) Explain Reynold's experiment and it's significance.
   (b) Derive the equation for measurement of pressure using simple manometer.

4. (a) Explain construction and workings of heat exchanger.
   (b) Write the concepts of steam traps and entrainment separators.

5. (a) Describe in detail pneumatic conveyer and it's advantages.
   (b) Write the construction and working of air jet pump.

6. Describe various types of valves and their applications along with diagrams.

7. (a) Write the procedures for dehumidification with help of diagrams.
   (b) Describe construction and working principle of air conditioner.

8. (a) Explain the compression refrigeration cycle with help of diagram.
   (b) Describe various refrigerators and their factors influencing their selection.

9. (a) Explain the filter aid along with examples.
   (b) Explain subparts and working principles of frame and plate filter press with wash facility.

10. (a) Write the theory and significance centrifugation.
    (b) Write the construction and working of continuous centrifuge.

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Code No.12311/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, September 2021

Subject: Pharmaceutical Microbiology

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4 X 17 1/2 = 70 Marks)**

1. (a) Elaborate the methods used for isolation of aerobic and anaerobic bacteria.
   (b) Describe the growth of bacterial population with the help of growth curve.

2. (a) Write a note on electron microscopic methods.
   (b) Explain various methods used for preservation of pure culture.

3. (a) Write about various cultivation techniques for virus.
   (b) Define staining. Explain any two differential staining techniques in detail.

4. (a) Write about mechanisms used to repair mutagenesis.
   (b) Write about IMViC test.

5. (a) Write a note on sterilization indicators.
   (b) Define disinfectants. Write about the classification of disinfectants.

6. (a) Explain applications of disinfectants and the various factors influencing their efficiency.
   (b) Define sterilization. Explain in detail radiation method of sterilization.

7. (a) Describe about cell mediated immunity in detail.
   (b) Write in detail about antigen-antibody reactions and their applications.

8. (a) Write a note on different antigens of bacterial cell with suitable examples.
   (b) Explain in detail about phagocytosis with suitable diagram.

9. (a) Write a note on (i) Malaria (ii) Whooping cough (iii) Poliomyelitis.
   (b) Write about various methods used for identification of microbes present in milk.

10. (a) Define communicable diseases. Write a note on influenza.
    (b) Write a note on microbiology of water.

Code No.12024/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, March 2021

Subject: Pharmaceutical Organic Chemistry - II

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four question. **(4 x 17 ½ = 70 Marks)**

1. (a) Write the mechanism involved in Friedel – craft's acylation of benzene.
   (b) Write the method of preparation & reactions of anthracene.
   (c) Explain in detail about Huckel's rule.

2. (a) Explain the nucleophilic substitution reactions of halobenzenes with emphasis on benzene mechanism.
   (b) Explain the acidity of phenols with effect of substituents on their acidity.

3. (a) Explain the elements of symmetry with examples.
   (b) Describe in detail about geometrical isomerism.

4. (a) Explain R-/S- configuration with suitable examples.
   (b) Differentiate between 'Racemic modification' and 'Resolution'.

5. (a) Write the method of preparation (any one) and reactions (any three) each for pyrole & indole.
   (b) Write the structure & uses of medicinal compounds (each two) containing following heterocyclic compounds: pyridine and quinolone.

6. (a) Why furam undergoes electrophilic substitution preferentially at 2-/2-position? Explain with examples.
   (b) Write any two methods of preparation of isoquinoline.
   (c) Write the structure & uses of medicinal compounds (each two) containing following heterocyclic compounds: pyrrole & acridine.

7. (a) Discuss any two methods of preparation each for thiazole & benzimidazle.
   (b) Write the structure and uses of medicinal compounds (each two) containing following heterocyclic compounds: oxazine & triazole.

8. (a) Explain any two methods of preparation each for oxazole & imidazole.
   (b) Write the structure and uses of medicinal compounds (each two) containing following heterocyclic compounds: Diaxane & Tetrazole.

9. Describe the mechanism of the following reactions:
   (a) Arndt-eistert synthesis
   (b) Oppeneur oxidation
   Write two applications for each of the following reagents.
   (c) Sodium Periodate
   (d) Lithium aluminium hydride

10. Explain the mechanism of the following reactions:
    (a) MPV reduction
    (b) Beckmann rearrangement
    Write two applications for each of the following reagents.
    (c) NBS
    (d) Perchloric acid.

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Code No.12028/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, March 2021

Subject: Environmental Studies

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4 x 17 ½ = 70 Marks)**

1. Write a detailed note on the following
   (a) Conservation of natural resources
   (b) Ecosystem-features and functions.

2. Write about
   (a) Equitable use of natural resources
   (b) Sustainability theory and practices
   (c) Ecological pyramids.

3. (a) Explain ecosystem diversity.
   (b) Discuss about the distribution of biodiversity.

4. Write about a) Hot spots in India b) Biosphere reserves c) Endangered species of India.

5. Write briefly on the following
   (a) Environmental problems in India
   (b) Causes and control measures of air pollution.

6. Write on following
   (a) Hazardous waste management
   (b) Cost benefit analysis
   (c) Recycle and reuse of waste.

7. Explain the following
   (a)Urbanization and its impacts on environment
   (b) Waste land reclamation
   (c) Green revolution

8. (a) Explain the various methods of rain water harvesting.
   (b) Write about water shed management.

9. Explain the following (a) Air act (b) Wild life protection act (c) ISO 14000

10. Write about
    (a) EMP
    (b) Ecoaudit and Ecolabelling
    (c) Any one international convention

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Code No.12026/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, March 2021

Subject: Pharmaceutical Engineering - I

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4 x 17 ½ = 70 Marks)**

1. Write the theories of corrosion and methods to prevent corrosion.

2. Explain the characteristics and applications of plastic and rubber as plant material.

3. (a) Write Fourier's law and derive the equation for transfer of heat through plain wall.
   (b) Write the construction and working of differential manometer.

4. (a) Explain Bernoulli's theorem and it's applications.
   (b) Derive the equation for measurement of flow using venturi meter.

5. Write the working principles of reciprocating and rotary pumps.

6. Explain construction and working of compressor and vacuum pump.

7. (a) Write the procedures for humidification with diagrams.
   (b) Describe humidity chart and it's importance.

8. (a) Explain the absorption refrigeration cycle with help of diagram.
   (b) Write refrigeration load and it's significance.

9. (a) Explain mechanism of filteration and kozeny equation.
   (b) Explain working principles of frame and plate filter press without wash facility.

10. (a) Write the theory of filteration and significance of pretreatment.
    (b) Write the construction of super centrifuge.

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Code No.12027/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, March 2021

Subject: Pharmaceutical Microbiology

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4 x 17 ½ =70 Marks)**

1. (a) Elaborate the various methods used microbial cell count.
   (b) Write a note on phase contrast microscopic technique with suitable diagram.

2. (a) Explain various methods for isolation of aerobic and anaerobic microbes.
   (b) Write about nutritional requirements of bacteria.

3. (a) Define staining. Explain in detail about Gram Staining.
   (b) Write a note on lytic and lysogenic cycles of viruses.

4. (a) Define mutation. Write about different types of mutants.
   (b) Define mutants. Explain the various methods used for isolation of mutants.

5. (a) Define sterilization. Explain steam heat sterilization method in detail.
   (b) Define Disinfectants. Write about phenol coefficient test.

6. (a) Write about working, uses and limitations of hot air oven.
   (b) Classify sterilization methods. Write a note on filtration method of sterilization.

7. (a) Define Serology. Explain various applications of Serology.
   (b) Explain role of phagocytes in detail.

8. (a) Explain in detail about hypersensitivity reactions.
   (b) Write a note on exotoxins and endotoxins.

