This question paper contains 4 printed pages]

SP—30—2024

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharma (Second Year) (Third Semester) EXAMINATION

MARCH/APRIL, 2024

PHARMACEUTICAL ORGANIC CHEMISTRY

Paper–II (BP-301T)

(Tuesday, 14-5-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

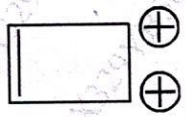
N.B. :— (*i*) *All* the questions are compulsory.

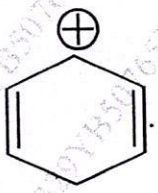
(*ii*) Figures to the right indicate full marks.

(*iii*) Draw structures wherever necessary.

1. Answer the following questions : 10×2=20

(*i*) Predict and justify the following structures as an aromatic/antiaromatic/non-aromatic (if any) :

(1) 

(2) 

(*ii*) Write uses of DDT.

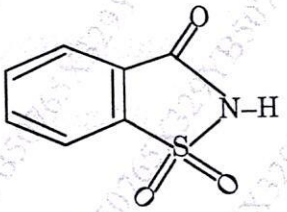
P.T.O.

(*iii*) Draw resonance structures of anthracene.

(*iv*) Differentiate between fats and oils with example.

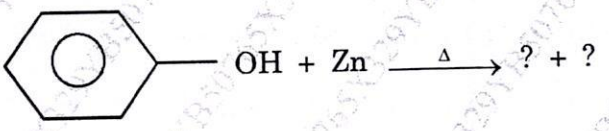
(*v*) Define Ester value.

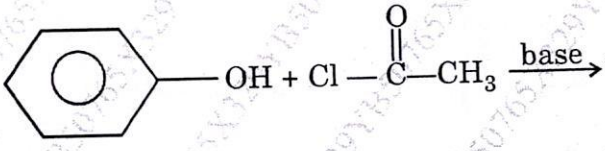
(*vi*) Write IUPAC name of the following organic compound :



(*vii*) Write *one* (any) chemical reaction of aromatic amines.

(*viii*) Complete the following reactions :

(1) 

(2) 

(*ix*) Draw structures of any *two* aromatic acids and write their IUPAC names.

(*x*) How to obtain phthalic anhydride from naphthalene ?

2. Answer any *two* of the following : 2×10=20

(*i*) What is the effect of substituents on reactivity and orientation of monosubstituted benzene ?

(*ii*) Wrirte in detail about Bayer's strain theory.

(*iii*) Write any *five* preparation methdos of phenol. (Explanation is required)

3. Answer any *seven* of the following : 7×5=35

(*i*) Write nitration and Friedel-Crafts alkylation reactions of benzene with mechanism.

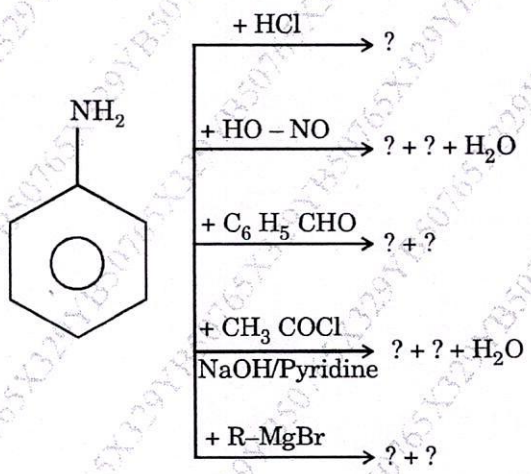
(*ii*) How to synthesize naphthalene by Haworth synthesis method ?

(*iii*) Write saponification and hydrogenation reactions of oils and fats.

(*iv*) Write any *two* preparation methods of cycloalkanes.

(*v*) Write a note on basicity of amines.

(*vi*) Complete the following reactions :

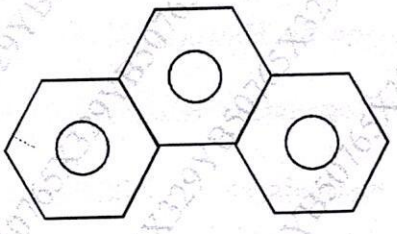


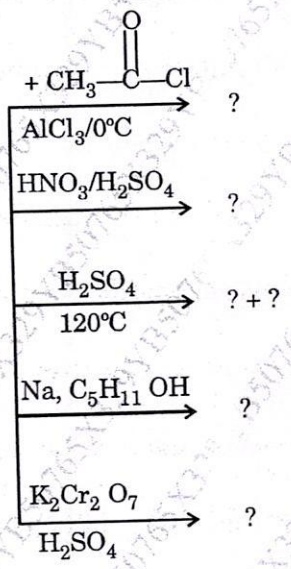
(*vii*) Write any *five* chemical reactions of benzoic acid (explanation is not required).

(*viii*) How E^+ attacks at C_1, C_2 and C_3 position of anthracene.

P.T.O.

(*ix*) Complete the following reactions with name of products :





This question paper contains **2** printed pages]

SP—34—2024

FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

B. Pharma. (Third Semester) EXAMINATION

APRIL/MAY, 2024

PHYSICAL PHARMACEUTICS

Paper–I

(Thursday, 16-5-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

1. Answer the following : 10×2=20

(*a*) Define the term surface tension and interfacial tension.

(*b*) State Roult's law. Give its significance.

