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CZ—6—2018

FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

B.Pharmacy (Fourth Semester) EXAMINATION

MARCH/APRIL, 2018

PHYSICAL PHARMACEUTICS

(Saturday, 21-4-2018)

Time : 2.00 p.m. to 4.00 p.m.

Time—2 Hours

Maximum Marks—50

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

(ii) Illustrate your answers with neat sketches wherever necessary.

(iii) Figures to the right indicate full marks.

1. Solve any *five* of the following :

5×2=10

(a) What is Zeta potential ?

(b) Define the terms micromeritics and rheology.

(c) Define dissolution and diffusion.

(d) Define chemical kinetics.

(e) What are lyophilic colloids ?

(f) Define true and bulk density.

(g) Define kinematic viscosity and give its unit.

2. Solve any *four* of the following :

4×3=12

(a) Give pharmaceutical applications of colloids.

(b) Give advantages and disadvantages of cup and bob viscometer.

(c) Define and explain zero order of reaction.

(d) What is auto-oxidation ? How will you prevent auto-oxidation to enhance stability of dosage form ?

(e) Give advantages, disadvantages and conditions to perform sedimentation method for particle size measurement.

(f) Explain plastic and pseudoplastic flow with *one* example.

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3. Solve any *four* of the following :

4×7=28

- (a) Define electrical double layer and DLVO theory of colloid.
- (b) Explain Noyes-Whitney equation. Explain the significance of each term.
- (c) Explain sieving method for particle size measurement in detail.
- (d) Explain non-Newtonian flow behaviour in detail.
- (e) Explain kinetic properties of colloids.
- (f) Explain chemical degradation of pharmaceutical products and its preventive measures.

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**CZ—14—2018**

**FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY**

**B.Pharm. (Fourth Semester) EXAMINATION**

**MARCH/APRIL, 2018**

**STERILIZATION AND DISINFECTION**

**(Tuesday, 24-4-2018)**

**Time : 2.00 p.m. to 4.00 p.m.**

*Time—2 Hours*

*Maximum Marks—50*

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

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

1. Solve any *five* of the following : 5×2=10
  - (i) Give the principle of Autoclaving.
  - (ii) Name *four* filters used in filtration sterilization.
  - (iii) Define :
    - (a) D-value
    - (b) Z-value.
  - (iv) Enlist different factors which affect disinfectant action.
  - (v) Draw a flow diagram of an aseptic area.
  - (vi) Enlist different factors affect on preservative efficiency.
  - (vii) What do you mean by HEPA filter ?
  
2. Solve any *four* of the following : 4×3=12
  - (i) Give the mechanism of action of ionizing radiation sterilization.
  - (ii) Define disinfection. Write ideal properties of disinfectants.
  - (iii) What is sterilization ? Give its classification.
  - (iv) Give any *three* air sampling methods for testing aseptic area.
  - (v) Describe the principles and application of filtration sterilization.
  - (vi) List different chemical preservations.

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3. Solve any *four* of the following :

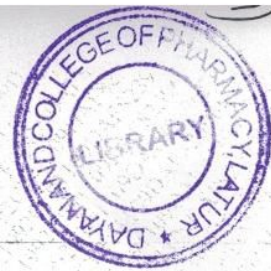
4×7=28

- (i) Define sterility testing. Explain different methods of sterility testing.
- (ii) Explain in brief chemical classification of disinfectants with examples.
- (iii) Describe the physical, chemical and biological indicators of sterilization monitors.
- (iv) Explain different sources of microbial contamination of pharmaceutical products.
- (v) What is evaluation of disinfectants ? Explain RX coefficient and give its advantages.
- (vi) Explain in brief gaseous sterilization with its application.

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**CZ—22—2018**

**FACULTY OF PHARMACEUTICAL SCIENCES**

**B.Pharm. (IV Semester) EXAMINATION**

**MARCH/APRIL, 2018**

**CLASSICAL ANALYTICAL TECHNIQUES**

**(Thursday, 26-04-2018)**

**Time : 2.00 a.m. to 4.00 p.m.**

*Time—2 Hours*

*Maximum Marks—50*

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

(ii) Figures to the right indicate full marks.

(iii) Answer to the point only.

