Code No: 6337/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I Semester (PCI) (Suppl.) Examination, October 2020

Subject: Advanced Organic Chemistry-I

Time: 2Hours **Max. Marks: 75**

Note: Answer any three questions. **(3x25=75 Marks)**

1. a) Write about types of organic reaction mechanisms, Outline the methods to determine mechanisms
   b) Write a note on Saytzeff's rule of elimination reaction

2. a)What are SN2 reactions? Discuss factors effecting SN2 reactions
   b) Enumerate the steps involved in free radical substitution with examples

3. a) Discuss the mechanism and applications of Vilsmeir haack reaction and Dieckmann reaction
   b) Give an account on Shapiro & Suzuki reaction.

4. a) Write about reaction mechanism and synthetic applications of Mitsunobu reaction and Mannich reaction.
   b) Write the preparation and synthetic applications of Aluminium isopropoxide, N-bromosuccinamide,

5. a) Discuss the role of protection in organic synthesis
   b) How do you protect Hydroxyl groups, 1, 2-diols and carbonyl functional groups in organic reactions?

6. a) Give the reaction and explain mechanism of Pinner Pyrimidine and Smiles rearrangement - Purine synthesis
   b) Give the Synthesis of following
      i) Antipyrine
      ii) Chlorpromazine

7. a) Discuss any Six guidelines for disconnection of molecules with examples
   b) Explain the terms Synthon and Synthetic equivalent with examples.

8. Write a short note on following with retro synthetic reactions.
   a) FGI
   b) FGA

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Code No: 6330/PCI

FACULTY OF PHARMACY

M. Pharmacy (pharmaceutics) I-semester (PCI) (Suppl.) Examination, October 2020

Subject: Drug Delivery System

Time: 2 hrs **Max Marks: 75**

Note: Answer any three questions. **(3x25=75 Marks)**

1. Explain different mechanisms of drug delivery from sustained or controlled release formulations? Add a note on application of polymers in sustained release dosage forms?

2. What do you mean by personalized medicines? Describe in detail 3D printing of pharmaceuticals and telepharmacy.

3. Explain the principles of rate-controlled drug delivery systems? Write a note on feedback regulated drug delivery systems?

4. a) Mention different types of gastro-retentive drug delivery system?
   b) Describe in detail floating drug delivery system and its evaluation?

5. a) Describe in detail formulation and evaluation of buccal drug delivery system?
   b) Explain the different factors affecting mucosal drug permeation?

6. a) Describe barriers of ocular drug delivery system and what are the methods to overcome the same?
   b) Describe ideal properties of a drug to formulate as a transdermal drug delivery system?

7. a) Describe different routes of administration of protein drug delivery and its barriers of permeation ?
   b) Explain stability of protein pharmaceuticals?

8. What do you mean by single shot vaccine delivery systems? Explain mucosal delivery of vaccines?

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Code No: 6351/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognocy) I – Semester (PCI) (Suppl.) Examination, October 2020

Subject: Advanced Pharmacognosy – I

Time: 2 Hours **Max.Marks:75**

Note: Answer any three questions. **(3x25=75 Marks)**

1. Discuss in detail about different methods for conservation of Medicinal plants.

2. Write a note on
   a) Marine toxins
   b) General methods for isolation of marine natural products.

3 Write the source, name of the marker, chemistry, health benefits and uses of
   a) Ginseng b) Flax seed

4. Write the source, isolation, chemistry, health benefits and medical uses of
   a) Taxol b) Guggul Lipids

5. Write the spontaneous reporting scheme for Biodrug adverse reactions.

6. Write about good cultivation and collection practices for medicinal plants.

7. a) Write the source, structure, isolation and uses of vascine.
   b) Health drinks of natural origin.

8. Write short notes on
   a) Poly unsaturated fatty acids.
   b) Formulation of Naturaceuticals.

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Code No: 6344/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I – Semester (PCI) (Suppl.) Examination,

October 2020

Subject: Advanced Pharmacology-I

Time: 2 Hours **Max.Marks:75**

Note: Answer any three questions. **(3x25=75 Marks)**

1.a) Write a note on drug metabolism.
b) Describe about the JAK-STAT pathway.

2. a) Discuss about the NANC (Non Adrenergic and Non Cholinergic) transmission.
b) Explain in brief about role of serotonin transmission in CNS.

3. a) Classify anti-psychotic agents. Write in brief about haloperidol.
b) Write a note on diazepam.

4. a) Classify anti-hypertensive agents. Write the pharmacology of propranolol.
b) Write a note on heparin.

5. a) Write a note on thromboxane-A_2 and prostacycline.
b) Write a note on 5-HT antagonists.

6. a) Explain in brief about concept of linear pharmacokinetics.
b) Write the physiological role of nuclear receptors.

7. a) Describe the pharmacology of acetylcholine.
b) Write a note on sodium valproate and lithium carbonate.

8. a) Explain about the haematinics.
b) Write a note on anti-histamines.

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Code No: 6358/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) I-Semester (PCI) (Suppl.) Examination,

October 2020

Subject: Advanced Pharmaceutical Analysis

Time: 2 hours **Max. Marks: 75**

Note: Answer any three questions. **(3x25=75 Marks)**

1. a) Define impurity and give the classification of impurities in new drug substances.
   b) Explain the guidelines for reporting and control of elemental impurities in new drug products.

2. Describe accelerated stability studies and shelf life calculation of drug products.

3. a) Explain the factors affecting stability of drug substances and drug products.
   b) How do you perform photo stability of formulations?

4. a) Describe different analytical techniques used in characterization of degradants.
   b) What is impurity profiling and give its importance in testing of pharmaceuticals.

5. a) Write short notes on HPTLC finger printing in stability testing of phytopharmaceuticals.
   b) Give the regulatory requirements for stability testing of phytopharmaceuticals.

6. Write about the following
   a) Enzyme immunoassay
   b) Optical Immunoassay

7. a) Describe the principle and procedure involved in the biological assay of oxytocin.
   b) What are antitoxins? Give biological assay of Tetanus antitoxin.

8. Write the principle, procedure and applications of PCR studies.

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Code No: 6366/PCI

FACULTY OF PHARMACY

M.Pharmacy (Pharmacy Practice) I-Semester (PCI) (Suppl.)

Examination, October 2020

Subject: Pharmacotherapeutcs-1

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three Questions from the following : (3x25=75 Marks)

1. Discuss about pathophysiology and pharmacotherapy of hyperlipidemias
2. Discuss about pathophysiology and pharmacotherapy of angina pectoris
3. Discuss about pathophysiology and pharmacotherapy of asthma
4. Discuss about pathophysiologyandpharmacotherapy of type 2 diabetes mellitus

5. a) Write a short note on drug induced liver diseases
   b) Discuss about pathophysiology of anemia

6. a) Discuss about pathophysiology of inflammatory bowel diseases
   b) Discuss about pharmacotherapy of peptic ulcer

7. a) Discuss about pathophysiology of psoriasis
   b) Discuss about pharmacotherapy of glaucoma

8. a) What are various disorders associated with bone and joints
   b) Write the pharmacotherapy of gout

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Code No. 6295/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I-Semester (PCI) (Suppl.) Examination,

October 2020

Subject: Advanced Chemistry of Natural Products

Time: 2 hours **Max. Marks: 75**

Note: Answer any three questions. **(3x25=75 Marks)**

1 (a) Discuss the development of CNS drugs using the natural products as lead compounds.

(b) Explain the structural modifications of Reserpine with their therapeutic uses.

2 (a) Discuss the general methods for the structure elucidation of alkaloids.
(b) Write a note on morphine antagonists.

3 (a) Write in brief the structural elucidation of cholesterol.
(b) Write a note on nomenclature and stereochemistry of steroids.

4 (a) Discuss chemistry of insulin.
(b) Discuss the general methods for the synthesis of peptides.

5 (a) Describe the structures and therapeutic uses of antifertility agents. Mention their mechanism of action.
(b) Give the mechanism of action, synthetic analogues and therapeutic uses of Taxol.

6 (a) Write in brief the structural elucidation of morphine.
(b) Discuss the development of morphine analogues.

7 (a) Explain the general analysis of peptides and proteins
(b) Write the structures and therapeutic uses of synthetic analogues of vinca alkaloids.

8 (a) Discuss the development of antibiotics from natural products lead compounds.
(b) Explain the primary, secondary, tertiary and quaternary structure of proteins.

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Code No. 6305/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) I-Semester (CBCS)(Backlog)

Examination, October 2020

Subject : Pharmaceutical Production Technology

Time : 2 Hours **Max. Marks: 75**

Note: Answer any Three Questions from the following : (3x25=75 Marks)

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1. a) Explain principle involved and critical parameters of marumerizer and spheronizer with the help of diagrams.
   b) Explain problems during mixing, drying, powder feeding and compression stages along with the remedies.

2. a) Describe various particle coating techniques.
   b) Explain the problems involved in coating process along with remedies.

3. a) Describe sub systems and working principle of freeze dryer along with critical process variables involved in it.
   b) Explain different approaches for area planning and environmental control in parenteral production.

4. Explain different stages in capsule filling process and explain the improvements in it.

5. a) Describe the equipment for fine solids dispersion.
   b) Draw the layout of capsule manufacturing process and explain the problems in each sub system.

6. Explain benefits and limitations of different types of packaging material along with their functions.

7. a) Explain different dust collection systems in air handling unit.
   b) Describe air filtration mechanisms with special emphasis on membrane filtration.

8. a) Explain different sources an types of water used in pharmaceutical production.
   b) Explain ion exchange process along with pretreatment and maintenance procedures

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Code No: 6317/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Molecular Pharmacology and Drug Design

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three Questions from the following : (3x25=75 Marks)

1. a) Write a note on receptor theory ad G-proteins
   b) Explain about the role of GAP junctions in cell signaling process

2. a) Describe about the neurosteroids and protein kinase-A
   b) Explain in brief about Nitric Oxide

3. a) Describe the location and physiological functions of cholinergic receptors.
   b) Write a note on GABA receptor modulators and their therapeutic uses.

4. Describe the phytochemical screening techniques for evaluation herbal drugs

5. a) Explain about the high throughput screening (HTS)
   b) Write a note on prodrugs

6. a) Explain the different types biosensors.
   b) Write in brief about third messengers.

7. a) Describe the role of COX-2 in inflammation.
   b) Write a note on opioid receptors.

8. a) Explain about the herbal anticancer agents.
   b) Write a note on computer aided drug design (CADD)

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Code No: 6322/CBCS

FACULTY OF PHARMACY

M.Pharmacy (Pharm. Analysis &Quality Assurance) I-Semester

(CBCS) (Backlog) Examination, October 2020

Subject: Instrumental Methods of Analysis

Time: 2 Hours **Max.marks:75**

Note: Answer any Three Questions from the following : (3x25=75 Marks)

1. a) Give the description and working of Transmission electron microscopy. Write about its Pharmaceutical applications.
   b) Give the principles of ORD and CD techniques.

2. a) What are hyphenated techniques? Give the description and working of different components used in LC-MS instrument with a neat labeled diagram.
   b) Write the applications of photon correlation spectroscopy for particle size analysis.

3. a) Describe different methods used for quantitative analysis of alkali metals by flame photometry technique.
   b) Explain about different sample preparation techniques used for sample preparation of phytochemical extracts for analysis.

4. a) Write about different types of membrane indicator electrodes used in potentiometry.
   b) Write the principles of amperometry technique and about types of amperometric titrations.

5. Explain the IP methods for determination of the following physical parameters.
   a) Freezing point
   b) Osmolarity
   c) Refractive index

6. a) Write the description of Plasma as excitation source in emission spectroscopy.
   b) Give the description and working of inductively coupled plasma spectrometer.

7. a) Explain the principle and theory involved in Raman spectroscopy. Give the differences between Raman and IR spectroscopy in application.
   b) Discuss about different factors affecting the fluorescence and phosphorescence phenomena.

8. a) Discuss the theory and principles of atomic absorption spectroscopy.
   b) Give the significance of limit tests and how do you conduct limit test for chlorides as per IP.

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Code No: 6338/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I Semester (PCI) (Main)

Examination, November 2020

Subject: Advanced Medicinal Chemistry

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) What is lead discovery? Discuss about various stages involved in the drug discovery.
   b) Discuss about receptor theories to describe the terms Partial agonist, antagonist and Inverse agonist.

2. a) Define prodrug and discuss the applications of prodrugs with suitable examples.
   b) Discuss the strategies to tackle Multi drug resistance in cancer treatment.

3. a) Give the classification of H1 and H2 histamine receptor antagonists with suitable examples.
   b) Discuss how chirality of drugs influences the pharmacological action?

4. a) Give the classification of enzyme inhibitors with suitable examples
   b) Discuss about the rational design of drugs as reversible enzyme inhibitors with example.

5. a) Define peptidomimetics and discuss the various types of peptidomimetics.
   b) Explain various approaches used in peptide modifications in peptidomimetics design.

6. a) Classify antineoplastic drugs with suitable examples and discuss the mechanism of action of methotrexate and chlorambucil.
   b) Discuss the chemistry of prostaglandins. Give the structures of therapeutically useful prostaglandins.

7. Write a note on
   a) Histamine H1 Receptor antagonists
   b) Drug receptor interactions

8. a) Write a note on molecular modification approaches used in analogue design
   b) Write a note on anti-viral agents?

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Code No: 6331/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject: Modern Pharmaceutics

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. Explain the about drug – Excipient interactions and methods of determination

2. Describe accelerated stability testing of solution and solid dosage forms.

3. What is validation. Discuss the validation & calibration of any two equipment

4. Discuss WHO good manufacturing practices in a pharmaceutical Industy.

5. Discuss about IQ, OQ, PQ & DQ by taking an example.

6. a) Explain the types of compaction profiles.
   b) Write the advantages and disadvantages of strain gauges.

7. a) Describe Heckle plots and its significance with necessary equations and graphs.

   b) Write Biopharmaceutics Classification System (BCS) of drugs with examples.

8. a) Explain the reasons for conducting the stability studies of drugs.
   b) Explain formulation and dosage form related factors influencing the dissolution of tablets.

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Code No: 6352/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) I- Sem. (PCI) (Suppl.)