(*c*) Express Snel's law of refraction.

(*d*) What is latent heat ?

(*e*) What are buffers ? Give its applications.

(*f*) Define solid, liquid and gas states of matter.

(*g*) What is meant by pH and Buffer capacity ?

(*h*) What is eutectic mixtures ?

(*i*) Define partition coefficient. Give its applications.

(*j*) Give the importance of Relative Humidity in pharmacy.

P.T.O.

2. Answer the following (any *two*) : 2×10=20

(*a*) Explain various methods of determination of surface tension.

(*b*) What is Solubility ? Explain various factors affecting solubility of the drug.

(*c*) What is Aerosol ? Draw neat labelled diagram of aerosol. Discuss about inhalers.

3. Answer the following (any *seven*) : 7×5=35

(*a*) Describe methods of determination of isotonicity.

(*b*) What is complexation ? Give the classification and its applications.

(*c*) Define HLB. Describe any *one* method to determine HLB.

(*d*) What is critical solution temperature ? Explain partial miscibility curve of phenol and water system.

(*e*) What is Refraction ? Describe the factors affecting Refractive index.

(*f*) Explain protein binding and its applications.

(*g*) What do you mean by optically active compound ? Explain its significance and limitations.

(*h*) What is Sorensen's pH scale ? Describe electrometric method of pH determination.

(*i*) Explain in brief about amorphous and substances and polymorphism.

This question paper contains **3** printed pages]

SP—38—2024

FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

B. Pharm. (Second Year) (Third Semester) EXAMINATION

APRIL/MAY, 2024

PHARMACEUTICAL MICROBIOLOGY

(Saturday, 18-05-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Answer to the point only.

(*iii*) Figures to the right indicate full marks.

1. Answer the following questions : 10×2=20

(*a*) Give the general properties of viruses.

(*b*) Give the various shapes of bacteria.

(*c*) Give the various functions of pili.

(*d*) What are iodophors ? Give advantages.

(*e*) Draw a well-labelled diagram of an aseptic area.

(*f*) What are HEPA filters ?

P.T.O.

(*g*) Give the clinical significance of candida albicans.

(*h*) Give the contribution of Louis Pasteur in the development of Microbiology.

(*i*) Define microbial spoilage of pharmaceuticals. Give examples.

(*j*) Define preservatives with examples.

2. Answer any *two* of the following : 2×10=20

(*a*) Explain bacterial growth curve. Write about physical conditions affecting bacterial growth.

(*b*) Describe lytic and lysogenic life cycle of bacteriophages.

(*c*) Explain CM test for evaluation of disinfectants. Give advantages and disadvantages of phenol coefficient tests.

3. Answer any *seven* of the following : 7×5=35

(*a*) Explain the nutritional requirements of bacteria.

(*b*) Explain factors affecting antimicrobial activity of disinfectants.

(*c*) Explain cultivation of viruses by chick embryo method.

(*d*) Classify fungi with examples.

(*e*) Explain various sources of contamination in aseptic area.

(*f*) Describe the following classes of disinfectants :

(*i*) Acids and alkalies

(*ii*) Halogens.

(*g*) Write a note on laminar air flow.

(*h*) Explain direct microscopic method for bacterial growth measurement.

(*i*) Explain gaseous sterilization.

This question paper contains **2** printed pages]

SP—42—2024

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharma (Third Semester) EXAMINATION

APRIL/MAY, 2024

PHARMACEUTICAL ENGINEERING

(BP-304T)

(Tuesday, 21-5-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Draw well labelled diagrams wherever necessary.

1. Answer *all* questions : 10×2=20

(*a*) What are manometers ? Enlist its types.

(*b*) Draw well labelled diagram of orifice meter.

(*c*) Explain any *two* factors affecting size reduction.

(*d*) Enlist the table mentioning standards for powder as per B.P.

(*e*) Enlist different applications of heat transfer.

(*f*) Explain difference between drying and evaporation.

(*g*) What is distillation ? State its objectives.

P.T.O.

(*h*) Explain the principle of tray dryer.

(*i*) Differentiate between liquid and solid mixing.

(*j*) What are filter aids ? Give examples.

2. Solve any *two* of the following : 2×10=20

(*a*) Explain Bernoulli's theorem. Derive its equation.

(*b*) With well labelled diagram explain construction and working of liquid to liquid heat interchanger.

(*c*) What is corrosion ? Explain in detail types of corrosion.

3. Solve any *seven* of the following : 7×5=35

(*a*) Write a note on Reynolds number.

(*b*) Write principle and construction of fluid energy mill.

(*c*) Explain Fourier's law.

(*d*) Explain working of simple distillation apparatus and enlist advantages and disadvantages.

(*e*) Write a note on equilibrium moisture content.

(*f*) With well labelled diagram explain principle and working of FBD.

(*g*) Explain theories of filtration.

(*h*) Write a note on perforated basket centrifuge.

(*i*) Explain construction and working of rota meter with a diagram.

This question paper contains **3** printed pages]

PP—30—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (III Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

PHARMACEUTICAL ORGANIC CHEMISTRY–II

Paper BP301T

(Tuesday, 26-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) Solve *all* questions.

(*ii*) Draw structure and reating wherever necessary.

(*iii*) Figures to the right indicate full marks.

1. Answer the following questions : 10×2=20

(*a*) Write structure and uses of Saccharine and BHC.