9. (a) Write about significant symptoms, mode of transmission of the following
   (i) Influenza (ii) Diphtheria (iii) Malaria.
   (b) Write about microorganisms observed in water and their identification methods.

10. (a) Write about significant symptoms, mode of transmission of the following
   (i) Typhoid (ii) Cholera (iii) Plague.
   (b) Write about phosphatase test in detail.

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Code No.12025/CBCS

FACULTY OF PHARMACY

B. Pharmacy III - Semester (CBCS) (Backlog) Examination, March 2021

Subject: Pharmaceutical Analysis – I (Chemical Analysis)

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4 x 17 ½ = 70 Marks)**

1. (i) What is precision, accuracy and doubtful value.
   (ii) Enumerate calibration of volumetric flask.
   (iii) A series of data of titre value in estimation of drug is provided as follows.
   4.1, 4.4, 4.0
   4.3, 4.2, 4.7
   4.9, 4.6, 4.4
   Calculate the range and standard deviation.

2. (i) Discuss direct titration, back titration and blank titration.
   (ii) Describe equivalent weight, how do you compute the equivalent weight of $K_2Cr_2O_7$, H_2SO_4 and Na_2Co_3.
   (iii) Elaborate primary and secondary standard substances? Mention few examples for each.

3. (i) Describe buffer solution, buffer action and buffer capacity, Discuss the role of buffer in pharmaceutical analysis.
   (ii) Explain law of mass action and its significance.

4. (a) Explain the terms acidimetry and alkalimetry with examples.
   (b) Derive equations to calculate P^H values of aqueous solution of salts obtained from weak acid and strong base.

5. (a) Explain principle of oxidation-reduction titration and write a note on red-ox indicators.
   (b) Discuss the terms co-precipitation and post-precipitation.

6. (a) Describe mohr's method for determinative of chlorides.
   (b) Explain different filtering media and devices in gravimetric analysis.

7. (i) Discuss principle, procedure and apparatus used in assay of oxygen.
   (ii) Classify the solvents used in non-aqueous titration.
   (iii) Write the applications of Non-aqueous titration.

8. (a) Explain theory and applications of complexometry.
   (b) Write a note on p^m indicators.

9. (i) Define the terms empirical and molecular formula. Write the molecular formulae for kww_4, $K_2Cr_2O_7$ and write the red-ox reaction equations of above two compounds with balancing the equations.
   (ii) Calculate molarity of H_2SO_4 where 25ml of 1m H_2SO_4 neutralised with 50ml of decimolar NaoH.

10. (i) Calculate number of moles of Sodium Carbonate in 500ml of 0.2m Sodium Carbonate.
    (ii) Define terms with equations:
    (a) Normality (b) Molarity
    (c) Molality (d) Theoretical yield

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Code No. 6241 /CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, Oct/Nov 2020

Subject: Pharmaceutical Microbiology

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4x17½=70 Marks)**

1. Write in detail about cultivation of aerobic and anaerobic bacteria.
2. Explain about Phase contrast and Fluorescence microscopy.
3. Explain different methods of inducing mutations in bacteria.
4. Explain in detail about Acid fast staining technique with neat labeled diagram.
5. Explain in detail about chemical methods of sterilization.
6. What is sterilization? Explain in detail about fractional Sterilization, Pasteurization, and Incineration.
7. Explain in detail about precipitation and agglutination reactions.
8. Explain about Humoral and cell mediated immunity
9. Write in detail about Causative organism, Mode of transmission, pathogenesis, symptoms, diagnosis, treatment, prevention and control of Tuberculosis.
10. Write the systematic study of E.coli.

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Code No. 6239/CBCS

FACULTY OF PHARMACY

B. Pharmacy III Semester (CBCS) (Backlog) Examination, October 2020

Subject: Pharmaceutical Analysis-I (Chemical Analysis)

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4x17½=70 Marks)**

1 Define and Explain
a) linearity b) Significant figures.
b) Explain the concept of error, precision and accuracy is pharmaceutical Analysis with example.

2 a) What is primary standard and secondary standard?
b) Define the terms accuracy and precision. Explain the difference between them with the help of suitable example.

3 a) Discuss the theories of neutralization indicators.
b) Explain about neutralization curve for a titration between strong acid and strong base.

4 a) Define buffer solution, buffer action and buffer capacity. Explain the role of buffers in pharmaceutical analysis.
b) Discuss law of mass action and its significance.

5 a) Discuss the principle of Oxidation-reduction titration and write a note on red-ox indicators.
b) Explain the terms co-precipitation and post –precipitation. Write the difference between them.

6 a) Explain Mohr's method of determination of chloride and write the precautions to be taken in above method.
b) Discuss the various filtering media and devices in gravimetric analysis.

7 a) Discuss the principle involved in complexometric filtration. Explain about masking and demasking agents.
b) Write a note on solvents used in non-aqueous titeration.

8 a) Explain the principle of non-aqueous titeration. How do you estimate a weakly basic substance by non-aqueous method?
b) Write a note on P^M indicators.

9 a) Calculate number of moles of sodium carbonate in 500ml of 0.2M sodium Carbonate.
b) Define the terms with equations:
i) Normality (ii) Morality (iii) Molality (iv) Theoretical yield.

10 a) What is Avogadro 's number? Explain how the moles of elements are measured.
b) Define the following terms with examples.
i) Empirical formulae
ii) Molecular formulae
c) Calculate the no. of moles and no. of grams of KM_nO_4.
(molecular weight 158) in 3 litres of 0.25 M solution.

Code No. 6238/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, October 2020

Subject: Pharmaceutical Organic Chemistry-II

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4x17½=70 Marks)**

1. (a) Explain in detail about Huckel's rule.
   (b) What are poly nuclear aromatic hydrocarbons? Write the Haworth synthesis and any two electrophilic substitution reactions of naphthalene.

2. (a) Explain the acidity of phenols with emphasis on effect of substituent on their acidity.
   (b) Write about Reimer-Tiemann reaction of phenols.

3. Explain the following terms briefly:
   (a) Optical activity, Plane of symmetry, Geometrical isomerism. With examples
   (b) Enantiomer, Diastereomer.

4. (a) Explain the sequence rules to determine R & S configuration in organic compounds.
   (b) Differentiate between 'Racemic modification' and 'Resolution'.

5. (a) Write the method of preparation (any two) and reactions (any three) each for pyridine and quinoline.
   (b) Write the structure and uses of medicinal compounds (each two) containing following heterocyclic compounds: Pyrrole and indole.

6. (a) Why pyrrole undergoes electrophilic substitution preferentially at 2-/α-position? Explain with suitable examples.
   (b) Write the structure and uses of medicinal compounds (each two) containing following heterocyclic compounds: Quinoline and pyridine.

7. (a) Discuss any two methods of preparation and reactions of imidazole.
   (b) Write the structure and uses of medicinal compounds (each two) containing following heterocyclic compounds: Benzofuran, cinnoline and triazole.

8. (a) Explain any two methods of preparation and reactions of oxazole.
   (b) Write the structure and uses of medicinal compounds (each two) containing following heteroyclic compounds: Penam, thiazole and tetrazole.

9. Describe the mechanism of the following reactions:
   (a) Arndt-Eistert synthesis
   (a) MPV reduction
   Write two applications for each of the following reagents:
   (c) Lithium aluminium hydride
   (d) Perchloric acid

10. Explain the mechanism of the following reactions:
    (a)Fries migration (b) Hofmann rearrangement
    Write two applications for each of the following reagents:
    (c) Lead tetra acetate (d) NBS

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Code No.6263/CBCS

FACULTY OF PHARMACY

B. Pharmacy VII - Semester (CBCS) (Suppl.) Examination, November 2020

Subject: Biopharmaceutics & Pharmacokinetics

Time: 2 Hours **Max. Marks: 70**

Note: Answer any four questions. **(4 x $17^{1/2}$=70Marks)**

1. a) Describe the theories proposed for the dissolution process with labeled diagrams.
   b) Explain about carrier mediated transport and its importance.