Examination, November 2020

Subject: Phytochemistry

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Discuss the various stages of clinical trials.
   b) Explain the principle and technique of SCFE.
2. a) What are steroids and describe the structural features and color tests steroids.
   b) Give the source and biosynthesis scheme of Digitoxin.
3. a) Describe the methods of drug discovery.
   b) Write about the selection and optimization of lead compounds.
4. a) Discuss the sources, chemistry and mechanism action of artemesin.
   b) Write the chemical structure and isolation process of quinine and sennosides.
5. Describe the types of extracts and discuss the principles and methods of extractive techniques.
6. Write about
   i) Bioguided extraction technique.
   ii) Flash chromatography
   iii) Vinca alkaloids.
7. Write the sources and elucidate the structures using spectroscopic characters.
   a)Menthol b) Nicotine c) Caffeine
8. a) Give an informative note on Radio tracing technique.
   b) What are alkaloids? Write the properties, color reactions and general methods of extraction of alkaloids.

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Code No. 6345/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Pharmacological and Toxicological Screening Methods - I

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x 25 = 75 Marks)**

1. a) Define Bioassay. Discuss the principle and methods of bioassay.
   b) Discuss about euthanasia of experimental animals.

2. Define epilepsy. List out the methods available to induce epilepsy and describe any three models in the screening of antiepileptics.

3. Describe the preclinical screening procedures for the following:
   a) Aphrodisiacs
   b) Anti ulcer drugs

4. Discuss the *in vitro* and *in vivo* techniques for screening of anticancer agents.

5. Define immunoassay. Outline principles of immunoassay and describe different types of immunoassays.

6. Define inflammation. List out the methods available to induce inflammation and describe one acute and one chronic model in the screening of anti-inflammatory agents.

7. Describe the screening methods for the evaluation of a compound for
   a) Anxiolytics.
   b) Antiarrythmics.

8. Define hypertension. List out the methods available to induce hypertension and describe three models in the screening of antihypertensive agents.

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Code No: 6359/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Analysis) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Pharmaceutical Validation

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x 25 = 75 Marks)**

1. Explain the following
   a) Types of patent applications
   b) Objectives and advantages of validation

2 Explain the procedure for following
   a) Calibration of Volumetric glassware
   b) Sampling methods for cleaning validation

3. List out and explain the analytical method validation parameters.

4. Explain the various types of trademarks and don'ts in trademarks with suitable examples

5. Write note on the following.
   a) Define and explain the types of process validation
   b) Different steps involved in the calibration of HPLC

6. What are the different phases of water system validation?

7. What are the different parameters in HVAC to be examined?

8. Write note on the following
   a) Clean in place
   b) Validation master plan.

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Code No: 6367/PCI

FACULTY OF PHARMACY

M.Pharmacy (Pharmacy Practice) I-Semester (PCI) (Suppl.) Examination, November 2020

Subject : Hospital and Community Pharmacy

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x 25 = 75 Marks)**

1. Discuss in detail about inventory control of hospital

2. Explain guidelines for pharmacy and therapeutic committee in detail.

3. Write a note on :
   a. Hospital waste management.
   b. Methods of drug distribution.

4. Enumerate the roles and responsibilities of community pharmacist and their relationship with other health care providers.

5. Explain the role of community pharmacist in Tuberculosis control program as per GOI.

6. Explain the measures taken by GOI in the prevention of communicable diseases and role of pharmacist in it.

7. Discuss the good dispensing practices.

8. Discuss the role of clinical pharmacist in ADR monitoring.

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Code No: 6293/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I- Semester. (CBCS) (Backlog)

Examination, November 2020

Subject : Advanced Pharmaceutical Organic Chemistry-I

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) What is optical activity? Explain D-L and R-S Nomenclature.
   b) Give an account on Cis-Trans isomerism.

2. Discuss structure, Stability and reactions of free radicals and carbanions.

3. Explain E1 and E2 reactions mechanism with suitable examples.

4. Write the preparation, mechanism and applications of following synthetic reagents
   a) DCC
   b) N-Bromosuccinamide
   c) Lithiun Aluminium Hydride

5. Explain reaction, mechanism and applications of fries rearrangement and Pinacol pinacolone rearrangement.

6. Write the preparation, mechanism and applications of following synthetic reagents sodium boro Hydride and Osmonium tetroxide.

7. a) Write a note on E1 cb reaction and mechanism
   b) Explain free radical substitution reactions with examples.

8. Write a note on
   a) Bezil-Benzillic acid rearrangement
   b) Bayer-Villiger rearrangement

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Code No: 6304/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics/PA&QA) I-Semester (CBCS)(Backlog)

Examination, November 2020

Subject: Pharmaceutical Product Development

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1) a) Explain factorial design with an example.
   b) Write the importance of melting point and dissociation constant.

2) a) Describe the factors influencing selection of excipients.
   b) Write a note on ointment bases and Co-processing of excipients.

3) a) Explain the IVIVC levels of correlation.
   b) Explain the phase solubility analysis.

4) Describe the different in-vitro dissolution testing models (sink and non-sink).

5) a) Explain the theories of dissolution.
   b) How do you maintain Sink conditions during dissolution?

6) a) Describe the factors affecting chemical stability.
   b) Write a note on Accelerated stability studies.

7) a) Write about generic product approval.
   b) What are Nanopharmaceuticals. Write a note on generation & significance of nanopharmaceuticals.

8) a) Write a note on Bolar Amendment.
   b) Write a note on solid dispersions.

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Code No: 6315/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (CBCS) (Backlog)

Examination, November 2020

Subject : Bioassays and Clinical Research

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Write a note on quantal and interpolation bioassay with suitable example.
   b) Explain any two techniques for adrenaline

2. a) Enumerate any two methods for bioassay of oxytocin.
   b) Explain in brief about bioassay of progesterone and thyrotrophin.

3. a) Describe the principle ad procedure for bioassay of diphtheria anti-toxin
   b) Write a note on bioassay of tetanus vaccine.

4. Describe the different stages of clinical drug discovery process.

5. a) Explain the importance of informed consent in clinical research.
   b) Write a note on composition and responsibilities IEC.

6. a) Explain the principle and procedure for bioassay of heparin.
   b) Write a note on bioassay of serotonin.

7. a) Describe the principle and procedure for bioassay of hepatitis vaccine.
   b) Write a note on ethics in clinical research.

8. a) Explain about the role of sponsor in clinical trials.
   b) Write a note on bioassays of digitalis.

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Code No: 6339/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Chemistry of Natural Products

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. Write how the natural products acts as a leads in the following classes of drugs
   a) Anticancer drugs
   b) Macrolide & β - lactam antibiotics

2. a) Discus the structural elucidation and stereochemistry of Ephedrine.
   b) What are the alkaloids and classify alkaloids with one example for each class.

3. a) Write the general methods for the structural elucidation of flavonoids.
   b) Write the structural elucidation of quercetin.

4. a) Write the classification, general methods of structural elucidation of Terpenoids.
   b) Write the structural elucidation of camphor.

5. a) Discuss the chemistry & physiological significance of following vitamins
   i) Vitamin - A ii) Vitamin – C iii) Vitamin - E
   b) Discuss about r DNA technology

6. Write a note on
   a) Chemistry of cardiac glycosides
   b) Chemistry of Contraceptive agents
   c) Isoprene rule and Special isoprene rule

7. Write down the active constituents (minimum three from each crude drug) present in the following crude drugs with structures.
   i) Curcuma longa
   ii) Pterocarpus marsupium
   iii) Gymnema sylvestre
   iv) Phyllanthus niruri
   v) Swertia chirata

8 Write the structural characterization of following compounds using IR, H^1NMR, C^{13} NMR and Mass spectral data (Write approximate values)
   i) Quercetin ii) Vitamin D iii) Digoxin iv) Camphor v) Pencillin G

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Code No: 6332/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Regulatory Affairs

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Explain evaluation of drug product performance by *invitro* studies
   b) Write a note on generic drugs product development

2. Explain Hatch-Waxmann Act and its amendments.

3. Explain SUPAC guidelines for immediate release dosage form

4. Write a note on
   a) CTD and eCTD
   b) Regulations for combination products.

5. Explain the regulatory requirements of TGA

6. Discuss about
   a) ICH guidelines for quality & safety
   b) Institutional review board / independent ethics committee

7. Write a note on investigation of medicinal products dossier (IMPD) and Investigator brochure.

8 Write a note on
   a) Pharmacovigilance and safety monitoring in clinical trials.
   b) Enlist ICH Efficacy guidelines.

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Code No: 6353/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Industrial Pharmacognostical Technology

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Write the licensing procedure for herbal industry.
   b) Discuss the layout, infrastructure for the production and standardization of herbal products

2. a) Give an informative note of EXIM policy
   b) Write about TRIPS.

3. a) Write the monograph of Ashwagandha and digitalis
   b) Write the features of Indian Pharmacopoeia.

4. Explain the WHO guidelines in quality assessment of herbal drugs.

5. a) Write a note on Total quality management
   b) Discuss the clinical laboratory testing of Herbal drugs.

6. a) What is patent? Describe the objective of patent act
   b) Explain the stages of patent filling, processing and grant of patent.

7. a) Write about the process of opposition and revocation of patent.
   b) Discuss about the copy right act.

8 Write the importance of stability studies. Discuss the various methods of stability studies.

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Code No: 6346/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (PCI) (Suppl.)

Examination, November 2019

Subject : Cellular and Molecular Pharmacology

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Explain intrinsic and extrinsic pathways of apoptosis
   b) Explain cell necrosis in detail

2. a) What are secondary messengers.
   b) Give detail classification of receptor.

3. a) What is the importance of RNA e micro RNA
   b) Explain in detail various intra cellular signaling pathways.

4. a) Explain principle and application of DNA electrophoresis.
   b) Give various clinical applications of gee therapy.

5. a) Write a note on ELISA ad western blotting technique.
   b) Explain recombinant DNA technology.

6. a) Explain how drug polymorphism will affect drug metabolism.
   b) Write a note on proteomics and genomic

7. a) Explain in detail immunotherapeutics and its types.
   b) What are the basic equipments used in cell culture lab.

8. a) Give the principle and application of cell viability assay & glucose take assay.
   b) Explain principle and application of how cytometry.

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Code No. 6360/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharma. Analysis) I-Semester (PCI) (Suppl.) Examination, November 2020

Subject: Food Analysis

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1 Explain briefly the various qualitative and quantitative methods used for analyzing food carbohydrates.

2 (a) Write the different means used for classifying amino acids with appropriate examples.

(b) Explain the procedure, principle and significance for determining peroxide value and unsaponifiable matter in fats and oils.

3 (a) Define the following chemically with one structural example
i) Carbohydrate ii) Proteins iii) Amino acids
iv) Lipids v) fats/oils

(b) What are the vitamins? Explain the principle and significance for the microbiological methods used for the determination of spoilage and / or adulterants in fats and oils.

4 List out the spoilage products adulterants of fats and oils. Explain any five methods used for the determination of spoilage and/or adulterants in fats and oils.

5 Enlist any five food additives along with their uses and limits. Write the procedure and principle of any one method

6 Explain the various analytical methods employed for assuring the quality of ice creams.

7 (a) Explain the various methods used for the determination of pesticide residues in fruits and vegetables.
(b) Write briefly about USFDA regulation of food products.

8 (a) Describe the various test used to analyze the purity of wines.
(b) Explain the test which is conducted to analyze non-permitted dyes in food products.

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Code No: 6368/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacy Practice) I-Semester (PCI) (Suppl.) Examination, November 2020

Subject : Clinical Research

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Write a note on investigational new drug application submission.
   b) Describe in detail about ICH guidelines to conduct clinical trials.

2. a) Write the types of randomization techniques.
   b) Write the responsibilities of study coordinator and CRO in clinical study.

3. a) Write the contents of investigator brochure.
   b) Write a note on ethics committee document preparation and submission.

4. a) Describe the procedure for procurement and storage of investigational product.
   b) Write a note on master file preparation and maintainace.

5. a) Write a note on types of audits and their process.
   b) Describe the quality control and assurance in CDM.

6. a) Explain the principles of ethics in biomedical research.
   b) Describe the guidelines for protocol preparations.

7. a) Describe the study related documents collection and archival collections.
   b) Write a note on investigational product reconciliation.

8. a) Explain about the coding dictionaries.
   b) Write a note on CRF tracking and corrections.

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Code No: 6294/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I-Semester (CBCS) (Backlog) Examination, November 2020

Subject : Advanced Medicinal Chemistry-I

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. What is chirality? Explain the role of chirality in specific therapeutic agents.

2. What do you mean by biotransormation? Explain any seven Phase-II biotransformation reactions with suitable chemical equations.

3. Define Acquired immune deficiency syndrome. Write the mechanism of action and advantages/disadvantages of antiviral drug therapy.

4. a) Explain the mechanism of antimetabolites with appropriate examples
   b) Describe any two methods by which anticancer agents develops resistance along with appropriate examples.

5. What are the harmful effects of rise in blood cholesterol level? Describe the mechanism of any three methods by which blood cholesterol level can be lowered.

6. a) What is influenza? Classify the drugs used against influenza along with their structure and mechanism of action.
   b) What do you mean by targeted anticancer chemotherapy? Write its advantages and disadvantages along with suitable examples.

7. a) Explain the temporal factors affecting drug metabolism.
   b) What are proton pump inhibitors? Give any two structural examples. Explain the SAR of proton pump inhibitors or the treatment of ulcer.

8. Explain the microsomal and non-microsomal mechanisms in biotransformations.

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Code No: 6307/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics and PA & QA) I-Semester (CBCS) (Backlog)

Examination, November 2020

Subject : Quality Assurance

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1) a) Explain Basic concepts of quality control and quality assurance?
   b) Describe in detail quality assurance of packing materials and finished products?

2) Explain in detail in – process quality control of tablets and capsules?

3) a) How ISO is constituted?
   b) Explain ISO certification procedure in detail.

4) Mention different types of auditing? Explain how they are performed in an industry?

5) a) What are the desirable qualities of analyst?
   b) Write a note on responsibilities of key personnel in QC lab.

6) a) Explain in detail good documentation practices
   b) Write a note on out of specification (OOS) and out of trend (OOT)?

7) a) Explain the sources of impurities?
   b) Describe impact of solvent and metallic impurities in bulk drugs and formulation manufacture?

8) Describe in detail comparative features of IP, BP and USP. What are the policies of Indian Pharmacopeiea?

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Code No: 6316/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (CBCS) (Backlog)

Examination, November 2020

Subject : Principles of Toxicology

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. Explain the procedure to determine Maximum Tolerated Dose (MTO) and LD_{50} as per revised 06 CD guidelines

2. Explain the ICH guidelines for the assessment of new drug safety

3. Write short notes on the following:
   a) Carcinogenicity testing
   b) Reproductive toxicity testing

4. Discuss the following in detail:
   a) Alcohol poisoning
   b) Lead poisoning

5. Discuss the different methods for the pharmacouigilance data collection

6. Describe the USFDA guidelines for the assessment of new drug safety

7. Elaborate the in vitro and in vivo toxicity studies for genatoxicity

8. Discuss the following in detail :
   a) Serious Adverse Reaction (SAR)
   b) Serious Adverse Event (SAE)

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Code No: 6341/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject : Advanced Organic Chemistry - II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. Discuss in details about the principles of green chemistry and its applications in organic synthesis.