(*b*) Define activating and deactivating groups with examples.

(*c*) Write structure and uses of aryl diazonium salts.

(*d*) Explain synthetic uses of aryl diazonium salts.

(*e*) What is Huckel's rule ? Give its significance.

(*f*) Give the qualitative test of phenol.

P.T.O.

(*g*) Define the terms aromaticity and resonance.

(*h*) What are ortho para directing groups ? Give examples.

(*i*) Discuss the stability of cycloalkanes.

(*j*) Outline *two* reactions of cyclopropane.

2. Answer any *two* of the following : 2×10=20

(*a*) Define electrophilic substitution reaction. Explain mechanism of nitration and sulphonation of benzene.

(*b*) What are aromatics ? Explain the reactions of aromatic amines. Discuss the effect of substituents on basicity of aromatic amines.

(*c*) What are fatty acids ? Explain significance and reactions of hydrolysis, hydrogenation, rancidity and drying of oils.

3. Answer any *seven* of the following : 7×5=35

(*a*) Explain the Friedel-Craft's alkylation of benzene with limitations.

(*b*) Outline any *two* synthesis and reactions of naphthalene.

(*c*) Define angle strain. Explain why higher cycloalkanes are more stable than lower members.

(*d*) Give any *four* chemical reactions of cyclobutane.

(*e*) Explain the reaction and mechanism of nitration of benzene.

(*f*) Give structure and uses of :

(*i*) phenol

(*ii*) *o*-cresol

(*iii*) resorcinol

(*iv*) α-naphthol

(*v*) β-naphthol.

(*g*) Describe Bayer's strain theory. What are its limitations ?

(*h*) Describe any *one* method to determine Reichert-Meissl value with its significance.

(*i*) Explain Sache-Mohr theory and molecular orbital concept of Cycloalkanes.

This question paper contains **2** printed pages]

PP—34—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

B.Pharm. (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

PHYSICAL PHARMACEUTICS–I

Paper BP302T

(Thursday, 28-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks—75*

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

1. Answer the following : 10×2=20

(*a*) Define partition coefficient.

(*b*) What do you mean by Glassy State ?

(*c*) Define solubility.

(*d*) What is meant by pH and buffer capacity ?

(*e*) State Roult's law.

(*f*) Give applications of buffers.

(*g*) What are eutectic mixtures ?

(*h*) What is latent heat ?

(*i*) Define relative humidity.

(*j*) What is meant by vapour pressure ?

P.T.O.

2. Solve any *two* of the following : 2×10=20

(*a*) Discuss factors affecting solubility of drugs.

(*b*) What are aerosols ? Draw a neat labelled diagram of aerosol and give its application.

(*c*) Define surface tension. Explain various methods of measurement of it.

3. Solve any *seven* of the following : 7×5=35

(*a*) What is refraction ? Give application of refractive index.

(*b*) Describe the role of polar solvent and non-polar solvents in solubility of the drugs.

(*c*) Explain partial miscibility curve of phenol water system.

(*d*) Explain protein binding.

(*e*) What is optical rotation ? Explain polarimeter.

(*f*) Give application of complexation.

(*g*) Define Isotonicity. Explain any *one* method to determine isotonicity.

(*h*) Explain HLB system with neat labelled diagram.

(*i*) Explain in brief solubilization and detergency.

This question paper contains **2** printed pages]

PP—38—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

B. Pharm. (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

PHARMACEUTICAL MICROBIOLOGY

Paper–(BP-303T)

(Saturday, 30-12-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw neat labelled diagrams wherever necessary.

(*iii*) Figures to the right indicate full marks.

1. Answer *all* the questions : 10×2=20

(*a*) Give the functions of bacterial cell wall.

(*b*) Enlist the different types of culture media.

(*c*) Write the principle of simple staining.

(*d*) Define D-value and 2-value.

(*e*) Write the importance of fungi.

(*f*) Draw a neat labelled diagram of Bacteriophages.

(*g*) Write ideal properties of disinfectant.

(*h*) How will you validate HEPA filter ?

(*i*) Enlist different chemical preservatives.

(*j*) Give the principle of Autoclave.

P.T.O.

2. Solve any *two* : 10×2=20

(*a*) Write in detail importance, scope of pharmaceutical microbiology. Enlist applied branches of microbiology.

(*b*) Define sterilization. List the different methods used for sterilization with suitable example. Explain filtration sterilization.

(*c*) Explain in detail multiplication of Human Viruses.

3. Solve any *seven* : 7×5=35

(*a*) Explain factors affecting preservative efficacy.

(*b*) Explain different applications of cell cultures in pharmaceuticals.

(*c*) Explain the different sources and types of microbial contamination of pharmaceutical product.

(*d*) How will you assess new antibiotics by MIC.

(*e*) Differentiate between Gram-Positive and Gram-negative bacterial cell wall.

(*f*) Explain air sampling methods for testing of clean and aseptic room.

(*g*) Give in detail classification of disinfectants with its mechanism of action.

(*h*) Describe in detail lytic growth cycle of Bacteriophage.

(*i*) Give the advantages and disadvantages and applications of moist heat sterilization.

2. Answer the following (any *two*) : 2×10=20

(*a*) Give principle, construction, working, uses, advantages and disadvantages of fluidized bed dryer.

(*b*) Write in detail about steam distillation method.