1. Solve any *five* :

5×2=10

(a) Define acid and base with example.

(b) What are Ligands ?

(c) Define Iodometry.

(d) Name the indicators used in Fajan and Mohr's method.

(e) What are oxidising and reducing agents ?

(f) Give the names of any *two* indicators used in non-aqueous titrations.

(g) What are mixed indicators ?

2. Solve any *four* :

4×3=12

(a) Give the difference between iodometric and iodimetric titrations.

(b) Explain the factor's affecting non-aqueous titrations.

(c) Define masking and demasking agent with example.

(d) Give the procedure and factor calculation for the assay of Aspirin IP.

(e) Explain in short about types of EDTA titration.

(f) Discuss in short about indicators used in oxidation-reduction titration.

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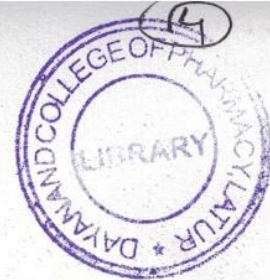
3. Solve any *four* :

4×7=28

- (a) Explain in detail indicators used in complexometric titration.
- (b) Discuss in detail about Volhard's method.
- (c) What are neutralization titration ? Explain the theory of acid-base indicators.
- (d) Give the procedure for preparation and standardization of 0.1 N  $\text{AgNO}_3$ .
- (e) Define cerimetry. Give theory and procedure for preparation and standardization of 0.1 M cerium (IV) sulphate.
- (f) Define non-aqueous titration classify in detail non-aq solvents and name the indicators used in standardization of 0.1 M perchloric acid Ip.

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**CZ—30—2018**

**FACULTY OF PHARMACEUTICAL SCIENCES**

**B.Pharm. (Fourth Semester) EXAMINATION**

**MARCH/APRIL, 2018**

**ORGANIC CHEMISTRY—IV**

**(BPH-44)**

**(Saturday, 28-4-2018)**

**Time : 2.00 p.m. to 4.00 p.m.**

*Time—2 Hours*

*Maximum Marks—50*

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

*(ii) Discuss the reaction, mechanism and stereochemistry wherever necessary.*

*(iii) Draw correct structure wherever necessary.*

1. Solve any *five* from the following :

5×2=10

(a) Write Fischer projection formula of Methane.

(b) Define Asymmetric molecule.

(c) Draw structure and stereogenic centre of 1, 2-epoxypropane.

(d) Define co-polymerization with example.

(e) Write Newman projection formula of butane.

(f) Define stereospecific reactions.

(g) Draw the configuration and Specify the R&S enantiomers of 2-chloropropane. *2-chlorobutane*

2. Solve any *four* from the following :

4×3=12

(a) Write in brief about chain polymerization reaction.

(b) Write in brief about Baeyer's strain theory.

(c) Write cause of optical isomerism.

(d) Draw axial and equatorial conformation of cyclohexane.

(e) Write about biodegradable polymers.

(f) Write in brief about cis-trans isomerism resulting from monocyclic compounds.

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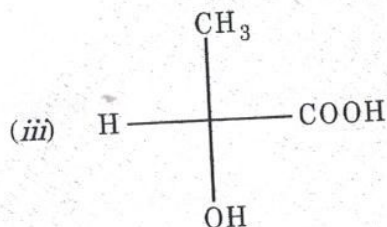
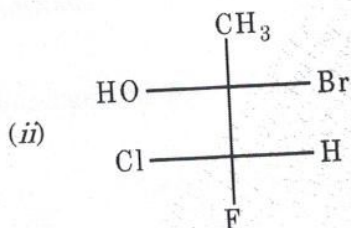
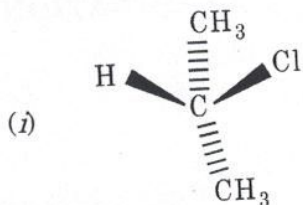
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4×7=28

3. Solve any *four* from the following :

(a) Assign R&S configuration for the following compounds :



(b) Classify polymers with examples.

(c) Explain the following elements of symmetry :

(i) Plane of symmetry

(ii) Centre of symmetry

(iii) Improper axis of symmetry.

(d) Explain conformational analysis of butane with energy of curve diagram.