2. a) Give an account on Fmoc and t-Boc protocols in solid phase peptide Synthesis.
   b) Write a note on side reactions in peptide synthesis

3. a) What are pericyclic reactions? Discuss any two types of pericyclic reactions with Mechanism.
   b) Explain Photo-oxidation and photo addition with examples.

4. a) What is heterogenous catalyst? Write the preparation and characterization of heterogenous catalyst.
   b) Discuss in detail about the homogenous catalysis used in drug synthesis with example.

5. a) Write an note on catalytic asymmetric synthesis .
   b) Discuss about relative and absolute configuration.

6. Write a short note on
   a) Phase transfer catalysis
   b) Rules governing cyclo addition product formation

7. a) Discuss about protection, solid supports, linkers activation procedures in solid phase peptide synthesis.
   b) HF cleavage protocols

8. Write a short note on
   a) Applications of ultrasound technology in organic synthesis.
   b) Ziegler-Natta catalyst.

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Code No: 6334/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) II Semester.(PCI) (Main & Backlog)

Examination, October 2020

Subject: Advanced Biopharmaceutics & Pharmacokinetics

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Explain the different theories of dissolution?
   b) Discuss in detail about the factors influencing the drug absorption?

2. a) A single IV dose of 75 mg of a drug was administered to a healthy volunteer. The following parameters were obtained

A=4.62 mg/L	B=0.64 mg/L
α=8.94 hr^{-1}	β=0.19 hr^{-1}

   Calculate all possible pharmacokinetic parameters?
   What will be the amount of drug remaining in the body after 8 hrs?

3. a) Write a note on *in vitro- in vivo* correlation?
   b) Discuss the alternative methods of dissolution testing?

4. a) Explain the study designs in bioequivalence studies?
   b) Write about BCS classification?

5. Describe the dose dependent kinetics? Explain the Michaelis - Menten equation?

6. A 60 kg patient received a single 25 mg oral dose of an antibiotic that is completely absorbed after oral administration. The plasma concentrations were as follows:

Time (hr)	0.2	0.5	1.0	2.0	3.0	4.0	6.0	8.0	10.0	12.0	14.0
Conc(ng/ml)	88.5	184.9	276.9	321.6	292.8	246.1	161.0	102.2	64.5	40.66	25.61

   Calculate all possible pharmacokinetic parameters?

7. a) Write in detail about the pharmacokinetics of modified dosage forms?
   b) Define the following
      I) Bioequivalence II) Absolute Bioavailability III) Volume of Distribution

8. a) Discuss the pharmacokinetic drug interactions with suitable examples?
   b) Explain the various methods for permeability studies?

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Code No.6355/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject: Advanced Pharmacognosy-II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 List the herbal drugs used and screening techniques for evaluation of anti diabetic activity.

2 Write the chemistry of
(a) Coleus forskholii
(b) Andrographics paniculata
(c) Boswellia Serata

3 Discuss the reasons for adulteration of herbal drugs. Write about the methods and measures for detection of adulteration

4 Describe the chemistry and analytical profile of curcuma longa.

5 Give an informative note on herbal drugs belonging to the category of
(a) Anticancer drugs
(b) Wound healing Drugs
(c) Antioxidant drugs

6 (a) Describe the importance of antifertility drugs. Describe any four in vivo antifertility screening techniques.
(b) Write a note on herbal drugs used in treatment of users.

7 Give an informative note on
(a) DNA finger printing
(b) Detection heavy metals
(c) Detection of microbial contamination.

8 Write about
(a) Pharmacokinetic issues of herbal drugs.
(b) Methods of drug discovery

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Code No.6348/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject: Pharmacological Toxicological Screening Methods-II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 Write a detailed note on determination of LD_{50} as per OECD-425 guideline.

2 What is test item? Describe the methods of characterization and importance of test item.

3 (a) Write about the risk assessment in female reproductive toxicity studies.
(b) Discuss in brief about in vivo genotoxicity studies.

4 Define IND. Elucidate the importance and industry perspectives of IND enabling studies

5 (a) Write in detail about safety pharmacology.
(b) Discuss in brief Tier 1 safety pharmacology studies.

6 Write short notes on:
(a) Alternative animal toxicity testing
(b) Importance and applications of toxicokinetic studies

7 Write brief notes on:
(a) Acute eye irritation testing
(b) Dermal toxicity studies

8 Explain various in vivo Carcinogenicity studies.

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Code No: 6362/PCI

FACULTY OF PHARMACY

M. Pharmacy (Phar. Analysis) II – Semester. (PCI) (Main & Backlog)

Examination, October 2020
Subject : Modern Bio-Analytical Techniques

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Explain about different sample preparation approaches in bioanalytical methods.
   b) Explain the following validation parameters in bioanalytical method validation as per USFDA guidelines.
      i) Linearity ii) Precision

2. a) Discuss about Biopharmaceutical factors affecting drug bioavailability.
   b) Write the Biopharmaceutics classification system defined by FDA.

3. a) Explain different types of PK-PD drug interactions with suitable example.
   b) Discuss the role of LC-MS in bioactivity screening and proteomics.

4. a) Write about basic equipments used in cell culture lab.
   b) Write about principles, instrumentation and applications of flow cytometry.

5. a) Explain different methods for assessment of bioavailability of new drug product.
   b) Write the clinical significance of bioequivalence studies.

6. a) Discuss the importance and applications of Toxicokinetic studie.
   b) Write about different cell culture media.

7. a) Write about *in-vivo* and *in- vitro* methods for checking cellular permeability of new drug products.
   b) Write in brief about drug interactions linked to transporters.

8. a) Describe the principles and applications of Cell viability assays.
   b) Write about Rat liver microsomes and Human Liver microsomes.

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Code No. 6369/PCI

FACULTY OF PHARMACY
M. Pharmacy (Pharmacy Practice) II-Semester (PCI) (Main) Examination,
October 2020

Subject: Principles of Quality use of Medicines

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions (3 x 25=75 Marks)

1 (a) Who are the key partners in developing and implementing initiatives to achieve QUM? "All partners have their part to play in achieving QUM". Justify.
(b) Write a short notes on QUM evaluation strategy.

2 Define Evidence based medicine. Explain the concept and steps involved in the complete process of Evidence based medicine.

3 Describe the following:
(a) Strategies to promote QUM
(b) QUM in a hospital setting

4 Explain prescribing to improve QUM in the following special population
(a) Pregnancy and lactation
(b) Geriatrics

5 (a) What role a professionally competent pharmacist plays in regulartory aspects of QUM?
(b) Write a note on role of industry in QUM in medicine development.

6 (a) Define and explain various categories of medication errors.
(b) Explain the basic mechanisms for ADRs briefly.

7 (a) Define Pharmacovigilance. Briefly describe the purpose and need of Pharmacovigilance.
(b) Explain any two methods of causality assessment of ADRs.

8 (a) Give a detailed account of communication and its importance in QUM.
(b) Explain the key principles involved in achieving quality use of medicines.

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Code No. 6297/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Common to All) II- Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Intellectual Property Rights & Regulatory Affairs

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. Explain in detail pollution control Act

2. Write a note on
   a) Orange Book
   b) Investigational New Drugs (IND)

3. Explain schedule M as per drug & Cosmetic Act 1940 in detail

4. Write a note on
   a) Paris Convention
   b) GATT

5. Write a note on
   a) Trade marks
   b) Patent filing procedure

6. a) Discuss the objectives & functions of WIPO
   b) Write a note on copyrights

7. Discuss
   a) Consumer protection act
   b) Food Adulteration Act 1954

8. Discuss ICH guidelines in detail

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Code No: 6343 / PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharm. Chemistry) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject: Pharmaceutical Process Chemistry

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 (a) Discuss the synthetic strategies in Scale up Process.
(b) Write the In-Process control and validation of Large scale Process.

2 (a) Explain the Theory of filtration and its limitations.
(b) Discuss the types of Extraction

3 (a) Write the kinetics and Mechanism of aromatic nitration.
(b) Explain types of oxidation reactions and nonmetallic oxidizing agents.

4 (a) Discuss the production of penicillin by Fermentation.
(b) Write a note on streamlining reaction steps and route of selection in reaction progress kinetic analysis.

5 (a) Write a detail note on ISO-1400.
(b) Write about fire hazards and types of fire and fire extinguishers.

6 (a) Give a note on Impurities in API (Sources, Types including genotoxic impurities).
(b) Write a note on MSDS.

7 (a) Discuss about the types evaporators used in evaporation.
(b) Write a note on kinetics of halogenation and types of halogenation reactions.

8 (a) Write a note on hydrogen transfer reactions and case study on industrial reduction.
(b) Explain about azeotropic distillation.

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Code No: 6336 / PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharm. Chemistry) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject : Cosmetics and Cosmeceuticals

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 (a) Write a note on regulatory provisions relating to import of cosmetics
(b) Write a note on conditions for obtaining licence for manufacture and sale of cosmetics.

2 (a) What are the common problems associated with oral cavity?
(b) Write a note on cleansing and care needs for face.

3 (a) Write a note on regulatory provisions relating to labeling of cosmetics.
(b) Write a note on structure and functions of skin.

4 (a) Discuss about the building blocks for formulation of shampoo.
(b) Write a note on emollients.

5 (a) Discuss about cosmeceutical products for bleeding gums and sensitive teeth.
(b) Write a note on cosmeceuticals for pigmentation.

6 Describe the COSMOS guidelines for herbal cosmetics

7 (a) What are the challenges in formulating herbal cosmetics.
(b) List the herbal ingredients used in oral care.

8 (a) Write a note on formulation of vanishing creams.
(b) Write a note on sunscreens.

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Code No.6357/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject: Herbal Cosmetics

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 Write in detail about regulatory provisions related to manufacture of cosmetics

2 (a) Define and classify herbal cosmetics with examples and write a note on industries involved in the production of herbal cosmetics
(b) Write a brief note on herbal baby products.

3 (a) Write a note on some functional herbs used in cosmetics
(b) Write about humectants, oils and colours used in the preparation of herbal cosmetics

4 (a) Explain the physiology and chemistry of skin and hair. Write the formulation of hair conditioners with examples.
(b) Write the method of preparation of cleansing creams with examples.

5 Explain the formulation of herbal shampoos and herbal oils with examples.

6 (a) Explain the toxicity studies of hair dyes and depilatories as per Drugs and Cosmetics
(b) Write a note on herbal fairness formulations

7 Explain the evaluation of lipsticks and creams

8 (a) What are dentifrices, write the formulation of herbal tooth pastes and mouthwashes with examples.
(b) Write a brief note on cosmetics for nails

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Code No. 6350/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject: Clinical Research & Pharmacovigilance

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 (a) Elaborate the various toxicity studies as per schedule Y guidelines.
(b) Explain the structure and content of an informed consent process.

2 (a) Write in detail about the role of contract research organization and its management.
(b) What are various types and designs of clinical trials.

3 Define ADR Add a note on its reporting and management methods.

4 Define Pharmacovigilane. Write about WHO international drug monitoring programme

5 Discuss the roles and responsibilities of Industry and national programme related to pharmacovigilance

6 (a) Write a note on spontaneous reporting system.
(b) Enlist the international classification of diseases.

7 What are the various statistical methods for evaluating medication safety data

8 (a) Write a note on pharmacoepidemiology
(b) Write the importance of safety pharmacology

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Code No: 6364/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharm. Analysis) II-Sem. (PCI) (Main & Backlog)

Examination, October 2020

Subject: Herbal & Cosmetic Analysis

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Write the WHO guidelines for herbal drug standardization.
   (b) Compare the herbal drugs with conventional drugs.

2. (a) Explain the different types adulteration of herbal drugs with suitable examples
   (b) How foreign matter is determined in herbal drugs?

3. Explain the adulterant screening of herbal drugs and their products using modern analytical techniques.

4. (a) Write the WHO guidelines for safety monitoring of natural medicine.
   (b) Explain bio-drug interactions with suitable examples.

5. Write notes on determination of
   (a) Saponification value
   (b) Moisture content.
   (c) Heavy metals

6. Write notes on
   (a) DNA finger printing technique.
   (b) Effect of herbal medicine on clinical laboratory testing
   (c) Analysis of personal hygiene preparations.

7. Write about Indian patent law applicable for herbal drugs and natural products.

8. (a) Write the spontaneous reporting schemes for bio-adverse reactions.
   (b) Write the general methods of analysis of raw materials used in cosmetic manufacture as per BIS.

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Code No. 6371/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacy Practice) II-Semester (PCI) (Main) Examination, October 2020

Subject: Clinical Pharmacokinetics & Therapeutic Drug Monitoring

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions (3 x 25=75 Marks)

1 Explain the procedure for TDM of sodium valproate and gentamicin in detail. Add a note on indications for TDM.

2 What is the Child Pug score? What role does it play in drug dosing in hepatic failure? Explain the considerations in dosing patients with hepatic impairment.

3 (a) Describe the drug-drug interactions related to distribution with suitable examples. Suggest ways to prevent or manage drug interactions.
(b) Explain the possible genetic variability in expression and function of P-gp transporter.

4 (a) Briefly describe the analysis of population Pharmacokinetic data.
(b) Explain with examples P-glycoprotein mediated inhibition of biliary excretion.

5 (a) Write a short note on loading dose, maintenance dose and principle of superposition.
(b) The elimination half-life of Tobramycin was reported to be 2.15 hours and the volume of distribution was reported to be 33.5% of body weight. What is the dose for an 80-kg individual if a steady-state level of 2.5 μg/mL is desired? Assumed that the drug is given by intravenous bolus injection (100% bioavailability) every 8 hours.

6 Explain the following:
(a) Pharmacometrics softwares
(b) Fixed and random effect parameters in NONMEM
(c) Nomograms used in designing dosage regimen

7 Explain the Dosing considerations in the Obese Patients and Paediatrics.

8 Write detailed notes on :
(a) Determinants of bioavailability
(b) Drug interactions related to absorption

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Code No. 6298/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Ph. Chemistry) II-Semester (CBCS) (Backlog)

Examination, October 2020

Subject: Advanced Medicinal Chemistry-II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Define 'prodrugs' and give their ideal characteristics.
   (b) Explain in detail about carrier-linked bipartite prodrugs.