(*c*) Write in detail about sieve shaker machine.

3. Answer the following (any *seven*) : 7×5=35

(*a*) Give principle, construction, working of fractional distillation.

(*b*) Write in detail about fluid energy mill.

(*c*) Give factors affecting evaporation.

(*d*) Give principle, construction, working of venturimeter.

(*e*) Write in detail about tray dryer.

(*f*) Write principle, construction and working of planetary mixer.

(*g*) Explain different types of corrosion.

(*h*) Give principle, construction and working of filter leaf.

(*i*) Write in detail about perforated basket centrifuge.

This question paper contains **2** printed pages]

PP—42—2023

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

B.Pharmacy (Third Semester) EXAMINATION

JANUARY, 2024

PHARMACEUTICAL ENGINEERING

(BP-304T)

(Tuesday, 02-01-2024) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) Answer *all* the questions.

(*ii*) Answer to the point only.

(*iii*) Draw neat labelled diagram wherever necessary.

1. Answer *all* the questions : 10×2=20

(*a*) What is coarse powder and very fine powder ?

(*b*) What is Reynolds number ? Give its equation.

(*c*) Give classification of dryers.

(*d*) What is convective and diffusive mixing ?

(*e*) Define terms distillation and ideal solution.

(*f*) Define terms conduction and convection with *one* example.

(*g*) What is filter aid ? Give its ideal properties.

(*h*) Define terms filtration and clarification.

(*i*) Give classification of materials used for Pharmaceutical plant construction.

(*j*) Draw well labelled diagram of rotary drum filter.

P.T.O.

This question paper contains **2** printed pages]

DP—30—2022

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (Third Semester) EXAMINATION

MARCH/APRIL, 2023

PHARMACEUTICAL ORGANIC CHEMISTRY

Paper-II (BP301-T)

(Thursday, 16-03-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time— Three Hours *Maximum Marks—75*

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Draw structures wherever necessary.

1. Solve the following questions : 10×2=20

(*a*) Define iodine value.

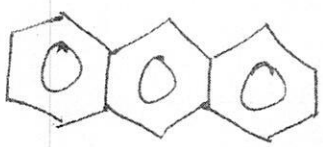
(*b*) Write hydrogenation reaction of fats and oils.

(*c*) Write any *one* preparation method of phenanthrene.

(*d*) Draw structure of DDT and write its IUPAC name.

(*e*) Write canonical forms of anthracene.

(*f*) Complete the following reaction :



$$\xrightarrow[H_2SO_4]{Na_2Cr_2O_7} ?$$

(*g*) Write uses of cresols.

(*h*) Complete the following reaction :

$$? + H_2 \xrightarrow[353\ k]{Ni} CH_3—CH_2—CH_3$$

(*i*) Write halogenation reaction benzene.

(*j*) Write any *one* preparation method of cycloalkanes.

P.T.O.

2. Solve any *two* of the following : 2×10=20

(*a*) What is the effect of substituents on reactivity and orientation of monosubstituted benzene.

(*b*) Write any *five* electrophilic substitution reactions naphthalene.

(*c*) Explain Baeyer's strain theory in detail.

3. Solve any *seven* of the following : 7×5=35

(*a*) Write any *two* chemical properties of fats and oil.

(*b*) Write any *two* preparation methods of anthracene.

(*c*) Write a note on aromaticity of benzene with examples.

(*d*) Write classification and nomenclature of phenols.

(*e*) Write any *two* chemical reactions of aromatic amines.

(*f*) Why *p*-nitrobenzoic acid is stronger acid than *m*-nitrobenzoic acid ?

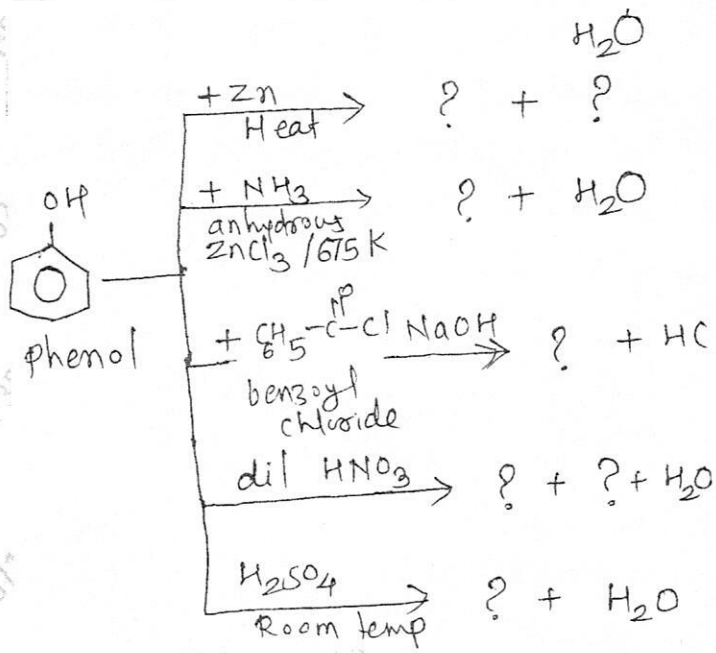
(*g*) Write any *two* applications of diazonium salts.