2. a) Explain pH partition hypothesis and its limitations.
   b) How does salt form of drug improve absorption?

3. a) Discuss significance of Drug-protein binding.
   b) Write a note on apparent volume of distribution.

4. a) Explain the factors effecting drug-protein binding.
   b) Write the factors affecting drug distribution.

5. a) Explain pathways of drug biotransformation.
   b) Explain about first pass effect and its implications.

6. a) Explain renal excretion of drugs.
   b) Explain physiochemical factors influencing renal excretion of drugs.

7. a) Define clearance. Explain the concept of renal clearance.
   b) Explain the following (i) Cmax (ii) AUC.

8. a) Explain drug-drug interaction medicated through distribution and metabolism.
   b) Explain dose adjustment in hepatic diseases.

9. a) Draw equations describing two-compartment open model.
   b) Explain plasma elimination half-life in one compartment.

10. A 59 kg male received 2 mg/kg of antibiotic orally and following blood data was obtained. Assuming that the drug follows one compartment open model and is completely absorbed. Calculate all possible pharmacokinetic parameters.

Time (hr)	0.25	0.5	0.75	1	1.5	2	2.5	3	4	6	8	12	18	24
Plasma Concent-ration (mg/mL)	2.2	3.8	5	5.8	6.8	7.1	7.1	6.9	6.2	4.8	3.5	1.9	0.8	0.3

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Code No. 6240 /CBCS

FACULTY OF PHARMACY

B. Pharmacy III Semester (CBCS) Backlog Examination, November 2020

Subject : Pharmaceutical Engineering-I

Time: 2 Hours **Max. Marks: 70**

Note: Answer any Four questions. **($4 \times 17^{1/2} = 70$ Marks)**

1. a) Write the factors influencing corrosion.
   b) Explain various methods to prevent corrosion.

2. Write the properties, uses and drawbacks of metals as materials of plant construction.

3. a) Write construction and working of extended surface tubular heat exchangers.
   b) Explain mechanisms of forced and natural convection.

4. a) Derive the equation for measurement of pressure using simple manometer.
   b) Write construction and working of vacuum pump.

5. a) Differentiate between fans and blowers, reciprocating and rotary pumps.
   b) Write the construction and working of belt conveyor.

6. a) Explain the functioning of airlift pump with help of diagram.
   b) Describe the mechanism of check valves.

7. a)Explain absorption refrigeration cycle with diagram.
   b) Write advantages and disadvantage of brine system as refrigerant.

8. a) Explain the approaches for humidification and dehumidification.
   b) Write the construction and working of Air-conditioner.

9. a) Write the construction and working of frame and plate filter press with washfacility.
   b) Explain the concept of pre- treatment to enhance filtration rate.

10. a) Write the theory of centrifugation. Compare and contrast batch and continuous centrifuge.
    b) Explain the working of continuous centrifuge along with benefits and drawbacks.

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Code No. 6013/CBCS

FACULTY OF PHARMACY

B. Pharmacy III Semester (CBCS) (Backlog) Examination, January 2020

Subject: Pharmaceutical Analysis-I (Chemical Analysis)

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 a) Define the concept of error. Explain about various sources of errors and their rectification. 10
b) Write a note on rejection of doubtful values. 4

OR

2 What is Calibration? How do you calibrate burettes, pipettes and volumetric flasks? 14

3 a) Explain the terms acidimetry and alkalimetry with examples. 4
b) Derive equations to calculate the p^H Values of aqueous solutions of salts obtained from weak acid and strong base. 10

OR

4 a) Explain about different theories of acid and base. 6
b) Write notes on solubility product and common ion effect. 8

5 a) Describe various steps involved in gravimetric analysis. 10
b) Write a note on adsorption Indicators. 4

OR

6 a) What is redox potential? Explain principle involved in permanganometric titration. 8
b) Define the terms Iodinetry & Iodometry. How do you prepare and standardize 0.1N I_2 solution? 6

7 a) How do you prepare and standardize 0.1N $HClO_4$? 8
b) Write a note on making and demasking agents. 6

OR

8 a) Explain about various methods of complexometric titrations. 7
b) Explain theory and applications of non-acqeous titrations. 7

9 Define the terms molarity and normality. How do you prepare 10 ml each of 0.1N NaoH, O.1 NH_2SO_4, 0.1NI_2 and 0.1NEDTA. 14

OR

10 a) Define the terms empirical formula and molecular formulae with examples. 4
b) Write the Balanced chemical equations for the following: 6
i) Reaction between Sodium Nitrate and Sulphuric acid.
ii) Reactions between Sodium thiosulphate and Iodine.
iii) Reaction between zinc chloride +EDTA.
c) Calculate the volume of water required to prepare 15% phosphoric acid from 80% phosphoric acid. 4

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Code No. 6012/CBCS

FACULTY OF PHARMACY

B. Pharmacy III Semester (CBCS) Backlog Examination, December 2019

Subject: Pharmaceutical Organic Chemistry-II

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 (a) Explain the mechanism involved in nitration and Freidel-Craft's acylation of benzene. 8

(b) Write the resonance structures and reactions (any two) for naphthalene and anthracene. 6

OR

2 (a) Explain in detail about nucleophilic substitution reactions in halobenzene. 9

(b) Describe the Reimer-Tiemann reaction of phenols. 5

3 Differentiate between the following:

(a) Enantiomer & diastereomer 4

(b) Meso compound & racemic modification 4

(c) Resolution and racemic modidification 4

(d) Laevo- & dextro-rotatory compounds 2

OR

4 (a) Explain the sequence rules to determine E- & Z- configuration in organic compounds. 8

(b) Describe the conditions for optical activity. 6

5 (a) Compare the aromaticity of pyrrole, furan and thiophene. 6

(b) Explain any two methods of preparation and reactions (any three) of pyridine. 8

OR

6 (a) Explain the mechanism involved in Fischer-Indole synthesis and Skraup's synthesis. 8

(b) Write the structure and uses of medicinal compounds (each two) containing following heterocyclic compounds: isoquinoline, pyrrole and acridine. 6

7 (a) Discuss any two methods of preparation and reactions of pyrazole. 8

(b) Write the structure and uses of medicinal compounds (each two) containing following heterocyclic compounds: Benzofuran, oxazine and tetrazole. 6

OR

8 (a) Explain any two methods of preparation and reactions of thiazole. 8

(b) Write the structure and uses of medicinal compounds (each two) containing following heterocyclic compounds: Cepham, benzopyran and triazole. 6

9 Describe the mechanism of the following reactions: 8

a) Beckmann rearrangement b) Oppeneur oxidation

Write two applications for each of the following reagents: 6

a) NBS b) Lead tetra acetate

OR

10. Describe the mechanism of the following reactions: 8

a) Hoffman's rearrangement b) MPV reduction

Write two applications for each of the following reagents: 6

a) Sodium periodate

b) Lithium aluminium hydride

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Code No. 6014 /CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, January 2020

Subject: Pharmaceutical Engineering-I

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 a) Distinguish between
   i) Unit operation and unit process
   ii) Steady and unsteady states
   iii) Dimensional and dimensionless groups. 6
   b) Write the theory of galvanic corrosion and write the methods to prevent it. 8

OR

2 Write the properties, uses and drawbacks of non-metals as materials of plant construction. 14

3 Write construction and working of Rotameter and Pilot tube along with their advantages and disadvantages. 14

OR

4 a) Explain the concept of Overall Heat Transfer Coefficient with parallel and counter current flow. 8
   b) Describe the working of double pipe tubular heat interchanger. 6