2. Explain in detail about various soft drug approaches with relevant examples.

3. Write the rational design of following enzyme inhibitors:
   (a) Carbonic anhydrase inhibitors.
   (b) ACE inhibitors

4. (a) List out various targets for the development of antitubercular agents.
   (b) Explain in detail about chemistry and mechanism of action of agents addressing any one of the above targets.

5. (a) Classify antimalarial agents with structural examples.
   (b) Write the synthesis and SAR of any two classes antimalarial agents.

6. Discuss the chemistry of following classes of agents.
   (a) HMG CoA reductase inhibitors.
   (b) Cyclooxygenase inhibitors.

7. Write about following with reference to Alzheimer's disease treatment.
   (a) Various targets
   (b) Synthesis and SAR for two drugs.

8. Explain the following:
   (a) Chemistry of any two classes of antiparkinson drugs.
   (b) Mutual prodrugs.

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Code No: 6309/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics / Pharmacology) II-Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Advances in Drug Delivery Systems.

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Discuss the pharmacokinetic order design for drug delivery system-zero order and First order
   b) Write a detailed note on effect of system parameters in controlled drug delivery

2. a) Explain various evaluation tests for nasal drug delivery system.
   b) Write a detailed note on pulmonary drug delivery system.

3. a) Explain formulation and evaluation including iontophoresis and other latest developments in skin delivery systems
   b) Write a note on liquid sustained release systems

4. a) Write a note on Nano particles
   b) Explain about formulation and Evaluation of Micro spheres

5. a) Explain Formulation and Stability testing of Floating drug delivery system
   b) Write a note on Recombinant DNA Technology

6. a) Explain various Methods of preparation Niosome and their evaluation
   b) Explain different techniques in the manufacturing of Magnetic Microspheres and their evaluation

7. a) Explain preparation and evaluation techniques for multiple emulsion.
   b) Write a note on Micro emulsions

8. a) Discuss various Methods for preparation of resealed erythrocytes and their evaluation
   b) Explain different techniques in the manufacturing of pharmacosomes

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Code No: 6318/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) II-Semester (CBCS) (Backlog) Examination, October 2020

Subject : Screening Methods in Pharmacology

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Explain about Proforma for performing experiments on animals.
   b) Explain about transgenic animals & their applications.

2. Describe the Pre clinical models for screening of
   i) Anti Parkinsonism
   ii) Hypnotics

3. Describe the Pre clinical models for screening of
   i) Anti Atherosclerotic drugs
   ii) Anti fertility egents

4. a) Explain about Animal cell line and their applications.
   b) Explain *in-vitro* cell line based assay on Arthritis.

5. a) Write a brief note on Random sampling & Stratified sampling methods.
   b) Write a brief note on Randomized complete block design.

6. a) What is test of significance. Explain about the procedure for carrying out a significance test.
   b) Explain in detail about Analysis of variance in One- way classification.

7. a) Write in detail about applications of Chi- Square test.
   b) Define Correlations. Explain about Linear & Non linear Correlations.

8. Describe the Pre clinical models for screening of
   i) Anti Diabetics
   ii) Anti Ulcer agents

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Code No: 6325/CBCS

FACULTY OF PHARMACY

M.Pharmacy (P.A & Q.A) II-Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Analytical Method Validation

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1) What is Calibration? Explain calibration procedure for UV-Spectro photometric and gas chromatography (GC)

2) Define and Explain the following validation parameters
   a) System suitability
   b) Robustness and Ruggedness
   c) LoQ and LoD

3) Explain the criteria to be considered for selection of biological sample and describe LLE & SPE extraction procedures

4) Explain analytical method development and validation procedure by using HPLC

5) Write a note an validation of the following
   a) HVAC system
   b) DM Water

6) a) Explain different procedures involved in the sample preparation for FT-IR
   b) Describe is detail cleaning validation

7) What do you mean Qualification? Describe the
   a) terms DQ, IQ, OQ and PQ
   b) Explain Numerical calculation of limits

8) Write about
   a) Source of errors in validation
   b) Significant figures and their correct use in Validation

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Code No.6340/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject: Advanced Spectral Analysis

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Write down the woodward-fieser rules for 1,3- butadienes, cyclic dienes and α,β-unsaturated carbonyl compounds. How do you apply woodward–fieser rules in the calculation of λmax of cyclic dienes and α,β-unsaturated carbonyl compounds. Mention some examples.

   b) How do you interpret the presence of different functional groups in IR spectra. Indicate the wave number regions for different functional groups, by drawing schematic IR spectra

2. Give a detailed account on NOESY, COSY, HETCOR and explain how these techniques are useful in the interpretation of organic compounds.

3. Discuss Mc Lafferty rearrangement and Ring rule. Discuss the fragmentation patterns of important functional groups in mass spectroscopy.

4. Discuss the principle, instrumentation and and applications of
   a) GCMS b) HPTLC

5. Discuss the principle, instrumentation and and applications of
   a) LC-FTIR b) Flash chromatography

6. Give brief account on the principle and applications of
   a) DTA b) Raman spectroscopy

7. Write a note on
   a) ELISA
   b) RIA of insulin
   c) Bioassays

8. Give a brief note on
   a) LC-MS
   b) Isotopic peaks

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Code No: 6333/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject: Molecular Pharmaceutics. (Nano tech & targeted DDS)

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. Explain various methods of tumour targeting?

2. a. Mention different types of targeting?
   b. Explain various methods of preparations of polymeric nanoparticles?

3. a. Describe various types of preparation of mircrospheres?
   b. How will you evaluate microsperes?

4. a. What are niosomes?
   b. Describe various method of preparation ofniosomes.

5. a. Describe applications of Monoclonal antibodies.
   b. What are aquasomes?

6. a. What are aerosols?
   b. Explain preparation and evaluation of aerosols.

7. a. What do you mean by gene therapy? What are all the diseases treated using this therapy?
   b. Explain in detail in vivo gene therapy?

8. Explain in detail therapeutic applications of antisense molecules and aptamers?

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Code No: 6361/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharma. Analysis) II-Semester (PCI) (Suppl.) Examination,

October 2020

Subject : Advance Instrumental Analysis

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. Explain Various parameters to be varied in HPLC method development

2. Explain the following
   a. Chiral chromatography
   b. Preparative HPLC

3. a) Explain the stationary phases and principles involved in size exclusion chromatography.
   b) Explain about instrumentation and detectors used in gas chromatography.

4. Explain the principle, instrumentation and applications of super critical fruid chromatography.

5. a) Explain about Mc – lafferty rearrangement?
   b) Explain the following imization techniques a. FAB b. MALDI c. EII

6. a) What is chemical shift and explain about factors inflaming chemical shift
   b) Explain the following
      a. Coupling constant
      b. 2D – NMR

7. a) Write in detail about capillary electrophori's
   b) Explain the following
      a. HPTLC
      b. Ion-pair chromatography

8. Explain the following
   a) Polysaceharide CSP's b. LC-MS
   b) Qudrapole mass analyser

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Code No. 6310 / CBCS

FACULTY OF PHARMACY

M. Pharmacy (pharmaceutics) II- Semester (CBCS) (Backlog)

Examination, October 2020

Subject :Process Scale Up and Validation

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Discuss scale up techniques involved in tablets.
   (b) Write in detail about scale up techniques involved in filling hard gelatin capsules.

2. (a) Explain layout of pharmaceutical pilot plant layout in detail.
   (b) Discuss requirements of pilot plant for suspensions and emulsions.

3. (a) Define validation, Discuss types procedures & protocols and documentation of Validation.
   (b) Explain analytical method validation for dissolution test apparatus.

4. Explain the following in detail IQ,OQ& PQ for
   (a) Rapid mixer granulator.
   (b) liquid filling & sealing machine.

5. (a) Define processes validation, discuss briefly about processes validation for granulation
   (b) Discuss process validation for tablet coating

6. Discuss the following
   (a) validation master plan (VMF)
   (b) pilot plant design for parenterals

7. Give an account on
   (a) cleaning validation
   (b) validation for pharmaceutical water system.

8. Write a note on
   (a) European union I & E regulations
   (b) validation for pharmaceutical water system.

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Code No. 6319 / CBCS

FACULTY OF PHARMACY

M. Pharmacy (pharmaceutics) II- Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Clinical Pharmacology and Pharmacotherapeutcs

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Discuss about phases of clinical trials

   (b) Write about data migration and archival in clinical data management.

2. (a) Explain about Bayesian theory. Write the applications of population pharmacokinetics.

   (b) Define pharmacogenetics. Discuss about genetic polymorphism in drug metabolism

3. (a) Discuss about pathophysiology and pharmacotherapy of angina pectoris
   (b) Write the pharmacotherapy of anxiety

4. (a) Discuss about pathophysiology and pharmacotherapy of schizophrenia
   (b) Write the pharmacotherapy of GI infections.

5. (a) Discuss about pathophysiology and pharmacotherapy of arrhythmias
   (b) Write the pharmacotherapy of leprosy

6. (a) Discuss about pthophysiology and pharmacotherapy of HIV infection
   (b) Write the pharmacotherapy of rheumatoid arthritis

7. (a) What are the factors to be considered for pharmacotherapy of pregnancy and lactation
   (b) Write short notes on gene therapy.

8. Define rational drug use. Write about need and guidelines for rational drug use

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Code No.6326/CBCS

FACULTY OF PHARMACY

M. Pharmacy (P.A. & Q.A.) II-Semester (CBCS) (Backlog) Examination,

October 2020

Subject: Quality Control Methods

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Write the principle involved in the quantitative estimation of the following functional groups. (i) Hydroxyl (ii) Aldehyde.

   (b) Write the principle and procedure involved in the estimation of Sulphadiazine using FC reagent with reactions

2. Describe the following quality control tests for Pharmaceutical Excipients. i) LOD (ii) Residue on Ignition (iii) Melting point.

3. (a) Mention various Q.C. tests for plastic containers with their significance.

   (b) Write the procedure and importance for powdered glass test as per IP.

4. (a) Write the principle and analytical application for Gibb's reagent.

   (b) Explain briefly with reactions the quantitative determination of methoxyl group.

5. Explain the method to evaluate the effectiveness of antimicrobial preservatives.

6. (a) Define Gelling temperature and the procedure for its determination as per IP.

   (b) Explain briefly on the methods and significance of P^H measurement in QC labs.

7. Explain the quantitative determination of the following drugs (i) Diclofenac (ii) Ibuprofen (iii) Metronidazole

8 Enumerate and explain the Q.C. Tests for the following.
(a) Rubber Closures.
(b) Metal Containers.

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Code No.6300/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Ph. Chemistry) II-Semester (CBCS) (Backlog) Examination,

October 2020

Subject : Drug Screening Methods

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Explain about Statistical Quality Control Charts. What is their importance in production?

   (b) Explain about Replicetin and Local control.

2. Explain about Homogeneous and Non Homogeneous biochemical Assays.

3. (a) Explain in detail about different types of bioassays.

   (b) Explain the experimental procedure to determine the EDCO.

4. Discuss any two methods of screening for anti hypertensive or anti arythmic activity

5. Discuss about Bioassay design and screen construction – Assay Design.

6. Discuss any two methods of Screening for anti diabetic activity.

7. Explain the importance of sampling Discuss about the sampling techniques

8. Discuss any two methods of screening for analgesic activity

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Code No. 6372/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacy Practice) II-Semester (PCI) (Main)

Examination,October 2020

Subject : Pharmacoepidemiology and Pharmacoeconomics

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 a) Write the role of diagnosis and therapy surveys in pharmacoepidemiology.
b) Describe about the defined daily doses and prescribed daily doses.

2 a) Write the importance of post marketing surveillance inpharmacoepidemiology.
b) Write a note on case control studies and cohort studies.

3 a) Explain the resources of cost estimation in pharmacoeconomics.
b) Write a note on incremental cost effective ratio and average cost effective ratio.

4 a) Describe the advantages of cost of illness.
b) Write a note on cost utility analysis and cost consequences analysis.

5 a) Write the applications of pharmacoeconomics.
b) Write a note on decision analysis and decision tree.

6 a) Explain the software used in pharmacoeconomic analysis.
b) Write the concept time trade off and discounting.

7 a) Describe the importance of record linkage systems in pharmacoepidemiology.
b) Write a note on odds ratio and prescription event monitoring.

8 a) Explain about the need and aims of pharmacoepidemiology.
b) Write a note on direct cost and intangible cost.

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Code No. 6354/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) II-Semester (PCI) (Main)(Backlog)

Examination, October 2020

Subject: Medicinal Plant Biotechnology

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 Explain in detail different techniques of plant tissue culture.

2 Explain indetail about DNA and RNA replication.

3 Write a note on Single cell protein and their applications.

4 What is Immobilization? Explain different techniques of Immobilization.

5 Write a note on Organogenesis and Embryogenesis.

6 Explain the methods of gene transfer and their applications.

7 Write a note on:
(a) Hairy root culture
(b) Protoplast fusion

8 Write a note on:
(a) Sterilization methods
(b) Regulation of gene expression

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Code No.6347/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject: Advanced Pharmacology- II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Explain the synthesis, storage and release of thyroid hormones.
   b) Write short notes on oral contraceptives.

2. a) Classify oral hypoglycaemic agents and explain in detail about sulphonyl ureas.
   b) Write short notes on drugs affecting calcium metabolism.

3. a) Explain the mechanism of resistance of antimicrobial agents.
   b) Classify antiviral drugs. Discuss the pharmacology of Nucleoside reverse transcriptase inhibitors.

4. a) Discuss about the antimetabolites used in cancer chemotherapy.
   b) Write short notes on antifungal drugs.

5. a) Explain the biochemical mediators of inflammation.
   b) Write the Pharmacotherapy of asthma and COPD.

6. a) Write short notes on immunosuppressants.
   b) Classify antiulcer drugs and explain about H2 receptor antagonists.

7. a) What is chronotherapy? Explain the applications of chronotherapy.
   b) Discuss about the treatment for emesis.

8. a) Explain in detail about the generation of free radicals.
   b) Discuss about the protective activity of certain important antioxidants.

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Code No: 6337/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I Semester (PCI) (Suppl.) Examination, October 2020

Subject: Advanced Organic Chemistry-I

Time: 2Hours **Max. Marks: 75**

Note: Answer any three questions. **(3x25=75 Marks)**

1. a) Write about types of organic reaction mechanisms, Outline the methods to determine mechanisms
   b) Write a note on Saytzeff's rule of elimination reaction

2. a)What are SN2 reactions? Discuss factors effecting SN2 reactions
   b) Enumerate the steps involved in free radical substitution with examples

3. a) Discuss the mechanism and applications of Vilsmeir haack reaction and Dieckmann reaction
   b) Give an account on Shapiro & Suzuki reaction.