(*h*) Write notes on :

(*a*) Acid value

(*b*) Saponification value

(*i*) Complete the following reactions of phenol :



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DP—34—2022

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

B.Pharm. (Third Semester) EXAMINATION

MARCH/APRIL, 2023

PHYSICAL PHARMACEUTICS–I

Paper BP302T

(Saturday, 18-3-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

1. All questions are compulsory : 10×2=20

(*a*) Define Solubility.

(*b*) Define solvation and association.

(*c*) Define eutectic mixture and liquid crystal.

(*d*) Define surface and interfacial tension.

(*e*) Define complexation.

(*f*) Give any *two* applications of buffer.

(*g*) What is meant by pH and buffer capacity ?

(*h*) What is Rault's law ?

(*i*) What is meant by vapour pressure ?

(*j*) Define spreading coefficient.

P.T.O.

2. Solve any *two* of the following : 2×10=20

(*a*) Explain distribution law, its limitation and applications in detail.

(*b*) Define Refractive Index. Explain its method of measurement, instrumentation and applications in detail.

(*c*) Define surface tension. Explain various methods of measurement of it.

3. Solve any *seven* : 7×5=35

(*a*) Explain C.S.T. by phenol-water system in detail.

(*b*) What is meant by aerosol ? Give its applications.

(*c*) Define HLB. Draw a well labelled diagrams of HLB scale and give its applications.

(*d*) Explain Protein Binding.

(*e*) Write about buffers in Pharmaceutical and Biological Systems.

(*f*) Give applications of complexation.

(*g*) Explain in brief solubilisation and detergency.

(*h*) Explain in brief polymorphism.

(*i*) Explain in brief determination of dissociation constant and its applications.

This question paper contains 2 printed pages]

DP—38—2022

FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY

B.Pharm. (Second Year) (Third Semester) EXAMINATION

MARCH/APRIL, 2023

PHARMACEUTICAL MICROBIOLOGY

Paper-BP-303-T

(Tuesday, 21-03-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time— Three Hours *Maximum Marks—75*

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw neat labelled diagrams wherever necessary.

(*iii*) Figures to the right indicate full marks.

1. Answer all the questions : 10×2=20

(*a*) Define the following :

(*i*) Antiseptic

(*ii*) Sanitization.

(*b*) What is Mycology ?

(*c*) Define stain. Write the types of stain.

(*d*) Enlist pure culture techniques.

(*e*) Enlist which physical parameters required for growth of Bacteria.

(*f*) What is Bioburden ?

(*g*) Define (*a*) D-value (*b*) 2-Q10-value.

(*h*) Define disinfection. Write ideal properties of a disinfectant.

(*i*) Write about diluting fluid used for sterility testing.

(*j*) What is DOP test ?

2. Solve any *two* of the following : 2×10=20

(*a*) What is sterilization. Give its classifications and explain the different sterility indications with suitable example.

P.T.O.

(*b*) Write in detail about contribution of Louis Pasteur in field of microbiology. Explain in detail growth curve of bacteria.

(*c*) Enlist and explain factors affecting microbial spoilage.

(*d*) Explain the different sources and types of microbial contamination of pharmaceutical products.

3. Solve any *seven* of the following : 7×5=35

(*a*) Explain factors affecting preservative efficacy.

(*b*) Explain in detail the classification of distinfectants.

(*c*) Describe in short lytic cycle of Bacteriophage.

(*d*) Explain in detail filtration sterilization method.

(*e*) Differentiate between gram-positive and gram-negative Bacterial cell wall.

(*f*) Explain in detail about shape and arrangement of bacteria.

(*g*) How will you assess new antibiotics by MIC ?

(*h*) Explain the different tests used for detection of microbial contamination in aseptic areas.

(*i*) Explain sterility testing.

This question paper contains 2 printed pages]

DP—42—2022

FACULTY OF PHARMACEUTICAL SCIENCE

B. Pharm. (Second Year) (Third Semester) EXAMINATION

MARCH/APRIL, 2023

PHARMACEUTICAL ENGINEERING

Paper-BP-304T

(Friday, 24-03-2023) **Time : 02.00 p.m. to 05.00 p.m.**

Time—Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw well labelled diagram wherever necessary.

(*iii*) Figures to the right indicate full marks.

1. Answer *all* the questions : 10×2=20

(*i*) Write *four* pharmaceutical applications of centrifugal separation.

(*ii*) Define coarse powder and moderately coarse powder.

(*iii*) Give the mechanisms of mixing in solids.

(*iv*) Describe in short, real solutions with its deviation from Raoult's law.

(*v*) Give classification of evaporators.

(*vi*) What is Reynold's number ? Describe its importance.

(*vii*) State and explain Fourier's law of heat transfer with equation.

(*viii*) Enlist types of glass according to Indian Pharmacopoeia.

(*ix*) Define Corrosion. List the types of corrosion.

(*x*) Enlist the factors influencing rate of filtration.

P.T.O.

2. Solve any *two* of the following : 2×10=20

(*i*) Discuss principle, construction, working, merits, demerits and uses of Spray dryer.

(*ii*) Describe metal as materials of pharmaceutical plant construction.

(*iii*) Explain fluid energy mill with principle, construction, working advantages, disadvantages and applications by drawing neat labelled diagram.

3. Solve any *seven* of the following : 7×5=35

(*i*) Write construction and working of cyclone separator with neat labelled diagram.

(*ii*) Describe impellers used for liquid mixing.

(*iii*) Explain in detail distillation under reduecd pressure.

