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IP—30—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharma (Third Semester) EXAMINATION

JULY/AUGUST, 2023

PHARMACEUTICAL ORGANIC CHEMISTRY-II

Paper BP 301T

(Monday, 10-07-2023)

Time : 2.00 p.m. to 5.00 p.m.

Time—3 Hours

Maximum Marks—75

N.B. :- (i) Solve all questions.

(ii) Draw structure and reaction wherever necessary.

(iii) Figures to the right indicate full marks.

1. Answer the following questions :

10×2=20

(a) Write the oxidation and reaction wherever necessary.

(b) Why p-Nitrophenol is strong acid than phenol ?

(c) Give the canonical structure and IUPAC name of benzene.

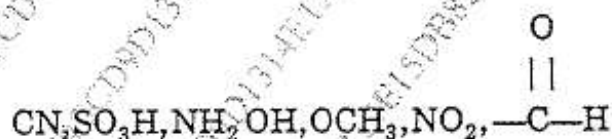
(d) Define :

(i) Tetrahedral Carbon

(ii) Strain energy

(e) Give the difference between fat and oil.

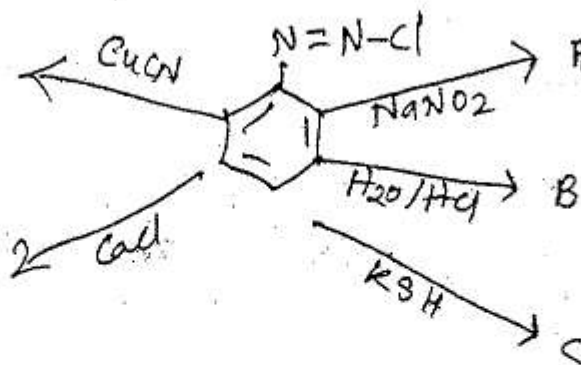
(f) Identify the activating and deactivating group of the following :



P.T.O.

- (g) Write the synthesis of aromatic amine from benzene.
- (h) Give the hydrolysis and hydrogenation reaction of fat.
- (i) Give the proof in naphthalene two benzene are fused together.
- (j) Why cyclopropane is less stable cycloalkane than cyclobutane and cyclopentane ?
2. Answer any *two* of the following : 2×10=20
- (a) Define activating and deactivating agent. Discuss the different orientation of benzene. Write the orientation of meta directing deactivating group.
- (b) (i) Give any *four* methods for synthesis of phenol.
- (ii) How will you synthesis of aromatic amine form ?
- (1) Nitrobenzene
- (2) Chlorobenzene
- (3) Benzoamide.
- (c) Write *three* synthesis and *four* chemical reaction of Anthracene.
3. Answer any *seven* of the following : 7×5=35
- (a) Write the synthetic proof of benzene.
- (b) Give the Kolbe and Reimer-Tiemann's reaction of phenol.
- (c) Write the Baeyer Strain's theory with its limitation.
- (d) Write Howrth method for synthesis of Anthracene and Phenanthrene.

- (e) Write the principle and significance of Iodine Value.
- (f) Write the reaction and mechanism of nitration and sulphonation reaction of benzene.
- (g) Write the structure and uses of :
- Diphenylmethane
 - Saccharine
 - Naphthalene
 - BHC
 - Cresol.
- (h) Explain :
- Sache-Mohr's theory
 - Coulson and Moffitt's theory.
- (i) Complete the following reaction :



This question paper contains 2 printed pages]

IP—34—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharma (Third Semester) EXAMINATION

JULY/AUGUST, 2023

PHYSICAL PHARMACEUTICS-I

Paper BP-302T

(Wednesday, 12-07-2023)

Time : 2.00 p.m. to 5.00 p.m.

Time—3 Hours

Maximum Marks—75

- N.B. :—** (i) All questions are compulsory.
(ii) Answer to the point only.
(iii) Draw diagrams wherever necessary.

1. Answer all of the following :

10×2=20

- (a) Define and classify complexation.
- (b) What is buffer capacity ?
- (c) Define relative humidity.
- (d) Give the steps involved in solute-solvent interaction.
- (e) Define surface free energy and spreading coefficient.
- (f) What are eutectic mixtures ?
- (g) Draw HLB scale.
- (h) Give the applications of buffer in pharmacy.
- (i) Enlist the drugs which binds with the protein present in blood.
- (j) Which are the different ideal solubility parameters ?

P.T.O.

