

JUN 2018

Printing Pages : 3

Paper Code : BPH-801

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B.PHARM.

(4th YEAR, VIII SEM.) EXAMINATION

PHARMACEUTICAL BIOTECHNOLOGY

Time : 3 Hours]

[Max. Marks : 70

Note: *Attempt all question as per Instructions. Draw well labeled diagram wherever necessary.*

1. Attempt All questions :

[1×14=14]

- (i) In vaccination the term Vacca means
 - (a) Bull
 - (b) Mice
 - (c) Cow
 - (d) Monkey
- (ii) Antibodies are produced by
 - (a) Lymphocytes
 - (b) Bone marrow
 - (c) Liver
 - (d) Spleen
- (iii) Vaccination is which type of immunity
 - (a) Naturally acquired active immunity
 - (b) Artificially acquired active immunity
 - (c) Naturally acquired passive immunity
 - (d) Artificially acquired passive immunity
- (iv) Inactivated bacterial toxins are termed as
 - (a) Vaccine
 - (b) Toxoid
 - (c) Haptane
 - (d) Antibody
- (v) Serum/Sera/antisera are used for
 - (a) Naturally acquired active immunity
 - (b) Artificially acquired active immunity
 - (c) Naturally acquired passive immunity
 - (d) Artificially acquired passive immunity
- (vi) Which is not part of immunity system?
 - (a) Innate immune system
 - (b) Adaptive immune system
 - (c) Reticulo endothelial system
 - (d) b & c

- (vii) Endocytosis is also known as
 (a) Coroscular transport (b) Filtration
 (c) Solvent drag (d) Carrier mediated transport
- (viii) If a protein promotes binding of complement and facilitate uptake of phagocytosis.
 (a) Opsonization (b) Fixation
 (c) Binding (d) Phagocytosis
- (ix) Which cell is not a part of T-lymphocytes?
 (a) Helper cell (b) Cytotoxic cell
 (c) Suppressive cell (d) B-lymphocyte
- (x) Kuffer cell is present in
 (a) Liver (b) Kidney
 (c) Pancrease (d) Gall bladder
- (xi) Histocyte is present in
 (a) Connective tissue (b) Bone
 (c) Hairs (d) Salive
- (xii) Alveloar macrophases are present in
 (a) Lung (b) Cortex
 (c) Heart (d) Oesophagus
- (xiii) Mesangial cells are present in
 (a) Kidney (b) Intestine
 (c) Stomach (d) Urinary bladder
- (xiv) APC is known as
 (a) Antigen presenter cell (b) Antigen processing cell
 (c) Antigen picking cell (d) Antigen phagocytic cell

2. Attempt any four questions of the following. [3.5×4=14]

- (i) Discuss restriction endonucleases.
 (ii) Discuss vector in r-DNA technology.
 (iii) Discuss standard selection in r-DNA technology.

- (i) Discuss humatrope and activase.
 (v) Discuss bacterial conjugations.

3. Attempt any two questions of the following. [7×2=14]

- (i) Discuss cross linking method for immobilization
 (ii) Discuss on support immobilization
 (iii) Discuss standardization of BCG.

4. Attempt any two questions of the following. [7×2=14]

- (i) Discuss various types for bacterial transformation reactions.
 (ii) Discuss selection of organism for biotransformation
 (iii) Discuss amylase and proteases.

5. Attempt any One of the following: [14×1=14]

- (i) Discuss historical development of antibiotics in chronological order.
 (ii) Discuss isolation of mutants and factor affect isolation of mutant.

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B.PHARM.

**(4th YEAR, VIII SEM.) EXAMINATION
CHEMISTRY OF NATURAL PRODUCTS**

Time : 3 Hours]

[Max. Marks : 70

Note: *Attempt all question as per Instructions. Draw well labeled diagram wherever necessary.*

1. Attempt All questions :

[1×14=14

- (i) Basic ring skeleton of steroids is
(a) Cyclo pentaneperhydro (b) Isoquinoline phenantherene
(c) Indole (d) Pyridine
- (ii) Steriodal estrogens are produced semisynthetically from plant sterol
(a) Ditogenin (b) Diosgenin
(c) Gitogenin (d) Extrogenin
- (iii) Which of the following alkaloids are found as salts of meconic acid?
(a) Rauwolfia alkaloids (b) Tropane alkaloids
(c) Opium alkaloids (d) Ergot alkaloids
- (iv) Volatile oils are extracted using
(a) Percolator (b) Clavenger apparatus
(c) Soxhlet apparatus (d) All of the above
- (v) Isoquinoline alkaloids are biosynthesized from
(a) Tyrosin (b) Secologenin
(c) Teticulin (d) Trytophan