(*iv*) Give principle, construction and working of evaporating pan.

(*v*) Differentiate between orifice meter and venturi meter.

(*vi*) Describe radiation heat transfer mechanism.

(*vii*) With a neat labelled diagram describe construction and working of filter press.

(*viii*) Define Centrifugation. Give advantages and disadvantages of centrifugation.

(*ix*) Explain principle, construction and working of planetory mixer.

This question paper contains **2** printed pages]

CK—02—2018

FACULTY OF SCIENCE AND TECHNOLOGY

B.Pharm. (III Semester) EXAMINATION

NOVEMBER/DECEMBER, 2018

PHARMACEUTICAL ORGANIC CHEMISTRY-II

{POC-II (BP30IT)}

(Monday, 3-12-2018) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Answer to the point only.

1. Answer all the questions : 20

(*a*) Write criteria for aromaticity with suitable example.

(*b*) Explain in brief Friedel Craft acylation.

(*c*) Give Haworth synthesis for naphthalene.

(*d*) Draw the structure and medicinal uses of DDT.

(*e*) Draw resonating structure of phenoxide ion.

(*f*) Draw the structure of chloramine and cresol.

(*g*) Define and classify fatty acid.

(*h*) Draw the structure and give the numbering to triphenylmethane and phenanthrene.

(*i*) Define Iodine value.

(*j*) Why amines are basic in nature ?

2. Solve any *two* of the following : 20

(*a*) Define and classify phenols. Explain the effects of substituents on acidity of phenol.

(*b*) Explain :

(*i*) Baeyer's Strain Theory

(*ii*) Coulson and Moffitt's modification.

(*c*) Explain the effects of substituents on reactivity of benzene. Write down any *four* electrophilic reaction of it.

P.T.O.

3. Solve any *seven* of the following : 35

(*a*) Define and classify Amine. Write down the identification test for 1°, 2° and 3° amines (any *two*).

(*b*) Explain the principle and significance of (any *two*) :

(*i*) Saponification value

(*ii*) RM value

(*iii*) Acetyl value.

(*c*) Write the structure and uses of :

(*i*) BHC

(*ii*) Saccharin.

(*d*) Discuss the qualitative test for phenol.

(*e*) Explain the factors responsible for acidic character of aromatic carboxylic acids.

(*f*) What is the difference between an oil and fat ?

(*g*) What are polynuclear compounds ? How are they classified ? Give example of each group.

(*h*) Give any *two* preparation reactions of :

(*i*) Cyclopropane

(*ii*) Anthracene.

(*i*) Why benzene easily undergoes electrophilic substitution reaction than nucleophilic substitution reaction ?

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CK—05—2018

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharmacy (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2018

PHYSICAL PHARMACEUTICS—I

(BP 302T)

(Wednesday, 5-12-2018) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

1. *All* questions are compulsory. 10×2=20

(*a*) What is relative humidity ?

(*b*) What is isotropic and anisotropic substances ?

(*c*) State Rault's law.

(*d*) What is protein binding ?

(*e*) Give applications of critical solution temperature.

(*f*) Define critical point.

(*g*) Define pH and buffer.

(*h*) What is surface free energy ?

(*i*) Define isotonicity.

(*j*) What is refractive index ?

2. Solve any *two* : 2×10=20

(*a*) Describe in detail about Distribution law. Give its applications and limitations.

(*b*) Describe in detail about pharmaceutical and biological buffer system.

(*c*) Describe in detail about methods of anlaysis of complexation.

P.T.O.

3. Solve any *seven* : 7×5=35

(*a*) Describe in brief about measurement of pH by electrometric pH method.

(*b*) Explain in brief Refractive Index.

(*c*) Give applications of surfactants.

(*d*) Describe in brief complexation applications.

(*e*) What is vapour pressure ? Explain methods of measurement of it.

(*f*) Give principles of diffusion in biological system.

(*g*) Explain spreading coefficient in detail.

(*h*) Explain factors affecting solubility of gas in liquid.

(*i*) Explain dielectric constant and its applications.

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This question paper contains **2** printed pages]

CK—08—2018

FACULTY OF PHARMACEUTICAL SCIENCE

B. Pharmacy (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2018

PHARMACEUTICAL MICROBIOLOGY

(Saturday, 8-12-2018) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw neat labelled diagrams wherever necessary.

(*iii*) Figures to the right indicate full marks.

1. Answer the *all* questions : 10×2=20

(*a*) Define Microbiology and describe the contribution of Joseph Lister.

(*b*) Give the composition of Nutrient Agar Media.

(*c*) Enlist the phase of growth curve in Bacteria.

(*d*) Give the examples of Basic Stains.

(*e*) Define sterilization and Disinjection.

(*f*) What is dark field in compound microscope ?

(*g*) Enlist the physical factors required for the growth of bacteria.

(*h*) Define black fluid and white fluids with example.

(*i*) What is preservative and preservation ?

(*j*) Enlist the biological indicators in sterilization.

2. Solve any *two* of the following : 2×10=20

(*a*) Classify the different sterlization methods with example and explain moist heat method of sterlization.

(*b*) Explain historical development and scope of Microbiology.

(*c*) Define Virion. Enlist the unique properties and cultivation of virus by chick embriyo and animal inoculation method.

P.T.O.