4. a) Write about reaction mechanism and synthetic applications of Mitsunobu reaction and Mannich reaction.
   b) Write the preparation and synthetic applications of Aluminium isopropoxide, N-bromosuccinamide,

5. a) Discuss the role of protection in organic synthesis
   b) How do you protect Hydroxyl groups, 1, 2-diols and carbonyl functional groups in organic reactions?

6. a) Give the reaction and explain mechanism of Pinner Pyrimidine and Smiles rearrangement - Purine synthesis
   b) Give the Synthesis of following
      i) Antipyrine
      ii) Chlorpromazine

7. a) Discuss any Six guidelines for disconnection of molecules with examples
   b) Explain the terms Synthon and Synthetic equivalent with examples.

8. Write a short note on following with retro synthetic reactions.
   a) FGI
   b) FGA

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Code No: 6330/PCI

FACULTY OF PHARMACY

M. Pharmacy (pharmaceutics) I-semester (PCI) (Suppl.) Examination, October 2020

Subject: Drug Delivery System

Time: 2 hrs **Max Marks: 75**

Note: Answer any three questions. **(3x25=75 Marks)**

1. Explain different mechanisms of drug delivery from sustained or controlled release formulations? Add a note on application of polymers in sustained release dosage forms?

2. What do you mean by personalized medicines? Describe in detail 3D printing of pharmaceuticals and telepharmacy.

3. Explain the principles of rate-controlled drug delivery systems? Write a note on feedback regulated drug delivery systems?

4. a) Mention different types of gastro-retentive drug delivery system?
   b) Describe in detail floating drug delivery system and its evaluation?

5. a) Describe in detail formulation and evaluation of buccal drug delivery system?
   b) Explain the different factors affecting mucosal drug permeation?

6. a) Describe barriers of ocular drug delivery system and what are the methods to overcome the same?
   b) Describe ideal properties of a drug to formulate as a transdermal drug delivery system?

7. a) Describe different routes of administration of protein drug delivery and its barriers of permeation ?
   b) Explain stability of protein pharmaceuticals?

8. What do you mean by single shot vaccine delivery systems? Explain mucosal delivery of vaccines?

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Code No: 6351/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognocy) I – Semester (PCI) (Suppl.) Examination, October 2020

Subject: Advanced Pharmacognosy – I

Time: 2 Hours **Max.Marks:75**

Note: Answer any three questions. **(3x25=75 Marks)**

1. Discuss in detail about different methods for conservation of Medicinal plants.

2. Write a note on
   a) Marine toxins
   b) General methods for isolation of marine natural products.

3 Write the source, name of the marker, chemistry, health benefits and uses of
   a) Ginseng b) Flax seed

4. Write the source, isolation, chemistry, health benefits and medical uses of
   a) Taxol b) Guggul Lipids

5. Write the spontaneous reporting scheme for Biodrug adverse reactions.

6. Write about good cultivation and collection practices for medicinal plants.

7. a) Write the source, structure, isolation and uses of vascine.
   b) Health drinks of natural origin.

8. Write short notes on
   a) Poly unsaturated fatty acids.
   b) Formulation of Naturaceuticals.

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Code No: 6344/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I – Semester (PCI) (Suppl.) Examination,

October 2020

Subject: Advanced Pharmacology-I

Time: 2 Hours **Max.Marks:75**

Note: Answer any three questions. **(3x25=75 Marks)**

1.a) Write a note on drug metabolism.
b) Describe about the JAK-STAT pathway.

2. a) Discuss about the NANC (Non Adrenergic and Non Cholinergic) transmission.
b) Explain in brief about role of serotonin transmission in CNS.

3. a) Classify anti-psychotic agents. Write in brief about haloperidol.
b) Write a note on diazepam.

4. a) Classify anti-hypertensive agents. Write the pharmacology of propranolol.
b) Write a note on heparin.

5. a) Write a note on thromboxane-A_2 and prostacycline.
b) Write a note on 5-HT antagonists.

6. a) Explain in brief about concept of linear pharmacokinetics.
b) Write the physiological role of nuclear receptors.

7. a) Describe the pharmacology of acetylcholine.
b) Write a note on sodium valproate and lithium carbonate.

8. a) Explain about the haematinics.
b) Write a note on anti-histamines.

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Code No: 6358/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) I-Semester (PCI) (Suppl.) Examination,

October 2020

Subject: Advanced Pharmaceutical Analysis

Time: 2 hours **Max. Marks: 75**

Note: Answer any three questions. **(3x25=75 Marks)**

1. a) Define impurity and give the classification of impurities in new drug substances.
   b) Explain the guidelines for reporting and control of elemental impurities in new drug products.

2. Describe accelerated stability studies and shelf life calculation of drug products.

3. a) Explain the factors affecting stability of drug substances and drug products.
   b) How do you perform photo stability of formulations?

4. a) Describe different analytical techniques used in characterization of degradants.
   b) What is impurity profiling and give its importance in testing of pharmaceuticals.

5. a) Write short notes on HPTLC finger printing in stability testing of phytopharmaceuticals.
   b) Give the regulatory requirements for stability testing of phytopharmaceuticals.

6. Write about the following
   a) Enzyme immunoassay
   b) Optical Immunoassay

7. a) Describe the principle and procedure involved in the biological assay of oxytocin.
   b) What are antitoxins? Give biological assay of Tetanus antitoxin.

8. Write the principle, procedure and applications of PCR studies.

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Code No: 6366/PCI

FACULTY OF PHARMACY

M.Pharmacy (Pharmacy Practice) I-Semester (PCI) (Suppl.)

Examination, October 2020

Subject: Pharmacotherapeutcs-1

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three Questions from the following : (3x25=75 Marks)

1. Discuss about pathophysiology and pharmacotherapy of hyperlipidemias
2. Discuss about pathophysiology and pharmacotherapy of angina pectoris
3. Discuss about pathophysiology and pharmacotherapy of asthma
4. Discuss about pathophysiologyandpharmacotherapy of type 2 diabetes mellitus

5. a) Write a short note on drug induced liver diseases
   b) Discuss about pathophysiology of anemia

6. a) Discuss about pathophysiology of inflammatory bowel diseases
   b) Discuss about pharmacotherapy of peptic ulcer

7. a) Discuss about pathophysiology of psoriasis
   b) Discuss about pharmacotherapy of glaucoma

8. a) What are various disorders associated with bone and joints
   b) Write the pharmacotherapy of gout

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Code No. 6295/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I-Semester (PCI) (Suppl.) Examination,

October 2020

Subject: Advanced Chemistry of Natural Products

Time: 2 hours **Max. Marks: 75**

Note: Answer any three questions. **(3x25=75 Marks)**

1 (a) Discuss the development of CNS drugs using the natural products as lead compounds.

(b) Explain the structural modifications of Reserpine with their therapeutic uses.

2 (a) Discuss the general methods for the structure elucidation of alkaloids.
(b) Write a note on morphine antagonists.

3 (a) Write in brief the structural elucidation of cholesterol.
(b) Write a note on nomenclature and stereochemistry of steroids.

4 (a) Discuss chemistry of insulin.
(b) Discuss the general methods for the synthesis of peptides.

5 (a) Describe the structures and therapeutic uses of antifertility agents. Mention their mechanism of action.
(b) Give the mechanism of action, synthetic analogues and therapeutic uses of Taxol.

6 (a) Write in brief the structural elucidation of morphine.
(b) Discuss the development of morphine analogues.

7 (a) Explain the general analysis of peptides and proteins
(b) Write the structures and therapeutic uses of synthetic analogues of vinca alkaloids.

8 (a) Discuss the development of antibiotics from natural products lead compounds.
(b) Explain the primary, secondary, tertiary and quaternary structure of proteins.

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Code No. 6305/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) I-Semester (CBCS)(Backlog)

Examination, October 2020

Subject : Pharmaceutical Production Technology

Time : 2 Hours **Max. Marks: 75**

Note: Answer any Three Questions from the following : (3x25=75 Marks)

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1. a) Explain principle involved and critical parameters of marumerizer and spheronizer with the help of diagrams.
   b) Explain problems during mixing, drying, powder feeding and compression stages along with the remedies.

2. a) Describe various particle coating techniques.
   b) Explain the problems involved in coating process along with remedies.

3. a) Describe sub systems and working principle of freeze dryer along with critical process variables involved in it.
   b) Explain different approaches for area planning and environmental control in parenteral production.

4. Explain different stages in capsule filling process and explain the improvements in it.

5. a) Describe the equipment for fine solids dispersion.
   b) Draw the layout of capsule manufacturing process and explain the problems in each sub system.

6. Explain benefits and limitations of different types of packaging material along with their functions.

7. a) Explain different dust collection systems in air handling unit.
   b) Describe air filtration mechanisms with special emphasis on membrane filtration.

8. a) Explain different sources an types of water used in pharmaceutical production.
   b) Explain ion exchange process along with pretreatment and maintenance procedures

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Code No: 6317/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Molecular Pharmacology and Drug Design

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three Questions from the following : (3x25=75 Marks)

1. a) Write a note on receptor theory ad G-proteins
   b) Explain about the role of GAP junctions in cell signaling process

2. a) Describe about the neurosteroids and protein kinase-A
   b) Explain in brief about Nitric Oxide

3. a) Describe the location and physiological functions of cholinergic receptors.
   b) Write a note on GABA receptor modulators and their therapeutic uses.

4. Describe the phytochemical screening techniques for evaluation herbal drugs

5. a) Explain about the high throughput screening (HTS)
   b) Write a note on prodrugs

6. a) Explain the different types biosensors.
   b) Write in brief about third messengers.

7. a) Describe the role of COX-2 in inflammation.
   b) Write a note on opioid receptors.

8. a) Explain about the herbal anticancer agents.
   b) Write a note on computer aided drug design (CADD)

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Code No: 6322/CBCS

FACULTY OF PHARMACY

M.Pharmacy (Pharm. Analysis &Quality Assurance) I-Semester

(CBCS) (Backlog) Examination, October 2020

Subject: Instrumental Methods of Analysis

Time: 2 Hours **Max.marks:75**

Note: Answer any Three Questions from the following : (3x25=75 Marks)

1. a) Give the description and working of Transmission electron microscopy. Write about its Pharmaceutical applications.
   b) Give the principles of ORD and CD techniques.

2. a) What are hyphenated techniques? Give the description and working of different components used in LC-MS instrument with a neat labeled diagram.
   b) Write the applications of photon correlation spectroscopy for particle size analysis.

3. a) Describe different methods used for quantitative analysis of alkali metals by flame photometry technique.
   b) Explain about different sample preparation techniques used for sample preparation of phytochemical extracts for analysis.

4. a) Write about different types of membrane indicator electrodes used in potentiometry.
   b) Write the principles of amperometry technique and about types of amperometric titrations.

5. Explain the IP methods for determination of the following physical parameters.
   a) Freezing point
   b) Osmolarity
   c) Refractive index

6. a) Write the description of Plasma as excitation source in emission spectroscopy.
   b) Give the description and working of inductively coupled plasma spectrometer.

7. a) Explain the principle and theory involved in Raman spectroscopy. Give the differences between Raman and IR spectroscopy in application.
   b) Discuss about different factors affecting the fluorescence and phosphorescence phenomena.

8. a) Discuss the theory and principles of atomic absorption spectroscopy.
   b) Give the significance of limit tests and how do you conduct limit test for chlorides as per IP.

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Code No: 6338/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I Semester (PCI) (Main)

Examination, November 2020

Subject: Advanced Medicinal Chemistry

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) What is lead discovery? Discuss about various stages involved in the drug discovery.
   b) Discuss about receptor theories to describe the terms Partial agonist, antagonist and Inverse agonist.

2. a) Define prodrug and discuss the applications of prodrugs with suitable examples.
   b) Discuss the strategies to tackle Multi drug resistance in cancer treatment.

3. a) Give the classification of H1 and H2 histamine receptor antagonists with suitable examples.
   b) Discuss how chirality of drugs influences the pharmacological action?

4. a) Give the classification of enzyme inhibitors with suitable examples
   b) Discuss about the rational design of drugs as reversible enzyme inhibitors with example.

5. a) Define peptidomimetics and discuss the various types of peptidomimetics.
   b) Explain various approaches used in peptide modifications in peptidomimetics design.

6. a) Classify antineoplastic drugs with suitable examples and discuss the mechanism of action of methotrexate and chlorambucil.
   b) Discuss the chemistry of prostaglandins. Give the structures of therapeutically useful prostaglandins.

7. Write a note on
   a) Histamine H1 Receptor antagonists
   b) Drug receptor interactions

8. a) Write a note on molecular modification approaches used in analogue design
   b) Write a note on anti-viral agents?

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Code No: 6331/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject: Modern Pharmaceutics

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. Explain the about drug – Excipient interactions and methods of determination

2. Describe accelerated stability testing of solution and solid dosage forms.

3. What is validation. Discuss the validation & calibration of any two equipment

4. Discuss WHO good manufacturing practices in a pharmaceutical Industy.

5. Discuss about IQ, OQ, PQ & DQ by taking an example.

6. a) Explain the types of compaction profiles.
   b) Write the advantages and disadvantages of strain gauges.

7. a) Describe Heckle plots and its significance with necessary equations and graphs.

   b) Write Biopharmaceutics Classification System (BCS) of drugs with examples.

8. a) Explain the reasons for conducting the stability studies of drugs.
   b) Explain formulation and dosage form related factors influencing the dissolution of tablets.

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Code No: 6352/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) I- Sem. (PCI) (Suppl.)

Examination, November 2020

Subject: Phytochemistry

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Discuss the various stages of clinical trials.
   b) Explain the principle and technique of SCFE.
2. a) What are steroids and describe the structural features and color tests steroids.
   b) Give the source and biosynthesis scheme of Digitoxin.
3. a) Describe the methods of drug discovery.
   b) Write about the selection and optimization of lead compounds.
4. a) Discuss the sources, chemistry and mechanism action of artemesin.
   b) Write the chemical structure and isolation process of quinine and sennosides.
5. Describe the types of extracts and discuss the principles and methods of extractive techniques.
6. Write about
   i) Bioguided extraction technique.
   ii) Flash chromatography
   iii) Vinca alkaloids.
7. Write the sources and elucidate the structures using spectroscopic characters.
   a)Menthol b) Nicotine c) Caffeine
8. a) Give an informative note on Radio tracing technique.
   b) What are alkaloids? Write the properties, color reactions and general methods of extraction of alkaloids.