- (vi) Digitoxin upon hydrolysis produces
 (a) Digitoxigenin +3 Digitoxose (b) Digoxigenin +3 Digitoxose
 (c) Digitoxigenin +3 digitalose (d) Digitoxigenin +2 Digitoxose + glucose
- (vii) Fauwolfia belongs to the chemical class of
 (a) Indole alkaloids (b) Quinoline alkaloids
 (c) Isoquinoline alkaloids (d) Tropane alkaloids
- (viii) Camphor is made up of
 (a) 1 isoprene unit (b) 2 isoprene unit
 (c) 3 isoprene unit (d) None
- (ix) Tropane ring is composed of
 (a) Imidazole and Pyridine (b) Pyrrolidine and Piperidine
 (c) Pyrrolidine and Piperazine (d) Imidazole and indole ring
- (x) Vincristin and Vinblastine are dimer of
 (a) Indole alkaloids (b) Quinoline alkaloids
 (c) Isoquinoline alkaloids (d) Pyridine alkaloids
- (xi) Quinine upon chromic acid oxidation produces
 (a) Meroquiene (b) Quininic acid
 (c) Meconic acid (d) None
- (xii) Drug does not act as photosensitizing agent
 (a) Quinine (b) Curcumin
 (c) Hypericin (d) Atropine
- (xiii) Vitali-morin test shows presence of
 (a) Tropane alkaloids (b) Indole alkaloids
 (c) Pyrrolidine alkaloids (d) Quinoline alkaloids
- (xiv) Drug related to anticancer action except
 (a) Vinca (b) Podophyllum
 (c) Taxus (d) Atropa

2. Attempt any four questions of the following. [3.5×4=14]

- What are alkaloids? Give the biogenetic pathway for tropane alkaloids?
- Write a note on natural products used in herbal cosmetics.
- Discuss the basic metabolic pathway for biogenesis of terpenoids.
- Write a note on fungal toxins.
- Give the different qualitative tests for identification of glycosides.

3. Attempt any two questions of the following. [7×2=14]

- Give the application of spectral techniques in the structure determination of natural products.
- How will you elucidate the structure of Digoxin?
- Give the extraction, isolation and structure elucidation of Quercetin.

4. Attempt any two questions of the following. [7×2=14]

- Write a detailed note on role of herbal drugs of management of Diabetes.
- Discuss the chemical approaches for structural confirmation of Atropine.
- Explain isoprene rule. How will you establish the structure of Menthol.

5. Attempt any One of the following: [14×1=14]

- Write a detailed note on Photosensitizing agents and natural allergens.
- Give the extraction, isolation and chemistry of any two:
 - Lignans
 - Quassinoids
 - β - Carotene

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B.PHARM.

(4th YEAR, VIII SEM.) EXAMINATION

HOSPITAL PHARMACY

(Pharmaceutics-VIII)

Time : 3 Hours]

[Max. Marks : 70

Note: *Attempt all question as per Instructions. Each question carry equal marks.*

1. Attempt All questions :

[1×14=14

(i) PTC is

- | | |
|--|----------------------------|
| (a) List of hospitals | (b) List of medical stores |
| (c) Group of persons which formulate policies regarding therapeutic use of drugs | (d) None |

(ii) Hospital with 100 beds is known as

- | | |
|---------------------|----------------------|
| (a) Small hospitals | (b) Large hospital |
| (c) Elite hospital | (d) All of the above |

(iii) Elite hospitals are :

- | | |
|--|-----------------------------------|
| (a) Small hospital with minimum facility | (b) Hospital with high technology |
| (c) Hospital with 1000 beds | (d) General OPD |

(iv) Blood usually stored at

- | | |
|---|---|
| (a) Temperature between 8 ⁰ C- 25 ⁰ C | (b) Temperature above 40 ⁰ C |
| (c) Temperature of human body | (d) Temperature between 2 ⁰ C – 8 ⁰ C |

(v) Poisons are stored at

- | | |
|--------------------------|---|
| (a) Refrigerator | (b) Front rack |
| (c) Separate closed rack | (d) Depending upon the space, can be stored any place |