5 a) Differentiate between pipe and tube, joints and valves 6
   b) Write the construction and working of pneumatic conveyor. 8

OR

6 a) Explain the functioning of compressors with help of diagram. 7
   b) Describe the mechanism of rising and non-rising stem valves. 7

7 a) Explain compression refrigeration cycle with diagram. 7
   b) Write advantages and disadvantage of primary and secondary refrigerants 7

OR

8 a) Explain the approaches for determination of humidity. 7
   b) Write the applications of refrigeration and air conditioning in pharmacy. 7

9 a) Write the filtration theory with help of equation. 7
   b) Differentiate between perforated and non perforated centrifuges. 7

OR

10. a) Write the factors to be considered for the selection of centrifuge. 7
   b) Describe construction and principle of conical disc centrifuge. 7

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Code No. 6016 /CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Backlog) Examination, January 2020

Subject: Pharmaceutical Microbiology

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1.	a. Write the differences between prokaryotes and Eukaryotes	10
	b. Explain nutritional requirements of Fungi.	4
	OR	
2.	Explain Koch's postulates and Germ theory of disease	14
3.	Write in detail about different growth phases of bacteria.	14
	OR	
4.	Explain in detail about reproduction of Viruses.	14
5.	What is Phenol Coefficient test? Explain in detail about suspension tests.	14
	OR	
6.	What are sterilization indicators? Explain the types of sterilization indicators in detail.	14
7.	Discuss Chemical nature of antigens and antibodies. Explain different types of antibodies.	
	OR	
8.	Write about Phagocytosis and complement fixation test.	14
9.	Write in detail about causative organism, Mode of transmission, pathogenesis, symptoms, diagnosis, treatment, prevention and control of Poliomyelitis.	14
	OR	
10.	Write in detail about microbiology of water.	14

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Code No. 13208 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, August 2019

Subject: Pharmaceutical Engineering – I

Time: 3 Hours **Max.marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 a) Discuss the applications, advantages and limitations of different kinds of plastics in the pharmaceutical industry. 7

b) What is corrosion? Enlist the various types of corrosion. Discuss the effect of acidity of solution and oxidizing agents on rate of corrosion. 7

OR

c) Discuss the factors to be considered in the selection of materials for pharmaceutical plant construction. 7

d) Describe briefly the different methods of prevention of corrosion. 7

2 a) What is manometer? Derive an equation applicable for simple manometer. 6

b) With the help of a neat diagram explain the construction, working, advantages and disadvantages of shell and tube heater. 8

OR

c) Describe Reynold's experiment elucidating different types of flow patterns when a liquid flows through a closed channel. 7

d) State and explain Stefen Boltzmann's law of heat radiation. 7

3 a) Name the devices used for transportation of solids. Describe any one equipment. 7

b) Giving a neat sketch of a centrifugal pump, explain its design and operation. 7

OR

c) Compare the characteristics of centrifugal pumps and reciprocating pumps. 7

d) Write a note on Pneumatic conveyor. 7

4 a) Discuss the different methods used for determination of humidity. 7

b) Describe the various components of a refrigeration system using compressor. 7

OR

c) Define: 6

i) Absolute humidity
ii) Dew point
iii) Wet bulb temperature

d) What are brine systems in refrigeration and what are their advantages and disadvantages. 8

5 a) Describe the construction, working and applications of meta filter. 7

b) Explain the theory of centrifugation. Write applications of centrifugation in pharmacy. 5+2

OR

c) Describe the construction, working and uses of Delaval clarifier. 7

d) What are filter aids? What are the characteristics of an ideal filter aid? 7

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Code No. 13210 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, July 2019

Subject: Pharmaceutical Microbiology

Time: 3 Hours **Max.marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 a) Explain about various microscopic techniques, their advantages in observing the microbes. 14

OR

b) Explain different shapes of bacteria with diagrams. 7

c) Explain cell wall structure of gram positive and negative bacteria. 7

2 a) What are stains? Explain principle and procedure of acid fast staining. 14

OR

b) What are mutations? Explain types of mutagenesis. 14

3 a) Explain evaluation of disinfectants by redial walker and chick martin test. 14

OR

b) Explain in detail about radiation sterilization. 14

4 a) what are monocytes and macrophages? Explain any one non-specific internal defense mechanism. 14

OR

b) What are immunoglobulins? Explain the typical structure of immunoglobulin with neat labeled diagram. 14

5 a) Write in detail about causative organism, mode of transmission, pathogenesis, symptoms, diagnosis, treatment, prevention and control of diphtheria and influenza. 14

OR

b) Write about various types of micro organisms present in milk. Write in detail about methylene blue reductase test.

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Code No. 13207 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, July 2019

Subject: Pharmaceutical Analysis – I (Chemical Analysis)

Time: 3 Hours **Max.marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 a) i) Define the following terms:
a) Accuracy
b) Precision
c) Sensitivity
d) Detection limit — 4

ii) Write a note on errors — 5

iii) Define calibration. Write about calibration of volumetric flask — 5

OR

b) i) Define primary and secondary standard with examples. Write ideal characters of primary standard substance. — 6

ii) Write different methods of expressing concentrations of solutions. — 8

2 a) i) Explain Lewis electronic theory of acids and bases. — 6

ii) Write notes on common ion effect and solubility product. — 2x4

OR

b) i) Explain the theory of neutralization indicators. — 10

ii) Write preparation and standardization of 0.1 NH_2SO_4. — 4

3 a) i) Explain a titration involving a self-indicator. — 6

ii) Explain the different steps of gravimetric analysis. — 8

OR

b) i) Write the preparation and standardization of 0.1N $K_2Cr_2O_7$. — 6

ii) Discuss about various redox indicators. — 8

4 a) i) Explain the theory and applications of non-aqueous titrations. — 7

ii) What are complexometric titrations? Write the procedure involved in the assay of a compound by complexometry. — 7

OR

b) i) Write a note on argentometry and iodometry. — 10

ii) Write the preparation and standardization of 0.5 M EDTA solution. — 4

5 a) i) Define the following terms with suitable examples. — 6
a) Mole
b) Theoretical yield
c) Empirical formula
d) Avogadro number

ii) Calculate the percentage composition of elements in $Na_2S_2O_4$ (Atomic weights Na = 23, S = 32, O = 16). — 4

iii) Calculate the number of molecular glucose in 52.3 gm of glucose (Molecular weight of glucose is 180 AMU). 4

OR

b) i) Write the mass balance equation for the following: 2x3=6

a) $NH_4OH + H_2SO_4 \rightarrow (NH_4)_2SO_4 + H_2O$

b) $CaCl_2 + 2\ NaNO_3 \rightarrow Ca(NO_3)_2 + 2\ NaCl$

ii) How many moles are present in 100 gm of sodium hydroxide? 3

iii) A carbon compound contains 12.8% carbon, 2.1% hydrogen, 85.1% bromine. Molecular weight of compound is 187.9. Calculate the molecular formula. 5

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Code No. 13206 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, July 2019

Subject: Pharmaceutical Organic Chemistry –II

Time: 3 Hours **Max.marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 a) Write the mechanism of nitration and halogenation in benzene. 8
b) Explain the nucleophilic substitution in halobenzenes. 6

OR

c) Discuss the structure of benzene. 10
d) Write any two preparations and reactions of naphthalene. 4

2 a) Explain the sequence rules to determine R and S configuration. 8
b) Write a note on cis-trans isomerism. 6

OR

c) What is racemic modification? How do you resolute racemic modification. 8
d) Explain conformational isomerism with examples. 6

3 a) Explain the basicity of reactivity of pyridine. 6
b) Write any two methods of preparation and reactions of pyrrole and furan. 8