3. Solve any *seven* of the following : 7×5=35

(*a*) Differentiate between prokaryotic and eukaryotic micro-organisms.

(*b*) Compare Gram +ve and Gram –ve bacterial cell wall.

(*c*) Explain growth curve of bacteria.

(*d*) Explain microbial assay of vitamins.

(*e*) Describe Sterlity Test for sterile products.

(*f*) What are the factors affecting bacterial spoilage of pharmaceutical products ?

(*g*) Describe factors affecting disinfectants.

(*h*) Write a short note on any *two* Bio-chemical tests.

(*i*) Discuss the principle involved in sterilization of Dry heat and Moist heat methods.

This question paper contains **2** printed pages]

CK—11—2018

FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

B. Pharm (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2018

PHARMACEUTICAL ENGINEERING

(BP304T)

(Tuesday, 11-12-2018) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Draw well-labelled diagrams wherever necessary.

(*iv*) Answer to the point only.

1. Solve the following : 10×2=20

(*a*) Define Reynolds' number.

(*b*) Enlist mechanisms of size reduction with *one* example.

(*c*) Define coarse powder and moderately coarse powder.

(*d*) Define conduction and convection with *one* example.

(*e*) State Raoult's law.

(*f*) Define EMC.

(*g*) State applications of drying.

(*h*) Give the advantages of double cone blender.

(*i*) Define filter aids. Give examples.

(*j*) Give the classification of materials of construction.

2. Solve the following (any *two*) : 2×10=20

(*a*) Describe the principle, construction, working, uses, advantages and disadvantages of ball mill.

P.T.O.

(*b*) Describe the principle, construction, working, uses, advantages and disadvantages of fractional distillation.

(*c*) Describe the principle, construction, working, uses, advantages and disadvantages of plate and frame filter.

3. Solve the following (any *seven*) : 7×5=35

(*a*) Give the construction and working of horizontal tube evaporator.

(*b*) Explain glass as a material of construction.

(*c*) Explain the construction and working of perforated basket centrifuge.

(*d*) Explain venturimeter in brief.

(*e*) Give the principle and applications of planetary mixer.

(*f*) Explain factors influencing evaporation.

(*g*) Explain construction and working of cyclone separator.

(*h*) Explain various types of impellers.

(*i*) Explain construction and working of bag filter.

This question paper contains **3** printed pages]

CO—2—2019

FACULTY OF SCIENCE AND2 TECHNOLOGY

B. Parmacy (Second Year) (Third Semester) EXAMINATION

OCTOBER/NOVEMBER, 2019

PHARMACEUTICAL ORGANIC CHEMISTRY-II

(BP-301 T)

(Wednesday, 27s-11-2019) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw structure and reaction wherever necessary.

(*iii*) Figures to the right indicate full marks.

1. Answer *all* the questions : 10×2=20

(*a*) Why is *p*-nitrobenzoic acid stronger acid than benzoic acid ?

(*b*) Give the structure and uses of

(*i*) Saccharine

(*ii*) BHC

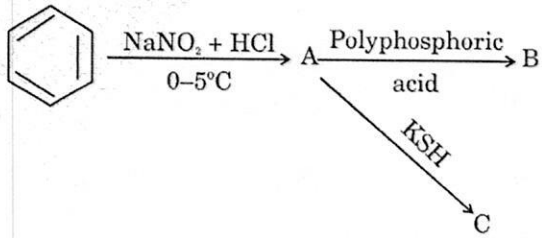
(*c*) Write the oxidation and reduction reaction of naphthalene.

(*d*) Write the difference between fats and oil.

(*e*) Discuss in brief Sachse-Mohr's theory.

(*f*) Write the synthesis reaction of phenolphthalein from phenol.

(*g*) Complete the following reaction :



P.T.O.

(*h*) Classify polynuclear aromatic hydrocarbon with suitable example.

(*i*) Write the principle and significance of saponification value.

(*j*) Arrange the activating and deactivating agent from the following functional group :

NO_2, OH, CH_3, CN, COOH, NH_2, CN, OCH_3

2. Answer any *two* of the following : 2×10=20

(*a*) Define deactivating agent. Write the effect of deactivating agent on reactivity and orientation of benzene.

(*b*) Write short notes on :

(*i*) Kolbe's reaction and Reimer-Tiemann reaction of phenol

(*ii*) Haworth reaction for synthesis of anthracene.

(*c*) (*i*) Discuss the Baeyer's strain theory with its limitations

(*ii*) Write the effect of substituent on Basicity of aromatic amines.

3. Answer any *seven* of the following : 7×5=35

(*a*) Write the Friedel-Craft alkylation reaction of benzene with mechanism.

(*b*) Why α-product in naphthalene is predominent over β-substitution product ?

(*c*) Explain the reactivity and stability order in cyclopropane and cyclobutane with its chemical reaction.

(*d*) Write the principle and significance of Iodine value and acid value.

(*e*) Discuss the effect of substituent on acidity of phenol.

(*f*) Write any *two* methods for synthesis of phenonthrene.

(*g*) Write any *two* electrophilic substitution reactions of anthracene and mention its uses.

(*h*) Write the structure and uses of the following :

(*i*) Triphenylmethane

(*ii*) Resorcinol

(*iii*) DDT

(*iv*) Chloramine

(*v*) Cresols

(*i*) Discuss the Huckel's rule with *three* examples.