- (vi) Killing mechanism of dry heat sterilizer is
- | | |
|------------------------------------|-----------------------------------|
| (a) Coagulation of cell components | (b) Oxidations of cell components |
| (c) Reduction of cell components | (d) Hydrolysis of cell components |
- (vii) Pasteurization is related to
- | | |
|----------------------------|-----------------------------|
| (a) Dry heat sterilization | (b) Radiation sterilization |
| (c) Moist sterilization | (d) All of the above |
- (viii) HEPA is related to ____
- | | |
|-----------------------------|----------------------|
| (a) Cleaning of water | (b) Cleaning of soil |
| (c) Cleaning of instruments | (d) Cleaning of air |
- (ix) Identify the correct definition of a disinfectant
- | | |
|---|---|
| (a) Chemicals that kill or prevent infection and damage living tissues | (b) Chemicals that kill or prevent infection without damaging living tissues. |
| (c) Chemicals that can only kill or prevent infection on non-living tissues | (d) Chemicals that can only kill or prevent infection on animal housing |
- (x) Mechanism of killing of ethylene oxide is
- | | |
|--|--|
| (a) Oxidation of cellular constituents | (b) Coagulation of cellular constituents |
| (c) Alkylation of sulphhydryl, carboxyl and hydroxyl group of proteins of cellular | (d) All of the above |
- (xi) Glass ware usually sterilize by
- | | |
|------------------|--------------------------|
| (a) Autoclave | (b) Hot air oven |
| (c) Laminar flow | (d) Filtration technique |
- (xii) What are adverse drug reactions (ADRs)
- | | |
|---|--|
| (a) The synergistic effects that are seen when some drugs are administered concurrently | (b) Responses to increased drug doses required to achieve the same physiological outcome |
|---|--|
- | | |
|--|---|
| (c) Unintended alternative physiological responses caused by the drug that cause harm to the patient | (d) Harmful chemical interactions between two drugs that are used to treat the same clinical symptoms |
|--|---|
- (xiii) Pyrogens are
- | | |
|---|---|
| (a) Small organism present in parenteral preparations | (b) Metabolic by-product of microorganisms |
| (c) Use to ill the microorganism | (d) Act as medium for growth of microorganism |
- (xiv) Radiopharmaceuticals can be produced by
- | | |
|-----------------------------|----------------------|
| (a) Nuclear reactor | (b) Cyclotron |
| (c) Radioisotopes generator | (d) All of the above |
2. Write a short notes on any four : [3.5×4=14]
- Responsibilities of a hospital pharmacist
 - Medication error
 - Types of material for sterilization
 - Inventory control
 - Labelling of pharmaceutical preparations
3. Attempt any two questions of the following. [7×2=14]
- Write a note on budget preparation and its implementation in a hospital
 - Define drug distribution systems in Hospitals. Discuss out – patient dispensing in detail.
 - Define various storage conditions for drugs. Discuss the types of materials to be stocked in the hospital.

4. Attempt any two questions of the following.

[7×2=14]

- (i) Define sterilization. Enlist various methods of sterilization. Discuss autoclave in detail.
- (ii) Define nuclear pharmacy. Discuss the production of radiopharmaceuticals.
- (iii) Hospitals formulary and its importance
- (iv) Patient medication profile.

5. Attempt any One of the following:

[14×1=14]

- (i) Discuss the organization, objectives and functions of hospital.
- (ii) What do you mean by drug information services? Discuss the various sources of drug information.

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B.PHARM.

(VIII SEM.) EXAMINATION

(PHARM. INDUSTRIAL MANAGEMENT)

Time : 3 Hours]

[Max. Marks : 70

Note: *Attempt any five questions. Q.1 is compulsory. Each questions carries equal marks.*

1. Attempt all questions:

[1×14=14

- (i) The word _____ denotes a functions, a task, a discipline
 - (a) Organizing
 - (b) Delegating
 - (c) Controlling
 - (d) Planning
- (ii) In law of demand, price and demand have _____
 - (a) Direct relationship
 - (b) Inverse relationship
 - (c) a and b both
 - (d) None of these
- (iii) A Manager at the first level of Management is known as
 - (a) top executive
 - (b) Middle Manager
 - (c) Assembly line worker
 - (d) Supervisor
- (iv) The following is not a job training method.
 - (a) Under study
 - (b) Job Rotation
 - (c) Management by objective
 - (d) Case study method (HBO)
- (v) Identify the principle when each worker should have only one boss
 - (a) