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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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.   **$(4 \times 17^{1/2} = 70 \text{Marks})$**

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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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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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.

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FACULTY OF PHARMACY

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

Subject: Environmental Studies

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

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

1. (a) Discuss the indicators for sustainable development. Give examples.
   (b) Mention the role of an individual in conservation of natural resources.

2. Explain with complete details of concepts, structure and functions of any ecosystem with examples.

3. Discuss the following:
   (a) Biodiversity and environmental protection.
   (b) Biogeographical classification of India.

4. Explain the following:
   (a) Medicinal value of biodiversity.
   (b) Endemic species of India.

5. Explain the following:
   (a) Effects of soil pollution.
   (b) Recycle and Reuse of wastes.

6. Write briefly on the following:
   (a) Effects of air pollutants on materials and plants.
   (b) Nuclear hazards.

7. Write notes on the following:
   (a) Wasteland reclamation
   (b) Rainwater harvesting

8. Explain the following:
   (a) Urbanization and its impacts on environment.
   (b) Disaster management.

9. Explain the following briefly:
   (a) ISO : 14,000 and series.
   (b) Kyoto protocol.

10. Write briefly on the following:
    (a) Negative and positive impacts of EIA.
    (b) Wild life protection Act.

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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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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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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
<center>OR</center>
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
<center>OR</center>
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
<center>OR</center>
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
<center>OR</center>
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
<center>OR</center>
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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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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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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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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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: 4
                 a) Accuracy
                 b) Precision
                 c) Sensitivity
                 d) Detection limit

          ii)   Write a note on errors   5

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

<center>OR</center>

   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

<center>OR</center>

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

         ii) Write preparation and standardization of 0.1 N H_2SO_4.   4

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

         ii) Explain the different steps of gravimetric analysis.   8

<center>OR</center>

   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

<center>OR</center>

   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).

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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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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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

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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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- / $\alpha-$ 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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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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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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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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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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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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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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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 2nd 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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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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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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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

<div align="center">OR</div>

  (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

<div align="center">OR</div>

  (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

<div align="center">OR</div>

  (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

<div align="center">OR</div>

  (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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ST.PAULS COLLEGE OF PHARMACY

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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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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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$_2$S04, 0. NI$_2$ and 0.1 N HCl.   (2+3+3+3+3)

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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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