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Code No. 6345/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Pharmacological and Toxicological Screening Methods - I

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x 25 = 75 Marks)**

1. a) Define Bioassay. Discuss the principle and methods of bioassay.
   b) Discuss about euthanasia of experimental animals.

2. Define epilepsy. List out the methods available to induce epilepsy and describe any three models in the screening of antiepileptics.

3. Describe the preclinical screening procedures for the following:
   a) Aphrodisiacs
   b) Anti ulcer drugs

4. Discuss the *in vitro* and *in vivo* techniques for screening of anticancer agents.

5. Define immunoassay. Outline principles of immunoassay and describe different types of immunoassays.

6. Define inflammation. List out the methods available to induce inflammation and describe one acute and one chronic model in the screening of anti-inflammatory agents.

7. Describe the screening methods for the evaluation of a compound for
   a) Anxiolytics.
   b) Antiarrythmics.

8. Define hypertension. List out the methods available to induce hypertension and describe three models in the screening of antihypertensive agents.

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Code No: 6359/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Analysis) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Pharmaceutical Validation

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x 25 = 75 Marks)**

1. Explain the following
   a) Types of patent applications
   b) Objectives and advantages of validation

2 Explain the procedure for following
   a) Calibration of Volumetric glassware
   b) Sampling methods for cleaning validation

3. List out and explain the analytical method validation parameters.

4. Explain the various types of trademarks and don'ts in trademarks with suitable examples

5. Write note on the following.
   a) Define and explain the types of process validation
   b) Different steps involved in the calibration of HPLC

6. What are the different phases of water system validation?

7. What are the different parameters in HVAC to be examined?

8. Write note on the following
   a) Clean in place
   b) Validation master plan.

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Code No: 6367/PCI

FACULTY OF PHARMACY

M.Pharmacy (Pharmacy Practice) I-Semester (PCI) (Suppl.) Examination, November 2020

Subject : Hospital and Community Pharmacy

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x 25 = 75 Marks)**

1. Discuss in detail about inventory control of hospital

2. Explain guidelines for pharmacy and therapeutic committee in detail.

3. Write a note on :
   a. Hospital waste management.
   b. Methods of drug distribution.

4. Enumerate the roles and responsibilities of community pharmacist and their relationship with other health care providers.

5. Explain the role of community pharmacist in Tuberculosis control program as per GOI.

6. Explain the measures taken by GOI in the prevention of communicable diseases and role of pharmacist in it.

7. Discuss the good dispensing practices.

8. Discuss the role of clinical pharmacist in ADR monitoring.

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Code No: 6293/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I- Semester. (CBCS) (Backlog)

Examination, November 2020

Subject : Advanced Pharmaceutical Organic Chemistry-I

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) What is optical activity? Explain D-L and R-S Nomenclature.
   b) Give an account on Cis-Trans isomerism.

2. Discuss structure, Stability and reactions of free radicals and carbanions.

3. Explain E1 and E2 reactions mechanism with suitable examples.

4. Write the preparation, mechanism and applications of following synthetic reagents
   a) DCC
   b) N-Bromosuccinamide
   c) Lithiun Aluminium Hydride

5. Explain reaction, mechanism and applications of fries rearrangement and Pinacol pinacolone rearrangement.

6. Write the preparation, mechanism and applications of following synthetic reagents sodium boro Hydride and Osmonium tetroxide.

7. a) Write a note on E1 cb reaction and mechanism
   b) Explain free radical substitution reactions with examples.

8. Write a note on
   a) Bezil-Benzillic acid rearrangement
   b) Bayer-Villiger rearrangement

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Code No: 6304/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics/PA&QA) I-Semester (CBCS)(Backlog)

Examination, November 2020

Subject: Pharmaceutical Product Development

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1) a) Explain factorial design with an example.
   b) Write the importance of melting point and dissociation constant.

2) a) Describe the factors influencing selection of excipients.
   b) Write a note on ointment bases and Co-processing of excipients.

3) a) Explain the IVIVC levels of correlation.
   b) Explain the phase solubility analysis.

4) Describe the different in-vitro dissolution testing models (sink and non-sink).

5) a) Explain the theories of dissolution.
   b) How do you maintain Sink conditions during dissolution?

6) a) Describe the factors affecting chemical stability.
   b) Write a note on Accelerated stability studies.

7) a) Write about generic product approval.
   b) What are Nanopharmaceuticals. Write a note on generation & significance of nanopharmaceuticals.

8) a) Write a note on Bolar Amendment.
   b) Write a note on solid dispersions.

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Code No: 6315/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (CBCS) (Backlog)

Examination, November 2020

Subject : Bioassays and Clinical Research

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Write a note on quantal and interpolation bioassay with suitable example.
   b) Explain any two techniques for adrenaline

2. a) Enumerate any two methods for bioassay of oxytocin.
   b) Explain in brief about bioassay of progesterone and thyrotrophin.

3. a) Describe the principle ad procedure for bioassay of diphtheria anti-toxin
   b) Write a note on bioassay of tetanus vaccine.

4. Describe the different stages of clinical drug discovery process.

5. a) Explain the importance of informed consent in clinical research.
   b) Write a note on composition and responsibilities IEC.

6. a) Explain the principle and procedure for bioassay of heparin.
   b) Write a note on bioassay of serotonin.

7. a) Describe the principle and procedure for bioassay of hepatitis vaccine.
   b) Write a note on ethics in clinical research.

8. a) Explain about the role of sponsor in clinical trials.
   b) Write a note on bioassays of digitalis.

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Code No: 6339/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Chemistry of Natural Products

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. Write how the natural products acts as a leads in the following classes of drugs
   a) Anticancer drugs
   b) Macrolide & β - lactam antibiotics

2. a) Discus the structural elucidation and stereochemistry of Ephedrine.
   b) What are the alkaloids and classify alkaloids with one example for each class.

3. a) Write the general methods for the structural elucidation of flavonoids.
   b) Write the structural elucidation of quercetin.

4. a) Write the classification, general methods of structural elucidation of Terpenoids.
   b) Write the structural elucidation of camphor.

5. a) Discuss the chemistry & physiological significance of following vitamins
   i) Vitamin - A ii) Vitamin – C iii) Vitamin - E
   b) Discuss about r DNA technology

6. Write a note on
   a) Chemistry of cardiac glycosides
   b) Chemistry of Contraceptive agents
   c) Isoprene rule and Special isoprene rule

7. Write down the active constituents (minimum three from each crude drug) present in the following crude drugs with structures.
   i) Curcuma longa
   ii) Pterocarpus marsupium
   iii) Gymnema sylvestre
   iv) Phyllanthus niruri
   v) Swertia chirata

8 Write the structural characterization of following compounds using IR, H^1NMR, C^{13} NMR and Mass spectral data (Write approximate values)
   i) Quercetin ii) Vitamin D iii) Digoxin iv) Camphor v) Pencillin G

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Code No: 6332/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Regulatory Affairs

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Explain evaluation of drug product performance by *invitro* studies
   b) Write a note on generic drugs product development

2. Explain Hatch-Waxmann Act and its amendments.

3. Explain SUPAC guidelines for immediate release dosage form

4. Write a note on
   a) CTD and eCTD
   b) Regulations for combination products.

5. Explain the regulatory requirements of TGA

6. Discuss about
   a) ICH guidelines for quality & safety
   b) Institutional review board / independent ethics committee

7. Write a note on investigation of medicinal products dossier (IMPD) and Investigator brochure.

8 Write a note on
   a) Pharmacovigilance and safety monitoring in clinical trials.
   b) Enlist ICH Efficacy guidelines.

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Code No: 6353/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) I-Semester (PCI) (Suppl.)

Examination, November 2020

Subject : Industrial Pharmacognostical Technology

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Write the licensing procedure for herbal industry.
   b) Discuss the layout, infrastructure for the production and standardization of herbal products

2. a) Give an informative note of EXIM policy
   b) Write about TRIPS.

3. a) Write the monograph of Ashwagandha and digitalis
   b) Write the features of Indian Pharmacopoeia.

4. Explain the WHO guidelines in quality assessment of herbal drugs.

5. a) Write a note on Total quality management
   b) Discuss the clinical laboratory testing of Herbal drugs.

6. a) What is patent? Describe the objective of patent act
   b) Explain the stages of patent filling, processing and grant of patent.

7. a) Write about the process of opposition and revocation of patent.
   b) Discuss about the copy right act.

8 Write the importance of stability studies. Discuss the various methods of stability studies.

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Code No: 6346/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (PCI) (Suppl.)

Examination, November 2019

Subject : Cellular and Molecular Pharmacology

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Explain intrinsic and extrinsic pathways of apoptosis
   b) Explain cell necrosis in detail

2. a) What are secondary messengers.
   b) Give detail classification of receptor.

3. a) What is the importance of RNA e micro RNA
   b) Explain in detail various intra cellular signaling pathways.

4. a) Explain principle and application of DNA electrophoresis.
   b) Give various clinical applications of gee therapy.

5. a) Write a note on ELISA ad western blotting technique.
   b) Explain recombinant DNA technology.

6. a) Explain how drug polymorphism will affect drug metabolism.
   b) Write a note on proteomics and genomic

7. a) Explain in detail immunotherapeutics and its types.
   b) What are the basic equipments used in cell culture lab.

8. a) Give the principle and application of cell viability assay & glucose take assay.
   b) Explain principle and application of how cytometry.

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Code No. 6360/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharma. Analysis) I-Semester (PCI) (Suppl.) Examination, November 2020

Subject: Food Analysis

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1 Explain briefly the various qualitative and quantitative methods used for analyzing food carbohydrates.

2 (a) Write the different means used for classifying amino acids with appropriate examples.

(b) Explain the procedure, principle and significance for determining peroxide value and unsaponifiable matter in fats and oils.

3 (a) Define the following chemically with one structural example
i) Carbohydrate ii) Proteins iii) Amino acids
iv) Lipids v) fats/oils

(b) What are the vitamins? Explain the principle and significance for the microbiological methods used for the determination of spoilage and / or adulterants in fats and oils.

4 List out the spoilage products adulterants of fats and oils. Explain any five methods used for the determination of spoilage and/or adulterants in fats and oils.

5 Enlist any five food additives along with their uses and limits. Write the procedure and principle of any one method

6 Explain the various analytical methods employed for assuring the quality of ice creams.

7 (a) Explain the various methods used for the determination of pesticide residues in fruits and vegetables.
(b) Write briefly about USFDA regulation of food products.

8 (a) Describe the various test used to analyze the purity of wines.
(b) Explain the test which is conducted to analyze non-permitted dyes in food products.

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Code No: 6368/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacy Practice) I-Semester (PCI) (Suppl.) Examination, November 2020

Subject : Clinical Research

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. a) Write a note on investigational new drug application submission.
   b) Describe in detail about ICH guidelines to conduct clinical trials.

2. a) Write the types of randomization techniques.
   b) Write the responsibilities of study coordinator and CRO in clinical study.

3. a) Write the contents of investigator brochure.
   b) Write a note on ethics committee document preparation and submission.

4. a) Describe the procedure for procurement and storage of investigational product.
   b) Write a note on master file preparation and maintainace.

5. a) Write a note on types of audits and their process.
   b) Describe the quality control and assurance in CDM.

6. a) Explain the principles of ethics in biomedical research.
   b) Describe the guidelines for protocol preparations.

7. a) Describe the study related documents collection and archival collections.
   b) Write a note on investigational product reconciliation.

8. a) Explain about the coding dictionaries.
   b) Write a note on CRF tracking and corrections.

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Code No: 6294/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I-Semester (CBCS) (Backlog) Examination, November 2020

Subject : Advanced Medicinal Chemistry-I

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. What is chirality? Explain the role of chirality in specific therapeutic agents.

2. What do you mean by biotransormation? Explain any seven Phase-II biotransformation reactions with suitable chemical equations.

3. Define Acquired immune deficiency syndrome. Write the mechanism of action and advantages/disadvantages of antiviral drug therapy.

4. a) Explain the mechanism of antimetabolites with appropriate examples
   b) Describe any two methods by which anticancer agents develops resistance along with appropriate examples.

5. What are the harmful effects of rise in blood cholesterol level? Describe the mechanism of any three methods by which blood cholesterol level can be lowered.

6. a) What is influenza? Classify the drugs used against influenza along with their structure and mechanism of action.
   b) What do you mean by targeted anticancer chemotherapy? Write its advantages and disadvantages along with suitable examples.

7. a) Explain the temporal factors affecting drug metabolism.
   b) What are proton pump inhibitors? Give any two structural examples. Explain the SAR of proton pump inhibitors or the treatment of ulcer.

8. Explain the microsomal and non-microsomal mechanisms in biotransformations.

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Code No: 6307/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics and PA & QA) I-Semester (CBCS) (Backlog)

Examination, November 2020

Subject : Quality Assurance

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1) a) Explain Basic concepts of quality control and quality assurance?
   b) Describe in detail quality assurance of packing materials and finished products?

2) Explain in detail in – process quality control of tablets and capsules?

3) a) How ISO is constituted?
   b) Explain ISO certification procedure in detail.

4) Mention different types of auditing? Explain how they are performed in an industry?

5) a) What are the desirable qualities of analyst?
   b) Write a note on responsibilities of key personnel in QC lab.

6) a) Explain in detail good documentation practices
   b) Write a note on out of specification (OOS) and out of trend (OOT)?

7) a) Explain the sources of impurities?
   b) Describe impact of solvent and metallic impurities in bulk drugs and formulation manufacture?

8) Describe in detail comparative features of IP, BP and USP. What are the policies of Indian Pharmacopeiea?

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Code No: 6316/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) I-Semester (CBCS) (Backlog)

Examination, November 2020

Subject : Principles of Toxicology

Time: 2 Hours **Max. Marks: 75**

Note: Answer any Three questions. **(3 x25=75 Marks)**

1. Explain the procedure to determine Maximum Tolerated Dose (MTO) and LD_{50} as per revised 06 CD guidelines

2. Explain the ICH guidelines for the assessment of new drug safety

3. Write short notes on the following:
   a) Carcinogenicity testing
   b) Reproductive toxicity testing

4. Discuss the following in detail:
   a) Alcohol poisoning
   b) Lead poisoning

5. Discuss the different methods for the pharmacouigilance data collection

6. Describe the USFDA guidelines for the assessment of new drug safety

7. Elaborate the in vitro and in vivo toxicity studies for genatoxicity

8. Discuss the following in detail :
   a) Serious Adverse Reaction (SAR)
   b) Serious Adverse Event (SAE)

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Code No: 6341/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject : Advanced Organic Chemistry - II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. Discuss in details about the principles of green chemistry and its applications in organic synthesis.