2. Solve any *two* of the following : 2×10=20
- (a) Define surface tension and explain any *two* methods for its determination.
 - (b) Explain in detail methods of complexation analysis.
 - (c) Define pH and explain in brief electrometric method for its determination.
3. Solve any *Seven* of the following : 7×5=35
- (a) Define vapour pressure and explain any *one* method of its determination.
 - (b) Explain in brief Langmuir adsorption isotherms.
 - (c) Write a short note on surface active agents.
 - (d) Express Distribution law with its limitation.
 - (e) What is optical rotation ? Explain polarimeter.
 - (f) Explain in brief solubility of partially miscible liquid with the help of water-phenol system.
 - (g) Write a short note on aerosols.
 - (h) Explain in brief factors affecting on solubility.
 - (i) Describe in short Drug-blood protein binding.

This question paper contains 2 printed pages]

IP—38—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharma (Third Semester) EXAMINATION

JULY/AUGUST, 2023

PHARMACEUTICAL MICROBIOLOGY

Paper BP 303T

(Friday, 14-07-2023)

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 diagram wherever necessary.
 - (iii) Figures to the right indicate full marks.
 - (iv) Answer to the point only.

1. Answer the following :

10×2=20

- (a) Give the composition of Nutrient Agar Media.
- (b) Define :
 - (i) antiseptic
 - (ii) sanitization.
- (c) Write functions of Bacterial Cell Wall.
- (d) Define D-value and Z-value.
- (e) What is dark field in compound microscope ?
- (f) Define black fluid and white fluid with examples.
- (g) Draw a neat labelled diagram of bacteriophages.

P.T.O.

- (h) Enlist biological indicators in sterilization.
- (i) What is Bioburden ?
- (j) Give the principle of Autoclave ?
2. Solve any *two* : 2×10=20
- (a) Describe bacterial growth curve with graphical representation.
- (b) Enlist and explain factors affecting microbial spoilage.
- (c) Explain multiplication of human viruses.
3. Solve any *seven* : 7×5=35
- (a) Differentiate between prokaryotic and eukaryotic microorganism.
- (b) Explain classification of disinfectants.
- (c) Describe any *two* biochemical tests.
- (d) Explain microbial assay for vitamins.
- (e) Differentiate between gram + ve and gram - ve bacterial Cell Wall.
- (f) Explain sterility testing.
- (g) Describe Gram staining technique of bacteria.
- (h) Define sterilization and explain moist heat sterilization.
- (i) Describe lysogenic and lytic cycle of viruses or bacteriophage.

This question paper contains 3 printed pages]

IP—42—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B. Pharma (Third Semester) EXAMINATION

JULY/AUGUST, 2023

PHARMACEUTICAL ENGINEERING

Paper BP 304T

(Monday, 17-7-2023)

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 well labelled diagram wherever necessary.

(iii) Figures to the right indicate full marks.

1. Answer all the questions :

10×2=20

(a) Define Grey body & black body.

(b) Differentiate between surface filtration and depth filtration.

(c) Enlist modes of stress applied in size reduction.

(d) Define manometer. Enlist its types.

(e) Give classification of dryers.

(f) List the factors affecting rate of evaporation.

(g) Describe Raoult's law. What is its significance ?

P.T.O.

- (h) Give classification of materials used for pharmaceutical plant construction.
- (i) What is corrosion ? List the various types of corrosion.
- (j) List the specification and standards of sieve.

2. Solve any *two* of the following :

2×10=20

- (a) Describe in detail plate & frame filter press with its principle, construction, working, advantages, disadvantages and uses with neat labelled diagram.
- (b) Explain in detail liquid mixing mechanisms. What is vortex formation ? Write in detail preventive methods of vortex formation.
- (c) Explain in detail ball mill with its principle, construction, working merits, demerits and uses by drawing a well labelled diagram.

3. Solve any *seven* of the following :

7×5=35

- (a) Describe the principle, construction & working of perforated basket centrifuge.
- (b) Explain horizontal tube evaporator with its principle, construction and working.
- (c) Describe reynolds experiment for different types of flow patterns.
- (d) Write a note on glass as a material of plant construction.
- (e) Describe construction & working of spray dryer.

- (f) Give the principle and applications of steam distillation with help of neat labelled diagram.
- (g) Explain various grades of powders according to pharmacopoeia.
- (h) List three methods of heat transfer. State & explain Fourier's law of heat transfer with equation.
- (i) Recommend a suitable dryer for drying the following substances & justify your answer with at least one reason :
- (i) Granular solid
 - (ii) Sticky materials
 - (iii) Granules of heat sensitive drugs
 - (iv) Human tissues
 - (v) Colloidal solutions