(e) Define Resolutions and explain any *three* methods of resolution of racemic mixture.

(f) Write stereo chemistry of  $E_2$ -reaction syn and anti elimination.

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**CZ—38—2018**

**FACULTY OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY**

**B.Pharm (Fourth Semester) EXAMINATION**

**MAY/JUNE, 2018**

**FUNDAMENTALS OF PHARMACOLOGY**

**(Thursday, 3-5-2018)**

**Time : 2.00 p.m. to 4.00 p.m.**

*Time—2 Hours*

*Maximum Marks—50*

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

*(ii) Answer to the point only.*

*(iii) Illustrate your answer with neat sketches wherever necessary.*

1. Solve any *five* of the following : 5×2=10

(a) Give sources of drugs with suitable examples.

(b) Write advantages and disadvantages of parenteral route of drug administration.

(c) What are LD<sub>50</sub> and ED<sub>50</sub>.

(d) Give therapeutic uses of adrenaline.

(e) Define the terms potency and efficacy.

(f) Define drug tolerance and drug dependence.

(g) Define drug metabolism.

2. Answer any *four* of the following : 4×3=12

(a) What are local anaesthetics ? Write its examples and enlist various techniques of its administration.

(b) Discuss the various theories of drug receptor interactions.

(c) Write the factors affecting drug absorption.

(d) Write the mechanism of drug absorption (any *two* mechanisms).

(e) Define drug antagonism and classify it.

(f) Define and classify parasympathomimetic agents.

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3. Answer any *four* of the following :

7×4=28

- (a) What are parasympatholytic agents and write pharmacological accounts of Atropine.
- (b) What is drug excretion ? Explain renal and non-renal routes of drug excretion.
- (c) Define and classify adrenergic agents and explain pharmacology of noradrenaline.
- (d) Explain the pharmacological accounts of Atenolol.
- (e) What is drug interactions and write about pharmacological and pharmacodynamic drug interactions.
- (f) Write the various steps involved in the development of new drugs.

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3. Solve any *four* from the following :

7×4=28

- (a) Explain the etiopathogenesis, clinical manifestation and treatment of Diabetes mellitus.
- (b) Write in detail about Pathophysiology and clinical manifestation of liver cirrhosis.
- (c) Give the causes, pathogenesis and treatment of peptic ulcer.
- (d) Give the etiology, pathogenesis and treatment of Parkinsonism.
- (e) Write the etiopathogenesis and treatment of Asthma.
- (f) Explain in detail etiopathogenesis and treatment of erectile dysfunction.

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**CZ—46—2018**

**FACULTY OF PHARMACEUTICAL SCIENCES**

**B. Pharma (Fourth Semester) EXAMINATION**

**MAY/JUNE, 2018**

**PATHOPHYSIOLOGY OF DISEASES**

**BPH-46**

**(Monday, 7-5-2018)**

**Time : 2.00 p.m. to 4.00 p.m.**

*Time—2 Hours*

*Maximum Marks—50*

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

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

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

1. Solve any *five* from the following : 2×5=10
- (a) What is I.B.D. ?
  - (b) What is diabetes insipidus ?
  - (c) What is Goiter ?
  - (d) Enlist the causes of Vulvo-Vaginitis.
  - (e) Enlist the causes of acute renal failure.
  - (f) What is Gout ?
  - (g) Enlist the causes of chronic bronchitis.
2. Solve any *four* from the following : 3×4=12
- (a) What is depression ? Give its treatment.
  - (b) Write etiopathogenesis of Rheumatoid arthritis.
  - (c) What is viral hepatatitis ? Give its treatment.
  - (d) What is epilepsy ? Give its types.
  - (e) Discuss on pathophysiology of tuberculosis.
  - (f) Explain the pathogeneis of Diarrhoea.

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**CZ—53—2018**

**FACULTY OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY**

**B. Pharm. (Second Year) (Fourth Semester) EXAMINATION**

**MAY/JUNE, 2018**

**UNIT OPERATION IN PHARMACEUTICAL TECHNOLOGY**

**Paper (BPH-47)**

**(Friday, 11-5-2018)**

**Time : 2.00 p.m. to 4.00 p.m.**

*Time—2 Hours*

*Maximum Marks—50*

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

*(ii) Draw the diagram wherever necessary.*

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

1. Solve any *five* of the following :

5×2=10

(a) Define :

(i) Black body

(ii) Gray body.