OR

c) Explain skraup's synthesis of quinoline. 6
d) Write the structures and medicinal uses of the drugs containing indole and isoquinoline. 8

4 a) Discuss any two methods of preparation and reactions of imidazole. 8
b) Write the structure and specific uses of the following heterocyclic compounds:
i) Oxazole ii) Isoxazole iii) Thiazole 6

OR

c) Write any two methods of preparation of pyrimidine and phenothiazine. 6
d) Give the nomenclature and ring structure of the following:
i) Penam ii) Cepham iii) Benzofuran iv) Tetrazole 8

5 a) Give any two applications of each of the following: 8
i) Lithium aluminium hydride
ii) N-Bromo succinamide
b) Describe the mechanism of the following reactions:
i) Fries migration
ii) MPV reduction 8

OR

c) Write the mechanism and applications of the following reactions:
i) Oppeneurs oxidation
ii) Beckmann rearrangement. 10
d) Mention any two applications of sodium periodate. 4

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Code No. 13209 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, August 2019

Subject: Environmental Studies

Time: 3 Hours **Max.marks: 70**

Note: Answer all questions. All questions carry equal marks.

1	a)	Discuss in detail various natural resources and explain their uses and exploitation.	10
	b)	Discuss and explain the theory and practice of sustainability.	4
		OR	
	c)	Write notes on the following:	
		i) Benefits of natural ecosystems	4
		ii) Structure and functions of ecosystems	6
		iii) Sustainable life styles	4
2	a)	Write detailed note on the following:	
		i) Global-National-Local levels of biodiversity	8
		ii) Consumptive and productive use of biodiversity.	6
		OR	
	b)	Explain the following:	
		i) In situ conservation of biodiversity	7
		ii) Indigenous knowledge.	7
3	a)	i) Discuss Greenhouse effect.	6
		ii) Explain the causes and effects of water pollution.	8
		OR	
	b)	Discuss the following with details:	
		i) Hazardous Waste Management	5
		ii) Cost benefit analysis of a process	5
		iii) Value added products from wastes	4
4	a)	Write notes on the following:	4x3.5
		i) Earthquakes	
		ii) Nuclear accidents	
		iii) Watershed management	
		iv) Green revolution.	
		OR	
	b)	Explain the problems and consequences of population explosion.	8
	c)	Discuss about industrialization and green revolution.	6
5	a)	Write briefly about Environment Impact Assessment	7
	b)	Explain Eco audit and Eco labelling.	7
		OR	
	c)	i) Explain in brief the environmental management plan.	10
		ii) Discuss the environmental impacts of construction of a building.	4

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Code No. 13012 / C BCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, January 2019

Subject: Pharmaceutical Organic Chemistry – II

Time: 3 Hours **Max.Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 Explain the following reactions of benzene with examples. 7
(a) Nitration
(b) Friedel-Crafts alkylation
(c) Write the method of preparation (any one) and electrophilic substitution reactions of naphthalene. 7

OR

2 (a) Explain about the nucleophilic substitution rections of halobenzenes. 10
(b) Write about Reimer-Tiemann reaction of phenols. 4

3 Differentiate between following terms with examples. 8
(a) Meso compound and racemic modification
(b) Enantiomer and diastereomer
(c) Explain about E- and Z-isomers with rules for nomenclature. 6

OR

4 (a) Define the terms 'racemic modification' and 'resolution'. How do you resolute racemic modification? 8
Explain the following terms: 6
(b) Enantiomers
(c) Optical activity
(d) Meso compound

5 (a) Pyrrole undergoxes electrophilic substitution preferentially at 2- / ~ – position Justify with suitable examples. 6
(b) Write any two methods of preparation of thiophene. 4
(c) Write structure and specific uses of 2-medicinally important compounds representing each of pyridine and quinoline. 4

OR

6 Write a note on any two of the following:
(a) Skraup synthesis 4
(b) Fischer-Indole synthesis 3
(c) Paal-Knorr pyrrole synthesis 3
(d) Compare the aromaticity of pyrrole, furan and thiophene. 4

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Code No. 13014 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, January 2019

Subject: Pharmaceutical Engineering – I

Time: 3 Hours **Max.Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 a) Write different types of plastic materials along with their advantages, disadvantages and applications. 8
b) Explain steady state, unsteady steady and dimensionless analysis with examples. 6

OR

2 a) Explain the different factors affecting selection of plant materials. 8
b) Explain the different theories of corrosion with the help of diagram. 6

3 a) Write Fourier's law and Stefan Boltzman law for heat transfer. 5
b) Derive the equation for the measurement of heat flow through thick walled cylinder with help of diagram. 9

OR

4 a) Write the construction and working of Orifice meter and derive the equation for flow velocity. 7
b) Write the construction and working of steam traps. 7

5 Explain the principle involved in the working of reciprocating pump and rotary pump with the help of diagram. 7+7

OR

6 Classify conveyors and write construction and working of screw conveyor and belt conveyor. 4+5+5

7 a) Explain the concepts of refrigeration load and choice of refrigerant. 8
b) Define the terms humid heat, humid volume, wet bulb temperature, dew point, saturation humidity and relative humidity. 6

OR

8 a) Write working principles of dehumidifier and humidifier. 7
b) Write about the importance of humidity and its applications in pharmacy. 7

9 a) Write Kozeny Carman equation and explain the factors affecting filtration. 7
b) Describe construction and working of drum filter. 7

OR

10 a) Write the advantages of filter medium and filter aid. 7
b) Explain the working principle and advantage of perforated or non-perforated basket centrifuge. 7

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Code No. 13013 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, January 2019

Subject: Pharmaceutical Analysis – I (Chemical Analysis)

Time: 3 Hours **Max.Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 a) What is calibration? Why calibration of glassware is necessary? How do you calibrate a burette. 7
b) Explain about methods of expressing concentration. 7

OR

2 a) Explain about statistical treatment of analytical data. Write notes on rejection of doubtful value. 8
b) Explain accuracy, precision and error with examples. 6

3 a) Discuss theory of neutralization indicators. 6
b) Explain terms acidimetry and alkalimetry with examples. 8

OR

4 a) Explain about Arrhenius and Lewis theory of acids and bases. 8
b) Write a note on common ion effect. 6

5 a) Explain Mohr's method for determination of chlorides. 7
b) Explain about co-precipitation and post precipitation with suitable examples. 7

OR

6 a) Define buffer by giving examples. How does a buffer resist change in pH.? 7
b) Explain various steps involved in gravimetric analysis. 7

7 a) Explain theory and applications of non-aqueous titrations. 7
b) Write a note on masking and demasking aspects. 7

OR

8 How do you prepare and standardize following solutions 8
a) 0.01 M EDTA
b) 0.1 N $HClO_4$
c) Write principle and procedure involved in assay of calcium gluconate. 6

9 a) What is Avogadros Number? Explain how the moles of elements are measured. 8
Define the terms: 6
b) Stiochiometry c) Mole d) % yield

OR

10 a) Calculate percentage composition of elements in $Na_2S_2O_3$ 8
[Na = 23, S = 32, O = 16].
b) How will you balance following equation by applying Ion-electron method? 6

$$KMnO_4 + FeSO_4 + H_2SO_4 \rightarrow Fe_2(SO_4)_3 + K_2SO_4 + MnSO_4 + H_2O$$

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Code No. 13016 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, February 2019

Subject: Pharmaceutical Microbiology

Time: 3 Hours **Max.Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1 a) Describe the construction, principle, operation and applications of 'Phase-contrast Microscopy'. 8
b) Write about Enrichment media. 6

OR

2 a) Describe the methods employed for determination of 'Total Count' and 'Viable Count' of bacteria. 7
b) Classify bacteria and write about cultivation of 'Anaerobic bacteria'. 7