2. a) Give an account on Fmoc and t-Boc protocols in solid phase peptide Synthesis.
   b) Write a note on side reactions in peptide synthesis

3. a) What are pericyclic reactions? Discuss any two types of pericyclic reactions with Mechanism.
   b) Explain Photo-oxidation and photo addition with examples.

4. a) What is heterogenous catalyst? Write the preparation and characterization of heterogenous catalyst.
   b) Discuss in detail about the homogenous catalysis used in drug synthesis with example.

5. a) Write an note on catalytic asymmetric synthesis .
   b) Discuss about relative and absolute configuration.

6. Write a short note on
   a) Phase transfer catalysis
   b) Rules governing cyclo addition product formation

7. a) Discuss about protection, solid supports, linkers activation procedures in solid phase peptide synthesis.
   b) HF cleavage protocols

8. Write a short note on
   a) Applications of ultrasound technology in organic synthesis.
   b) Ziegler-Natta catalyst.

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Code No: 6334/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) II Semester.(PCI) (Main & Backlog)

Examination, October 2020

Subject: Advanced Biopharmaceutics & Pharmacokinetics

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Explain the different theories of dissolution?
   b) Discuss in detail about the factors influencing the drug absorption?

2. a) A single IV dose of 75 mg of a drug was administered to a healthy volunteer. The following parameters were obtained

A=4.62 mg/L	B=0.64 mg/L
α=8.94 hr^{-1}	β=0.19 hr^{-1}

   Calculate all possible pharmacokinetic parameters?
   What will be the amount of drug remaining in the body after 8 hrs?

3. a) Write a note on *in vitro- in vivo* correlation?
   b) Discuss the alternative methods of dissolution testing?

4. a) Explain the study designs in bioequivalence studies?
   b) Write about BCS classification?

5. Describe the dose dependent kinetics? Explain the Michaelis - Menten equation?

6. A 60 kg patient received a single 25 mg oral dose of an antibiotic that is completely absorbed after oral administration. The plasma concentrations were as follows:

Time (hr)	0.2	0.5	1.0	2.0	3.0	4.0	6.0	8.0	10.0	12.0	14.0
Conc(ng/ml)	88.5	184.9	276.9	321.6	292.8	246.1	161.0	102.2	64.5	40.66	25.61

   Calculate all possible pharmacokinetic parameters?

7. a) Write in detail about the pharmacokinetics of modified dosage forms?
   b) Define the following
      I) Bioequivalence II) Absolute Bioavailability III) Volume of Distribution

8. a) Discuss the pharmacokinetic drug interactions with suitable examples?
   b) Explain the various methods for permeability studies?

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Code No.6355/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject: Advanced Pharmacognosy-II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 List the herbal drugs used and screening techniques for evaluation of anti diabetic activity.

2 Write the chemistry of
(a) Coleus forskholii
(b) Andrographics paniculata
(c) Boswellia Serata

3 Discuss the reasons for adulteration of herbal drugs. Write about the methods and measures for detection of adulteration

4 Describe the chemistry and analytical profile of curcuma longa.

5 Give an informative note on herbal drugs belonging to the category of
(a) Anticancer drugs
(b) Wound healing Drugs
(c) Antioxidant drugs

6 (a) Describe the importance of antifertility drugs. Describe any four in vivo antifertility screening techniques.
(b) Write a note on herbal drugs used in treatment of users.

7 Give an informative note on
(a) DNA finger printing
(b) Detection heavy metals
(c) Detection of microbial contamination.

8 Write about
(a) Pharmacokinetic issues of herbal drugs.
(b) Methods of drug discovery

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Code No.6348/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject: Pharmacological Toxicological Screening Methods-II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 Write a detailed note on determination of LD_{50} as per OECD-425 guideline.

2 What is test item? Describe the methods of characterization and importance of test item.

3 (a) Write about the risk assessment in female reproductive toxicity studies.
(b) Discuss in brief about in vivo genotoxicity studies.

4 Define IND. Elucidate the importance and industry perspectives of IND enabling studies

5 (a) Write in detail about safety pharmacology.
(b) Discuss in brief Tier 1 safety pharmacology studies.

6 Write short notes on:
(a) Alternative animal toxicity testing
(b) Importance and applications of toxicokinetic studies

7 Write brief notes on:
(a) Acute eye irritation testing
(b) Dermal toxicity studies

8 Explain various in vivo Carcinogenicity studies.

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Code No: 6362/PCI

FACULTY OF PHARMACY

M. Pharmacy (Phar. Analysis) II – Semester. (PCI) (Main & Backlog)

Examination, October 2020
Subject : Modern Bio-Analytical Techniques

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Explain about different sample preparation approaches in bioanalytical methods.
   b) Explain the following validation parameters in bioanalytical method validation as per USFDA guidelines.
      i) Linearity ii) Precision

2. a) Discuss about Biopharmaceutical factors affecting drug bioavailability.
   b) Write the Biopharmaceutics classification system defined by FDA.

3. a) Explain different types of PK-PD drug interactions with suitable example.
   b) Discuss the role of LC-MS in bioactivity screening and proteomics.

4. a) Write about basic equipments used in cell culture lab.
   b) Write about principles, instrumentation and applications of flow cytometry.

5. a) Explain different methods for assessment of bioavailability of new drug product.
   b) Write the clinical significance of bioequivalence studies.

6. a) Discuss the importance and applications of Toxicokinetic studie.
   b) Write about different cell culture media.

7. a) Write about *in-vivo* and *in- vitro* methods for checking cellular permeability of new drug products.
   b) Write in brief about drug interactions linked to transporters.

8. a) Describe the principles and applications of Cell viability assays.
   b) Write about Rat liver microsomes and Human Liver microsomes.

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Code No. 6369/PCI

FACULTY OF PHARMACY
M. Pharmacy (Pharmacy Practice) II-Semester (PCI) (Main) Examination,
October 2020

Subject: Principles of Quality use of Medicines

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions (3 x 25=75 Marks)

1 (a) Who are the key partners in developing and implementing initiatives to achieve QUM? "All partners have their part to play in achieving QUM". Justify.
(b) Write a short notes on QUM evaluation strategy.

2 Define Evidence based medicine. Explain the concept and steps involved in the complete process of Evidence based medicine.

3 Describe the following:
(a) Strategies to promote QUM
(b) QUM in a hospital setting

4 Explain prescribing to improve QUM in the following special population
(a) Pregnancy and lactation
(b) Geriatrics

5 (a) What role a professionally competent pharmacist plays in regulartory aspects of QUM?
(b) Write a note on role of industry in QUM in medicine development.

6 (a) Define and explain various categories of medication errors.
(b) Explain the basic mechanisms for ADRs briefly.

7 (a) Define Pharmacovigilance. Briefly describe the purpose and need of Pharmacovigilance.
(b) Explain any two methods of causality assessment of ADRs.

8 (a) Give a detailed account of communication and its importance in QUM.
(b) Explain the key principles involved in achieving quality use of medicines.

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Code No. 6297/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Common to All) II- Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Intellectual Property Rights & Regulatory Affairs

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. Explain in detail pollution control Act

2. Write a note on
   a) Orange Book
   b) Investigational New Drugs (IND)

3. Explain schedule M as per drug & Cosmetic Act 1940 in detail

4. Write a note on
   a) Paris Convention
   b) GATT

5. Write a note on
   a) Trade marks
   b) Patent filing procedure

6. a) Discuss the objectives & functions of WIPO
   b) Write a note on copyrights

7. Discuss
   a) Consumer protection act
   b) Food Adulteration Act 1954

8. Discuss ICH guidelines in detail

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Code No: 6343 / PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharm. Chemistry) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject: Pharmaceutical Process Chemistry

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 (a) Discuss the synthetic strategies in Scale up Process.
(b) Write the In-Process control and validation of Large scale Process.

2 (a) Explain the Theory of filtration and its limitations.
(b) Discuss the types of Extraction

3 (a) Write the kinetics and Mechanism of aromatic nitration.
(b) Explain types of oxidation reactions and nonmetallic oxidizing agents.

4 (a) Discuss the production of penicillin by Fermentation.
(b) Write a note on streamlining reaction steps and route of selection in reaction progress kinetic analysis.

5 (a) Write a detail note on ISO-1400.
(b) Write about fire hazards and types of fire and fire extinguishers.

6 (a) Give a note on Impurities in API (Sources, Types including genotoxic impurities).
(b) Write a note on MSDS.

7 (a) Discuss about the types evaporators used in evaporation.
(b) Write a note on kinetics of halogenation and types of halogenation reactions.

8 (a) Write a note on hydrogen transfer reactions and case study on industrial reduction.
(b) Explain about azeotropic distillation.

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Code No: 6336 / PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharm. Chemistry) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject : Cosmetics and Cosmeceuticals

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 (a) Write a note on regulatory provisions relating to import of cosmetics
(b) Write a note on conditions for obtaining licence for manufacture and sale of cosmetics.

2 (a) What are the common problems associated with oral cavity?
(b) Write a note on cleansing and care needs for face.

3 (a) Write a note on regulatory provisions relating to labeling of cosmetics.
(b) Write a note on structure and functions of skin.

4 (a) Discuss about the building blocks for formulation of shampoo.
(b) Write a note on emollients.

5 (a) Discuss about cosmeceutical products for bleeding gums and sensitive teeth.
(b) Write a note on cosmeceuticals for pigmentation.

6 Describe the COSMOS guidelines for herbal cosmetics

7 (a) What are the challenges in formulating herbal cosmetics.
(b) List the herbal ingredients used in oral care.

8 (a) Write a note on formulation of vanishing creams.
(b) Write a note on sunscreens.

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Code No.6357/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject: Herbal Cosmetics

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 Write in detail about regulatory provisions related to manufacture of cosmetics

2 (a) Define and classify herbal cosmetics with examples and write a note on industries involved in the production of herbal cosmetics
(b) Write a brief note on herbal baby products.

3 (a) Write a note on some functional herbs used in cosmetics
(b) Write about humectants, oils and colours used in the preparation of herbal cosmetics

4 (a) Explain the physiology and chemistry of skin and hair. Write the formulation of hair conditioners with examples.
(b) Write the method of preparation of cleansing creams with examples.

5 Explain the formulation of herbal shampoos and herbal oils with examples.

6 (a) Explain the toxicity studies of hair dyes and depilatories as per Drugs and Cosmetics
(b) Write a note on herbal fairness formulations

7 Explain the evaluation of lipsticks and creams

8 (a) What are dentifrices, write the formulation of herbal tooth pastes and mouthwashes with examples.
(b) Write a brief note on cosmetics for nails

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Code No. 6350/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) II-Semester (PCI) (Main & Backlog) Examination, October 2020

Subject: Clinical Research & Pharmacovigilance

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 (a) Elaborate the various toxicity studies as per schedule Y guidelines.
(b) Explain the structure and content of an informed consent process.

2 (a) Write in detail about the role of contract research organization and its management.
(b) What are various types and designs of clinical trials.

3 Define ADR Add a note on its reporting and management methods.

4 Define Pharmacovigilane. Write about WHO international drug monitoring programme

5 Discuss the roles and responsibilities of Industry and national programme related to pharmacovigilance

6 (a) Write a note on spontaneous reporting system.
(b) Enlist the international classification of diseases.

7 What are the various statistical methods for evaluating medication safety data

8 (a) Write a note on pharmacoepidemiology
(b) Write the importance of safety pharmacology

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Code No: 6364/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharm. Analysis) II-Sem. (PCI) (Main & Backlog)

Examination, October 2020

Subject: Herbal & Cosmetic Analysis

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Write the WHO guidelines for herbal drug standardization.
   (b) Compare the herbal drugs with conventional drugs.

2. (a) Explain the different types adulteration of herbal drugs with suitable examples
   (b) How foreign matter is determined in herbal drugs?

3. Explain the adulterant screening of herbal drugs and their products using modern analytical techniques.

4. (a) Write the WHO guidelines for safety monitoring of natural medicine.
   (b) Explain bio-drug interactions with suitable examples.

5. Write notes on determination of
   (a) Saponification value
   (b) Moisture content.
   (c) Heavy metals

6. Write notes on
   (a) DNA finger printing technique.
   (b) Effect of herbal medicine on clinical laboratory testing
   (c) Analysis of personal hygiene preparations.

7. Write about Indian patent law applicable for herbal drugs and natural products.

8. (a) Write the spontaneous reporting schemes for bio-adverse reactions.
   (b) Write the general methods of analysis of raw materials used in cosmetic manufacture as per BIS.

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Code No. 6371/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacy Practice) II-Semester (PCI) (Main) Examination, October 2020

Subject: Clinical Pharmacokinetics & Therapeutic Drug Monitoring

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions (3 x 25=75 Marks)

1 Explain the procedure for TDM of sodium valproate and gentamicin in detail. Add a note on indications for TDM.

2 What is the Child Pug score? What role does it play in drug dosing in hepatic failure? Explain the considerations in dosing patients with hepatic impairment.

3 (a) Describe the drug-drug interactions related to distribution with suitable examples. Suggest ways to prevent or manage drug interactions.
(b) Explain the possible genetic variability in expression and function of P-gp transporter.

4 (a) Briefly describe the analysis of population Pharmacokinetic data.
(b) Explain with examples P-glycoprotein mediated inhibition of biliary excretion.

5 (a) Write a short note on loading dose, maintenance dose and principle of superposition.
(b) The elimination half-life of Tobramycin was reported to be 2.15 hours and the volume of distribution was reported to be 33.5% of body weight. What is the dose for an 80-kg individual if a steady-state level of 2.5 μg/mL is desired? Assumed that the drug is given by intravenous bolus injection (100% bioavailability) every 8 hours.

6 Explain the following:
(a) Pharmacometrics softwares
(b) Fixed and random effect parameters in NONMEM
(c) Nomograms used in designing dosage regimen

7 Explain the Dosing considerations in the Obese Patients and Paediatrics.

8 Write detailed notes on :
(a) Determinants of bioavailability
(b) Drug interactions related to absorption

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Code No. 6298/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Ph. Chemistry) II-Semester (CBCS) (Backlog)

Examination, October 2020

Subject: Advanced Medicinal Chemistry-II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Define 'prodrugs' and give their ideal characteristics.
   (b) Explain in detail about carrier-linked bipartite prodrugs.