(b) What is corrosion ?

(c) Define the term Humidity and Dew point.

(d) Write application of Drying.

(e) Define convection.

(f) How is caking prevented ?

(g) What is meant by distillation ?

2. Solve any *four* of the following :

4×3=12

(a) Explain factors affecting on evaporation.

(b) Discuss in brief about refrigeration cycle.

(c) Write principle and working of drum dryer.

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- (d) Give the mechanism of heat flow.
- (e) Write a note on fire hazard.
- (f) Explain the factor influence on rate of corrosion.

3. Solve any *four* of the following :

4×7=28

- (a) Explain in detail mechanism of crystallization.
- (b) Describe in detail about air-conditioning.
- (c) Give the principle, construction and working of crystal crystallizer.
- (d) What are industrial hazards ? How will you control it ?
- (e) Write principle, construction and working of fluidised bed dryer.
- (f) What are the limitations of Mier's supersaturation theory.



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**CZ—59—2018**

**FACULTY OF PHARMACY**

**B. Pharm. (Second Year) (Fourth Semester) EXAMINATION**

**MAY/JUNE, 2018**

**CALCULUS AND BIOSTATISTICS**

**(Monday, 14-5-2018)**

**Time : 2.00 p.m. to 4.00 p.m.**

*Time—2 Hours*

*Maximum Marks—50*

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

*(ii) Use of non-programmable calculator is permitted.*

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

*(iv) Use suitable data if necessary.*

1. Attempt any *five* :

5×2=10

(a) If :

$$y = \sin(5x + 7)$$

find  $\frac{d^n y}{dx^n}$ .

(b) Evaluate :

$$\int x \sin x \, dx.$$

(c) Solve :

$$\frac{d^2 y}{dx^2} - 13 \frac{dy}{dx} + 12y = 0.$$

(d) Calculate S.D. for the following data :

10, 11, 13, 9, 5, 15

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- (e) Define statement of Rolle's mean value theorem.
- (f) Define and calculate range and coefficient of range of the following data :

99, 87, 45, 47, 57, 33

- (g) Calculate  $^{13}\text{C}_3$ .

2. Attempt any four :

4×3=12

- (a) Form a differential equation of :

$$y = ae^{3x} + be^{-3x}.$$

- (b) Evaluate :

$$\int_0^{\frac{\pi}{2}} \log \tan x \, dx.$$

- (c) Solve :

$$x(1+y^2) \, dx + y(1+x^2) \, dy = 0.$$

- (d) Calculate the median for the following data :

Class	<i>f</i>
1—10	5
11—20	8
21—30	10
31—40	8
41—50	9

- (e) Find eigen values of matrix :

$$A = \begin{bmatrix} 2 & 3 \\ 4 & 1 \end{bmatrix}.$$





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(f) Prove that :

$$\cos x = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \dots$$

3. Attempt any four :

4x7=28

(a) State and prove Cayley-Hamilton theorem for the matrix  $\begin{bmatrix} 1 & 2 \\ 3 & 1 \end{bmatrix}$ .

(b) Evaluate  $\int \sin x \, dx$  by using reduction formula hence find  $\int \sin^5 x \, dx$ .

(c) Solve :

$$\frac{d^2 y}{dx^2} + 4 \frac{dy}{dx} = \sin 3x.$$

(d) Solve the following equation by Cramer's rule :

$$x + y + z = 6 \quad z + y = 5 \quad z - x = 2.$$

(e) Calculate mean and quartile deviation from the following data :

Class	<i>f</i>
0—6	6
6—12	11
12—18	25
18—24	20
24—30	15
30—36	13
36—42	10

P.T.O.



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(f) In an antimalarial campaign in a certain area quinine was administered no. 812 persons out of a total population of 3248. The no. of fever cases is shown below :

Treatment	Fever	Non-fever	Total
Quinine	20	792	812
No Quinine	220	2216	2436
Total	240	3008	3248

Discuss the use fallness of quinine in checking malaria  
(use  $\chi^2$  test at 10% level of significance)

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