This question paper contains **2** printed pages]

CO—07—2019

FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

B. Pharm. (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2019

PHYSICAL PHARMACEUTICS—I

(BP302T)

(Friday, 29-11-2019) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Answer to the point only.

(*iii*) Figures to the right indicate full marks.

1. Solve *all* the following : 10×2=20

(*a*) What is critical micelle concentration (CMC) ?

(*b*) What do you understand by the HLB system ?

(*c*) State Snell's law of refraction.

(*d*) What is dielectric constant ?

(*e*) Define the term complexation.

(*f*) What do you mean by ligands ?

(*g*) What is relative humidity ?

(*h*) State Raoults' law.

(*i*) What are basic buffers ? Give its examples.

(*j*) Give applications of buffers.

P.T.O.

2. Answer any *two* of the following : 2×10=20

(*a*) What are aerosol ? Give advantages and disadvantages of aerosol.

(*b*) What do you understand by optical rotation of compounds ? Give application of specific rotation in pharmacy.

(*c*) Explain in detail various factors affecting the solubility.

3. Answer any *seven* of the following : 7×5=35

(*a*) Define pH. Write a note on electrometric method for pH determination.

(*b*) What are methods of measurement of complexation ? Discuss any *one* method in detail.

(*c*) Define surface tension. Explain any *two* methods of determination of surface tension.

(*d*) Define solubilization. With suitable example explain use of solubilization technique in pharmacy.

(*e*) What do you mean by protein binding ? Give its application.

(*f*) Give the usefulness of buffers in biological and pharmaceutical system.

(*g*) What is distribution law ? Give its application.

(*h*) Explain partial miscibility curve of phenol-water system.

(*i*) What is detergency ? How does it take place ?

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This question paper contains **2** printed pages]

CO—12—2019

FACULTY OF PHARMACEUTICAL SCIENCES

B.Pharm. (Third Semester) EXAMINATION

OCTOBER/NOVEMBER, 2019

PHARMACEUTICAL MICROBIOLOGY

(Monday, 2-12-2019) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw neat and well labelled diagrams wherever necessary.

(*iii*) Figures to the right indicate full marks.

1. Answer *All* questions : 10×2=20

(*a*) Define D-value and Z-value.

(*b*) Enlist any *four* biochemical tests.

(*c*) Draw the ultrastructure of Bacteria.

(*d*) What is DOP test ?

(*e*) Give application of sterilization.

(*f*) Write ideal properties of disinfectant.

(*g*) What is spoilage ?

(*h*) Define and classify the fungi.

(*i*) Define stain and give its types.

(*j*) Define Microbiology and mention their branches.

2. Long answer type (solve any *two* of the following) : 2×10=20

(*a*) Explain cultivation of Bacteria.

(*b*) Describe history, branches and scope of Microbiology.

(*c*) Explain in detail the sterilization method with examples.

P.T.O.

3. Write short answer type (solve any *seven* of the following) : 7×5=35

(*a*) Explain growth curve of Bacteria.

(*b*) Write about sterility indicator.

(*c*) Give the application of cell culture in pharmaceutical industry and research.

(*d*) Write difference between Prokaryotes and Eukaryotes.

(*e*) Explain factors affecting the microbial of pharmaceutical product.

(*f*) Compare the Gram +ve and Gram –ve bacterial cell wall.

(*g*) Explain sterility testing of Ophthalmic product.

(*h*) Explain reproduction of virus.

(*i*) Write a short note on morphology of virus.

This question paper contains **2** printed pages]

CO—17—2019

FACULTY OF PHARMACY

B. Pharmacy (Second Year) (Third Semester) EXAMINATION

OCTOBER/NOVEMBER, 2019

PHARMACEUTICAL ENGINEERING

(BP-304T)

(Wednesday, 4-12-2019) **Time : 2.00 p.m. to 5.00 p.m.**

Time— Three Hours *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Draw well-labelled diagram wherever necessary.

1. Answer *all* questions : 10×2=20

(*a*) Give the formula of Poiseuille's equation.

(*b*) Enlist modes of stress applied in size reduction.

(*c*) What is size separation ?

(*d*) Define conduction.

(*e*) Write applications of evaporation.

(*f*) Draw a well-labelled diagram of fractional distillation.

(*g*) What is Raoult's law ?

(*h*) Write a short note on Convective mixing.

(*i*) Draw a labelled diagram of filter leaf.

(*j*) What is ultracentrifuge ?

P.T.O.

2. Solve any *two* of the following : 2×10=20

(*a*) Explain principle, construction and working of rotary drum filter with suitable diagram.

(*b*) Describe in detail about principle, construction, working, advantages of Tray Dryer with diagram.

(*c*) Discuss in brief about metal as a material.

3. Solve any *seven* of the following : 7×5=35

(*a*) Write the factors influencing on corrosion.

(*b*) Give the application of centrifugation process.

(*c*) Discuss factors affecting on filtration.

(*d*) Write about mechanism of mixing in solids.

(*e*) Give the detailed classification of drying equipment.

(*f*) Write the general equipment used for distillation.

(*g*) Explain principle, construction of evaporating pan.

(*h*) Define :

(*i*) Radiation

(*ii*) Gray body

(*iii*) Black body.

(*i*) Draw a well-labelled diagram of :

(*i*) Rotary cutter mill

(*ii*) Hammer mill

(*iii*) Ball mill.