2. Explain in detail about various soft drug approaches with relevant examples.

3. Write the rational design of following enzyme inhibitors:
   (a) Carbonic anhydrase inhibitors.
   (b) ACE inhibitors

4. (a) List out various targets for the development of antitubercular agents.
   (b) Explain in detail about chemistry and mechanism of action of agents addressing any one of the above targets.

5. (a) Classify antimalarial agents with structural examples.
   (b) Write the synthesis and SAR of any two classes antimalarial agents.

6. Discuss the chemistry of following classes of agents.
   (a) HMG CoA reductase inhibitors.
   (b) Cyclooxygenase inhibitors.

7. Write about following with reference to Alzheimer's disease treatment.
   (a) Various targets
   (b) Synthesis and SAR for two drugs.

8. Explain the following:
   (a) Chemistry of any two classes of antiparkinson drugs.
   (b) Mutual prodrugs.

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Code No: 6309/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics / Pharmacology) II-Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Advances in Drug Delivery Systems.

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Discuss the pharmacokinetic order design for drug delivery system-zero order and First order
   b) Write a detailed note on effect of system parameters in controlled drug delivery

2. a) Explain various evaluation tests for nasal drug delivery system.
   b) Write a detailed note on pulmonary drug delivery system.

3. a) Explain formulation and evaluation including iontophoresis and other latest developments in skin delivery systems
   b) Write a note on liquid sustained release systems

4. a) Write a note on Nano particles
   b) Explain about formulation and Evaluation of Micro spheres

5. a) Explain Formulation and Stability testing of Floating drug delivery system
   b) Write a note on Recombinant DNA Technology

6. a) Explain various Methods of preparation Niosome and their evaluation
   b) Explain different techniques in the manufacturing of Magnetic Microspheres and their evaluation

7. a) Explain preparation and evaluation techniques for multiple emulsion.
   b) Write a note on Micro emulsions

8. a) Discuss various Methods for preparation of resealed erythrocytes and their evaluation
   b) Explain different techniques in the manufacturing of pharmacosomes

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Code No: 6318/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) II-Semester (CBCS) (Backlog) Examination, October 2020

Subject : Screening Methods in Pharmacology

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Explain about Proforma for performing experiments on animals.
   b) Explain about transgenic animals & their applications.

2. Describe the Pre clinical models for screening of
   i) Anti Parkinsonism
   ii) Hypnotics

3. Describe the Pre clinical models for screening of
   i) Anti Atherosclerotic drugs
   ii) Anti fertility egents

4. a) Explain about Animal cell line and their applications.
   b) Explain *in-vitro* cell line based assay on Arthritis.

5. a) Write a brief note on Random sampling & Stratified sampling methods.
   b) Write a brief note on Randomized complete block design.

6. a) What is test of significance. Explain about the procedure for carrying out a significance test.
   b) Explain in detail about Analysis of variance in One- way classification.

7. a) Write in detail about applications of Chi- Square test.
   b) Define Correlations. Explain about Linear & Non linear Correlations.

8. Describe the Pre clinical models for screening of
   i) Anti Diabetics
   ii) Anti Ulcer agents

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Code No: 6325/CBCS

FACULTY OF PHARMACY

M.Pharmacy (P.A & Q.A) II-Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Analytical Method Validation

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1) What is Calibration? Explain calibration procedure for UV-Spectro photometric and gas chromatography (GC)

2) Define and Explain the following validation parameters
   a) System suitability
   b) Robustness and Ruggedness
   c) LoQ and LoD

3) Explain the criteria to be considered for selection of biological sample and describe LLE & SPE extraction procedures

4) Explain analytical method development and validation procedure by using HPLC

5) Write a note an validation of the following
   a) HVAC system
   b) DM Water

6) a) Explain different procedures involved in the sample preparation for FT-IR
   b) Describe is detail cleaning validation

7) What do you mean Qualification? Describe the
   a) terms DQ, IQ, OQ and PQ
   b) Explain Numerical calculation of limits

8) Write about
   a) Source of errors in validation
   b) Significant figures and their correct use in Validation

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Code No.6340/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject: Advanced Spectral Analysis

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Write down the woodward-fieser rules for 1,3- butadienes, cyclic dienes and α,β-unsaturated carbonyl compounds. How do you apply woodward–fieser rules in the calculation of λmax of cyclic dienes and α,β-unsaturated carbonyl compounds. Mention some examples.

   b) How do you interpret the presence of different functional groups in IR spectra. Indicate the wave number regions for different functional groups, by drawing schematic IR spectra

2. Give a detailed account on NOESY, COSY, HETCOR and explain how these techniques are useful in the interpretation of organic compounds.

3. Discuss Mc Lafferty rearrangement and Ring rule. Discuss the fragmentation patterns of important functional groups in mass spectroscopy.

4. Discuss the principle, instrumentation and and applications of
   a) GCMS b) HPTLC

5. Discuss the principle, instrumentation and and applications of
   a) LC-FTIR b) Flash chromatography

6. Give brief account on the principle and applications of
   a) DTA b) Raman spectroscopy

7. Write a note on
   a) ELISA
   b) RIA of insulin
   c) Bioassays

8. Give a brief note on
   a) LC-MS
   b) Isotopic peaks

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Code No: 6333/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutics) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject: Molecular Pharmaceutics. (Nano tech & targeted DDS)

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. Explain various methods of tumour targeting?

2. a. Mention different types of targeting?
   b. Explain various methods of preparations of polymeric nanoparticles?

3. a. Describe various types of preparation of mircrospheres?
   b. How will you evaluate microsperes?

4. a. What are niosomes?
   b. Describe various method of preparation ofniosomes.

5. a. Describe applications of Monoclonal antibodies.
   b. What are aquasomes?

6. a. What are aerosols?
   b. Explain preparation and evaluation of aerosols.

7. a. What do you mean by gene therapy? What are all the diseases treated using this therapy?
   b. Explain in detail in vivo gene therapy?

8. Explain in detail therapeutic applications of antisense molecules and aptamers?

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Code No: 6361/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharma. Analysis) II-Semester (PCI) (Suppl.) Examination,

October 2020

Subject : Advance Instrumental Analysis

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. Explain Various parameters to be varied in HPLC method development

2. Explain the following
   a. Chiral chromatography
   b. Preparative HPLC

3. a) Explain the stationary phases and principles involved in size exclusion chromatography.
   b) Explain about instrumentation and detectors used in gas chromatography.

4. Explain the principle, instrumentation and applications of super critical fruid chromatography.

5. a) Explain about Mc – lafferty rearrangement?
   b) Explain the following imization techniques a. FAB b. MALDI c. EII

6. a) What is chemical shift and explain about factors inflaming chemical shift
   b) Explain the following
      a. Coupling constant
      b. 2D – NMR

7. a) Write in detail about capillary electrophori's
   b) Explain the following
      a. HPTLC
      b. Ion-pair chromatography

8. Explain the following
   a) Polysaceharide CSP's b. LC-MS
   b) Qudrapole mass analyser

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Code No. 6310 / CBCS

FACULTY OF PHARMACY

M. Pharmacy (pharmaceutics) II- Semester (CBCS) (Backlog)

Examination, October 2020

Subject :Process Scale Up and Validation

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Discuss scale up techniques involved in tablets.
   (b) Write in detail about scale up techniques involved in filling hard gelatin capsules.

2. (a) Explain layout of pharmaceutical pilot plant layout in detail.
   (b) Discuss requirements of pilot plant for suspensions and emulsions.

3. (a) Define validation, Discuss types procedures & protocols and documentation of Validation.
   (b) Explain analytical method validation for dissolution test apparatus.

4. Explain the following in detail IQ,OQ& PQ for
   (a) Rapid mixer granulator.
   (b) liquid filling & sealing machine.

5. (a) Define processes validation, discuss briefly about processes validation for granulation
   (b) Discuss process validation for tablet coating

6. Discuss the following
   (a) validation master plan (VMF)
   (b) pilot plant design for parenterals

7. Give an account on
   (a) cleaning validation
   (b) validation for pharmaceutical water system.

8. Write a note on
   (a) European union I & E regulations
   (b) validation for pharmaceutical water system.

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Code No. 6319 / CBCS

FACULTY OF PHARMACY

M. Pharmacy (pharmaceutics) II- Semester (CBCS) (Backlog)

Examination, October 2020

Subject : Clinical Pharmacology and Pharmacotherapeutcs

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Discuss about phases of clinical trials

   (b) Write about data migration and archival in clinical data management.

2. (a) Explain about Bayesian theory. Write the applications of population pharmacokinetics.

   (b) Define pharmacogenetics. Discuss about genetic polymorphism in drug metabolism

3. (a) Discuss about pathophysiology and pharmacotherapy of angina pectoris
   (b) Write the pharmacotherapy of anxiety

4. (a) Discuss about pathophysiology and pharmacotherapy of schizophrenia
   (b) Write the pharmacotherapy of GI infections.

5. (a) Discuss about pathophysiology and pharmacotherapy of arrhythmias
   (b) Write the pharmacotherapy of leprosy

6. (a) Discuss about pthophysiology and pharmacotherapy of HIV infection
   (b) Write the pharmacotherapy of rheumatoid arthritis

7. (a) What are the factors to be considered for pharmacotherapy of pregnancy and lactation
   (b) Write short notes on gene therapy.

8. Define rational drug use. Write about need and guidelines for rational drug use

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Code No.6326/CBCS

FACULTY OF PHARMACY

M. Pharmacy (P.A. & Q.A.) II-Semester (CBCS) (Backlog) Examination,

October 2020

Subject: Quality Control Methods

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Write the principle involved in the quantitative estimation of the following functional groups. (i) Hydroxyl (ii) Aldehyde.

   (b) Write the principle and procedure involved in the estimation of Sulphadiazine using FC reagent with reactions

2. Describe the following quality control tests for Pharmaceutical Excipients. i) LOD (ii) Residue on Ignition (iii) Melting point.

3. (a) Mention various Q.C. tests for plastic containers with their significance.

   (b) Write the procedure and importance for powdered glass test as per IP.

4. (a) Write the principle and analytical application for Gibb's reagent.

   (b) Explain briefly with reactions the quantitative determination of methoxyl group.

5. Explain the method to evaluate the effectiveness of antimicrobial preservatives.

6. (a) Define Gelling temperature and the procedure for its determination as per IP.

   (b) Explain briefly on the methods and significance of P^H measurement in QC labs.

7. Explain the quantitative determination of the following drugs (i) Diclofenac (ii) Ibuprofen (iii) Metronidazole

8 Enumerate and explain the Q.C. Tests for the following.
(a) Rubber Closures.
(b) Metal Containers.

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Code No.6300/CBCS

FACULTY OF PHARMACY

M. Pharmacy (Ph. Chemistry) II-Semester (CBCS) (Backlog) Examination,

October 2020

Subject : Drug Screening Methods

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. (a) Explain about Statistical Quality Control Charts. What is their importance in production?

   (b) Explain about Replicetin and Local control.

2. Explain about Homogeneous and Non Homogeneous biochemical Assays.

3. (a) Explain in detail about different types of bioassays.

   (b) Explain the experimental procedure to determine the EDCO.

4. Discuss any two methods of screening for anti hypertensive or anti arythmic activity

5. Discuss about Bioassay design and screen construction – Assay Design.

6. Discuss any two methods of Screening for anti diabetic activity.

7. Explain the importance of sampling Discuss about the sampling techniques

8. Discuss any two methods of screening for analgesic activity

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Code No. 6372/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacy Practice) II-Semester (PCI) (Main)

Examination,October 2020

Subject : Pharmacoepidemiology and Pharmacoeconomics

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 a) Write the role of diagnosis and therapy surveys in pharmacoepidemiology.
b) Describe about the defined daily doses and prescribed daily doses.

2 a) Write the importance of post marketing surveillance inpharmacoepidemiology.
b) Write a note on case control studies and cohort studies.

3 a) Explain the resources of cost estimation in pharmacoeconomics.
b) Write a note on incremental cost effective ratio and average cost effective ratio.

4 a) Describe the advantages of cost of illness.
b) Write a note on cost utility analysis and cost consequences analysis.

5 a) Write the applications of pharmacoeconomics.
b) Write a note on decision analysis and decision tree.

6 a) Explain the software used in pharmacoeconomic analysis.
b) Write the concept time trade off and discounting.

7 a) Describe the importance of record linkage systems in pharmacoepidemiology.
b) Write a note on odds ratio and prescription event monitoring.

8 a) Explain about the need and aims of pharmacoepidemiology.
b) Write a note on direct cost and intangible cost.

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Code No. 6354/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacognosy) II-Semester (PCI) (Main)(Backlog)

Examination, October 2020

Subject: Medicinal Plant Biotechnology

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1 Explain in detail different techniques of plant tissue culture.

2 Explain indetail about DNA and RNA replication.

3 Write a note on Single cell protein and their applications.

4 What is Immobilization? Explain different techniques of Immobilization.

5 Write a note on Organogenesis and Embryogenesis.

6 Explain the methods of gene transfer and their applications.

7 Write a note on:
(a) Hairy root culture
(b) Protoplast fusion

8 Write a note on:
(a) Sterilization methods
(b) Regulation of gene expression

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Code No.6347/PCI

FACULTY OF PHARMACY

M. Pharmacy (Pharmacology) II-Semester (PCI) (Main & Backlog)

Examination, October 2020

Subject: Advanced Pharmacology- II

Time: 2 Hours **Max. Marks: 75**

Note : Answer any Three questions **(3 x 25=75 Marks)**

1. a) Explain the synthesis, storage and release of thyroid hormones.
   b) Write short notes on oral contraceptives.

2. a) Classify oral hypoglycaemic agents and explain in detail about sulphonyl ureas.
   b) Write short notes on drugs affecting calcium metabolism.

3. a) Explain the mechanism of resistance of antimicrobial agents.
   b) Classify antiviral drugs. Discuss the pharmacology of Nucleoside reverse transcriptase inhibitors.

4. a) Discuss about the antimetabolites used in cancer chemotherapy.
   b) Write short notes on antifungal drugs.

5. a) Explain the biochemical mediators of inflammation.
   b) Write the Pharmacotherapy of asthma and COPD.

6. a) Write short notes on immunosuppressants.
   b) Classify antiulcer drugs and explain about H2 receptor antagonists.

7. a) What is chronotherapy? Explain the applications of chronotherapy.
   b) Discuss about the treatment for emesis.

8. a) Explain in detail about the generation of free radicals.
   b) Discuss about the protective activity of certain important antioxidants.

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