3 a) What is mutation? Describe the various types of mutations. Explain in detail about mutagenesis. 10
b) Explain about Grams staining. 4

OR

4 a) Explain in detail about replication of viruses. 8
b) Write a note on 'Ziehl-Neelsen staining' and its significance. 6

5 a) Describe the various factors influencing disinfection. 8
b) Explain 'Rideal-Walker coefficient test'. 6

OR

6 a) What is sterilization? Classify different methods of sterilization and describe the construction, operation and applications of 'Horizontal Autoclave'. 9
b) Write about 'Sterilization by filtration'. 5

7 a) Define 'Immunity'. Classify various types of immunity with suitable examples and describe the principles of different types of immunity. 8
Write a brief note on: 6
b) Antibodies
c) Toxoids

OR

8 a) Define 'Hypersensitivity'. Write about the various types of hypersensitivity reactions. 8
b) Distinguish between Exotoxins and Endotoxins. 6

9 Explain the source, mode of transmission, symptoms and prevention of the following diseases. 8
a) Tuberculosis
b) Infective hepatitis
c) Discuss the characteristics of E.Coli and its role in causing disease. 6

OR

10 a) Wire in detail about causative organism, mode of transmission, pathogenesis, symptoms, diagnosis, treatment, prevention and control of Diphtheria and Malaria. 8
b) Write the methods of 'Pasteurization of milk'. Write the qualitative tests and grading of milk. 6

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Code No. 13015 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Backlog) Examination, February 2019

Subject: Environmental Studies

Time: 3 Hours **Max.Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1	a)	Discuss the role of an individual in conservation of natural resources.	6
	b)	Describe the structure and function of ecosystem.	8
		OR	
2	a)	Explain the scope and importance of environmental studies.	6
	b)	Write a note on forest and land resources.	8
3	a)	Discuss briefly about medicinal and economic value of biodiversity.	8
	b)	Explain the various types and levels of bio-diversity.	6
		OR	
4	a)	Write about various hot spots of India.	6
	b)	Explain endangered and endemic species of India.	8
5	a)	Define primary and secondary pollutants.	4
		Discuss the following:	10
	b)	Hazardous waste management	
	c)	Cost benefit analysis of a process	
		OR	
6	a)	Explain the effects of acid rains on vegetation.	4
		Write notes on the following:	10
	b)	Effects of noise pollution	
	c)	Nuclear hazards	
7	a)	Explain about rain water harvesting and watershed management.	6
	b)	Discuss the natural disasters and its management.	8
		OR	
8	a)	Explain the problems and consequences of population explosion.	8
	b)	Discuss about industrialization and green revolution.	6
9	a)	Discuss the salient features of the Air (Prevention and Control of Pollution) Act.	8
	b)	Write briefly on any two international conventions.	6
		OR	
10	a)	Explain environment impact assessment.	8
	b)	Discuss Right to Information Act.	6

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7 (a) Explain any two methods of preparation each of oxazole and pyrazole. 10

Write the structure and uses of medicinal compounds (two) containing following heterocyclic compounds. 4
(b) Tetrazole
(c) Benzofuran

OR

8 (a) Explain any two methods of preparation for each of imidazole and thiazole. 8

Write the structure and uses of medicinal compounds (two) containing following heterocyclic compounds. 6
(b) Penam
(c) Triazole
(d) Thiazole

9 Explain the mechanism of the following reactions: 8
(a) Hofmann rearrangement
(b) MPV reduction
Write two applications of each of the following: 6
(c) N-Bromosuccinimide
(d) LAH

OR

10 Describe the mechanism of the following reactions: 10
(a) Arndt-Eistert synthesis
(b) Beckmann rearrangement
Write any two synthetic applications of each of the following: 4
(c) Lead tetra acetate
(d) Perchloric acid.

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Code No. 1278/CBCS

FACULTY OF PHARMACY

B. Pharmacy III–Semester (CBCS) (Suppl.) Examination, August 2018

Subject: Pharmaceutical Analysis – I (Chemical Analysis)

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1. (a) (i) Write a note on rejection of doubtful values. 5M
   (ii) Define the following terms. 4M
   A) Titrant B) Endpoint C) Equivalence point D) Indicator
   (iii) What is calibration? How do you calibrate a burette? 5M

(OR)

   (b) (i) Define the following terms with examples. 6M
   A) Accuracy B) Linearity C) Primary standard D) Secondary Standard
   (ii) Write different methods of expressing concentrations of solutions. 8M

2. (a) (i) Write Bronsted-Lowry theory of acids and bases. 5M
   (ii) What is law-of-mass action? Write its significance. 5M
   (iii) Write the applications of buffers in Pharmaceutical industry. 4M

(OR)

   (b) (i) Explain the terms acidimetry & alkalimetry with examples. 7M
   (ii) Write a note on neutralization indicators. 7M

3. (a) (i) Discuss the principle & theory involved in redox titrations. 7M
   (ii) Write about any two methods of gravimetric analysis. 7M

(OR)

   (b) (i) Write about coagulation & co-precipitation methods followed in gravimetric analysis. 8M
   (ii) Write a note on redox indicators. 6M

4. (a) (i) Explain about different solvents used in non-aqueous titrations. 7M
   (ii) Write about potassium iodate titrations. 7M

(OR)

   (b) (i) Write the principle and procedure involved in complexometric titration with an example. 7M
   (ii) Discuss the principles of gas analysis. 7M

5. (a) (i) Explain the terms. 9M
   A) Theoretical yield B) Molecular formula C) Limiting reagent.
   (ii) Calcuate the percentage composition of elements in $K_2Cr_2O_7$.
   (Atomic masses are K=39, Cr=59, O=16) 5M

(OR)

   (b) (i) How many moles of Na_2CO_3 are present in 159 gm of sodium carbonate. 4M
   (ii) 0.202 gm of a carbon compound on combustion gave 0.361gm of CO_2 and 0.147gm of water. Calculate the empirical formula of the compound. 4M
   (iii) Write the mass balance equations for the following 2x3=6M
   A) $Ba(OH)_2 + 2\ NaCl \rightarrow BaCl_2 + 2\ NaOH$
   B) $Mg(OH)_2 + HCl \rightarrow MgCl_2 + H_2O$.

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Code No. 1280/CBCS

FACULTY OF PHARMACY

B. Pharmacy – III Semester (CBCS) (Suppl.) Examination, August 2018

Subject : Pharmaceutical Microbiology

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions, All Questions carry equal marks.

1 a) Explain about Principle, Operation, Advantages and Disadvantages Of 'Electron Microscopy'. 8 m

b) Distinguish between 'Phototrophs' and 'Chemotrophs' with examples. 6 m

OR

c) Define 'Pure culture'. Discuss the methods of obtaining and preserving pure cultures. 9 m

d) Describe the different phases of bacterial growth curve. 5 m

2 a) Write the different types of identification of bacteria and explain IMVIC tests. 8 m

b) Explain 'mutation repair' mechanisms. 6 m

OR

c) Define and classify different groups of differential staining. Differentiate between gram positive bacteria and gram-negative bacteria. 8 m

d) Discuss about morphological features and Cultivation of Viruses. 6 m

3 a) Discuss any four groups of disinfectants with their mode of action and applications. 8 m

b) Write about 'Chick-Martin test'. 6 m

OR

c) What are different types of sterilization indicators? Explain in detail. 8 m

d) Write a note on 'Gaseous Sterilization'. 6 m

4 a) What are 'Antigen –Antibody Reaction's? Discuss about these reactions and their significance in diagnosis. 10 m

b) Write a note on 'Phagocytosis'. 4 m

OR

c) Define 'Immune Response'. Explain Primary and Secondary immune responses. 6 m

d) Write in detail about 'Humoral' and 'Cell-mediated immunity'. 8 m

5 a) Explain the source, mode of transmission, symptoms and prevention of the following diseases.

i) Typhoid ii) Poliomyelitis 8 m

b) Write a detailed account on the pharmaceutical importance of 'Streptomyces Species'. 6 m

OR

c) Write in detail about causative organism, mode of transmission, pathogenesis, symptoms and prevention of the following diseases.

i) Cholera ii) Filariasis 8 m

d) Describe the general scheme for the detection of 'Coliforms' in Water samples. 6 m

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Code No. 1277/CBCS

FACULTY OF PHARMACY

B. Pharmacy III–Semester (CBCS) (Suppl.) Examination, July 2018

Subject: Pharmaceutical Organic Chemistry - II

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1. (a) Write the mechanism of sulphonation and friedal crafts acylation in benzene. (8)
   (b) What are polynuclear aromatic compounds? Discuss any two reactions of naphthalene and anthracene. (6)

   (**OR**)

   (c) Explain the effect of substituent on reactivity and orientation of mono substituted benzenes. (10)
   (d) Explain the acidity of phenols with examples. (4)

2. (a) Explain optical isomerism with examples. (6)
   (b) Define the following terms with examples.
   i) Enantiomer ii) Plane of symmetry iii) meso compound iv) diastereomer (8)

   (**OR**)

   (c) Explain sequence rules to determine R and S configuration. (8)
   (d) Write a note on E and Z configuration. (6)

3. (a) Outline the method of preparation and two important reactions of indole. (8)
   (b) Write the structures and medicinal uses of compounds containing quinoline, isoquinoline. (6)

   (**OR**)

   (c) Write any two preparations and reactions of pyridine. (6)
   (d) Compare the aromatic properties of pyrrole, furan and thiophene. (4)
   (e) Explain why electrophilic substitution takes place at 2^{nd} position in pyrrole. (4)

4. (a) Discuss any two methods of preparation and reactions of imidazole, benzimidazole. (6)
   (b) Write the structure and specific uses of drugs containing
   i) Oxazole ii) isoxazole iii) pyrimidine iv) phenothiazine (8)

   (**OR**)

   (c) Give the nomenclature, ring structure and specific uses of the following
   i) penam ii) cepham iii) benzofuran iv) dioxane v) triazole (3+3+3+3+2)

5. (a) Give any two applications of each of the following
   i) N- bromo succinamide ii) perchloric acid (6)
   (b) Write the mechanism of the following reactions
   i) Beckmann rearrangement ii) MPV reduction (8)

   (**OR**)

   (c) Explain birch reduction and Arndt-Eistert synthesis. (10)
   (d) Mention any two applications of Lithium aluminium hydride. (4)

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Code No. 1281/CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Suppl.) Examination, August 2018

Subject: Environmental Studies

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks

1. a) Explain the following:
   i) Energy resources - over exploitation. 7
   ii) Conservation of natural resources. 7

OR

   b) i) Explain the two basic steps to be taken for equitable use of resources for sustainable lifestyles. 4
   ii) Describe various eco-pyramids with suitable examples. 10

2. a) i) Explain economic value of biodiversity. 4
   ii) Discuss various threats to biodiversity. 10

OR

   b) i) Explain the relevance of nanotechnology in environmental protection. 4
   ii) Explain and differentiate between biological reserves, national parks and wildlife sanctuaries. 10

3. a) Write a note on nuclear hazards and their control. 5
   b) Explain briefly about sanitation and public health. 5
   c) Define and explain climate change. 4

OR

   d) Write briefly on the following:
   i) Cost benefit analysis related to any pharma industry 7
   ii) Development of value added products from solid wastes. 7

4. a) Write notes on the following: 4×3.5
   i) Rain water harvesting
   ii) Bioterrorism
   iii) Floods
   iv) Urbanization

OR

   b) Explain the problems and consequences of population explosion. 8
   c) Discuss about industrialization and green revolution. 6

5. a) Explain the following briefly
   i) ISO : 14,000 and series. 5
   ii) Environmental legislation. 6
   iii) Kyoto protocol. 3

OR

   b) Write briefly on the following:
   i) Classification of EIA. 5
   ii) Right to information act. 5
   iii) Hazardous waste rules. 4

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Code No. 1279/CBCS

FACULTY OF PHARMACY
B. Pharmacy – III Semester (CBCS) (Suppl.) Examination, August 2018

Subject : Pharmaceutical Engineering-I

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions, All Questions carry equal marks.

1 a) Discuss the applications, advantages and disadvantages of different kinds of glass in the pharmaceutical industry. 8 m
b) Describe the biological corrosion and suggest the preventive measures. 6 m

OR

c) Mention two ferrous and two non-ferrous alloys used in pharmaceutical industry. Give their chemical composition and uses. 7 m
d) Discuss the factors that influence the rate of corrosion. 7 m

2 a) Distinguish between Rotameter and orifice meter. 6 m
b) Describe the construction, operation, advantages and disadvantages of a multipass heater. 8 m

OR

c) Explain the types of fluid flow and write about any two methods of fluid flow rate measurement.

3 a) Describe the design, working and applications of Screw conveyor & Belt conveyor. 10 m
b) Write a note on Jet pumps. 4 m

OR

c) Enlist the devices used for transportation of gases and describe any one 7 m
d) Write a note on. 7 m
i) Vaccum pumps.
ii) Jet Pumps.

4 a) Explain the construction and working of air conditioning Unit with neat sketch. 8 m
b) Discuss the factors that determine the refrigeration load. 6 m

OR

c) Describe the important features of Humidity Chart. Write the utility of humidity chart. 7 m
d) With a neat sketch, explain the principle of operation and working of an absorption refrigeration cycle. 7 m

5 a) Discuss the theories of Centrifugation . 7 m
b) With a neat sketch describe the construction working and uses of horizontal continuous centrifuge. 7 m

OR

c) Classify various fitter equipment based on their working principle. 6 m
d) Describe the construction, working and applications of rotary continuous filter with the help of a neat diagram. 8 m

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Code No. 1129/CBCS

FACULTY OF PHARMACY

B. Pharmacy III – Semester (CBCS) (Main) Examination January 2018

Subject: Pharmaceutical Organic Chemistry – II

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1. (a) Explain the following reactions of benzene with examples. 8
   i.Sulphonation ii. Halogenation
   (b) Explain the nucleophilic substitution reactions of halobenzenes with special emphasis on benzyne mechanism. 6

OR

   (c) Explain the following:
   i.Huckel's (4n+2)π rule 4
   ii.Haworth synthesis of naphthalene 3
   iii.Oxidation reactions of anthracene 3
   iv.Reimer-Tiemann reaction of phenols 4
2. (a) Differentiate between following terms with examples 8
   i.Enantiomer and diastereomer
   ii.Absolute and relative configurations
   (b) Explain the elements of symmetry with relevant examples. 6

OR

   (c) Define the terms: Plane polarized light, plane of symmetry, geometrical isomerism, racemic modification and resolution. 5
   (d) Explain the relationship between following concepts with optical activity. 9
   i.Enantiomeris ii. Asymmetry iii. Chirality
3. (a) Why electrophilic substitution takes place at 2- & 5-position in furan? Explain with examples. 5
   (b) Explain the oxidation reactions of quinoline and isoquinoline. 5
   (c) Write structure and specific uses of two medicinally important compounds representing each of thiophene and pyrrole. 4

OR

   (d) Write a note on the following:
   i.Bischler-Napieralski synthesis 3
   ii.Fischer-Indole synthesis 3
   iii.Hantzsch pyridine synthesis 3
   (e) Comment on the relative basicities of pyrrole and pyridine. 5
4. (a) Explain any two methods of preparation each of imidazole and benzimidazole. 10
   (b) Write the structure and uses of medicinal compounds (two) containing following heterocyclic compounds.
   i.Benzopyran ii Cepham 4

OR

   (c) Explain any two methods of preparation each for isoxazole and thiazole. 8
   (d) Write the structure and uses of medicinal compounds (two) containing following heterocyclic compounds. 6
   i. Isoxazole ii. Penam iii. Triazole

5. (a) Explain the mechanism of the following reactions 10
   i.Beckmann rearrangement ii. Oppenauer oxidation
   (b) Write two applications of each of the following: 4
   i.LAH ii. ii. Selenium oxide

OR

   (c) Describe the mechanism of the following reactions 8
   i. Hofmann rearrangement ii. Birch reduction
   (d) Write any two synthetic applications of each of the following: 6
   i. Lead tetra acetate
   ii. NBS

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Code No. 1132/CBCS

FACULTY OF PHARMACY

B. Pharmacy III–Semester (CBCS) (Main) Examination, January 2018

Subject: Pharmaceutical Engineering – I

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1. a) Write the advantages, disadvantages and applications of stainless steel as material of construction. (7)
   b) Classify different types of corrosion (7)

OR

   c) Explain the different factors affecting corrosion with the help of diagrams. (6)
   d) Explain the different methods of prevention of corrosion with the help of diagrams. (8)
2. a) Define conduction, convection, radiation, black body and gray body. (5)
   b) Derive the equation for the measurement of pressure by using simple manometer with help of diagram. (9)

OR

   c) Write the construction and working of Venturi meter and derive the equation for measurement of flow velocity (7)
   d) Write the various energy losses during the flow of fluids. (7)

3. a) Explain the concept check valves with help of diagram. (6)
   b) Explain the principle involved in the working of reciprocating pump with the help of diagram.

OR

   c) Classify conveyors and write construction and working of belt conveyor. (8)
   d) Differentiate between fans, blowers and compressor with help of diagrams. (6)

4. a) What is humidity chart and explain the methods of determining humidity by using it. (7)
   b) Explain the stages in compression refrigeration cycle along with diagram. (7)

OR

   c) Write the mechanisms of dehumidification and humidification. (6)
   b) Explain the construction and working of air conditioner. (8)

5. a) Write the construction and working of continuous centrifuge with the help of diagram, and mention its applications. (7)
   b) Describe construction and working of De Laval Clarifier. (7)

OR

   c) Write the construction and working of perforated basket centrifuge with the help of diagrams, mention its applications and limitations. (6)
   d) Write the construction and working of plate and frame filter press with washing facility.

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Code No. 1131/CBCS

FACULTY OF PHARMACY

B. Pharmacy III–Semester (CBCS) (Main) Examination, January 2018

Subject: Pharmaceutical Microbiology

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1. a. Explain in detail about external parts of bacteria with neat labeled diagram 8
   b. What are protoplasts and spheroplasts? 6

OR

   a. Explain direct microscopic and electronic enumeration of bacteria. 8
   b. Explain maintenance of pure culture by Lyophilization. 6

2. a. Write in detail about conjugation and transduction. 14

OR

   b. Explain in detail about lytic and lysogenic cycle in bacteriophages. 14

3. a. Explain control of microorganisms by chemical agents. 14

OR

   b. What are sterilization indicators? Explain Various types in detail. 14

4. a. Explain about primary/non specific first line defense mechanisms. 14

OR

   b. Explain the role of T Helper cells in defense mechanism. 14

5. a. Write in detail about causative organism, Mode of transmission, pathogenesis, symptoms, diagnosis, treatment, prevention and control of malaria. 14

OR

   b. Write in detail about microbiology of milk. 14

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Code No. 1130 / CBCS

FACULTY OF PHARMACY

B. Pharmacy III-Semester (CBCS) (Main) Examination, January 2018

Subject : Pharmaceutical Analysis –I (Chemical Analysis)

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All Questions carry equal marks.

1 a) i) What are Primary and Secondary Standard? Write Ideal Properties of Primary Standard. 6

ii) Define following terms: 8
a) Significant figures b) Equivalence point c) Indicator d) Linearity

OR

b) i) Define concept of error. Explain about various sources of errors and their rectification. 10

ii) Define following terms
(a) Sensibility (b) Standard deviation 4

2 a) i) Discuss law of mass action and its significance. 6

ii) Solubility of AgCl is 0.0015 g dm^3. Calculate solubility product. 4

iii) Calculate P^H of 0.05 M solution of Sodium Acetate (dissociation constant of acetic acid is 1.8 x 10 5). 4

OR

b) i) Derive equations to calculate the P^H value of aqueous solution of salts obtained from weak acid and strong base. 10

ii) How do you prepare and standardize 0.1M NaoH? 4

3 a) i) Discuss briefly conditions to be observed during precipitation in gravimetric analysis? 6

ii) What is Oxidation- reduction Potential ? How it is determined in red-ox system? 8

OR

b) i) Write a note on adsorptive Indictors. 4

ii) Write a note on red-ox indicators. 5

iii) How do you prepare and standardize 0.1M Sodium thiosulphate? 5

4 a) i) Explain about various methods of complexometric titrations. 8

ii) Write a note on adsorbents used in gas analysis. 6

OR

b) i) Write Principle, procedure apparatus used in Assay of Nitrous Oxide. 6

ii) How do you prepare & Standardize following solution? 8
(i) 0.1M E DTA (ii) 0. 1 M Sodium Thiosulphate.

5 a) i) How will you balance following equation by applying ion-electron method? 8

$FeCl_3 + SnCl_2 \rightarrow FeCl_2 + SnCl_4$

ii) Calculate volume of water required to prepare 15% phosphoric and from 80% Phosphoric acid. 6

OR

b) i) Define terms molarity & Normality. How do you prepare 1000 ml each of 0.1N NaoH, $0.1NH_2S04$, 0. NI_2 and 0.1 N HCl. (2+3+3+3+3)

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Code No. 1133/CBCS

FACULTY OF PHARMACY

B. Pharmacy III–Semester (CBCS) (Main) Examination January 2018

Subject: Environmental Studies

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1. (a) Describe the biotic and abiotic components of ecosystem. (8)
   (b) Discuss in detail about conservation of natural resources. (6)
   (**OR**)
   (c) Explain the sustainability theory and practice. Discuss its importance. (8)
   (d) Write a note on forest resources and its conservation. (6)

2. (a) Discuss the importance and value of biodiversity. (8)
   (b) Discuss about wild life sanctuaries and biosphere reserves. (6)
   (**OR**)
   (c) Write about various hot spots of India. (6)
   (d) Explain about insitu and exsitu conservation of biodiversity. (8)

3. (a) Discuss soil pollution and mention its effects on ground water quality (6)
   (b) Discuss about Hazardous waste management. (8)
   (**OR**)
   (c) Write briefly on waste recycle and reuse. (6)
   (d) What are the green house gases and explain the causes and consequences of global warming. (8)

4. (a) Discuss various social issues existing in the society and suggest possible solutions (8)
   (b) Describe briefly wasteland reclamation, consumerism and waste products. (6)
   (**OR**)
   (c) Write a note on resettlement and rehabilitation of people. (5)
   (d) Write short notes on the following (9)
   i) Rain water harvesting
   ii) Bioterrorism
   iii) Urbanization

5. (a) Discuss briefly forest conservation act and wild life protection act. (10)
   (b) Write about eco-audit and eco-labelling. (4)
   (**OR**)
   (c) Discuss the following
   i) RIO convention ii) Kyoto convention iii) EIA iv) RTI act (3+3+4+4)

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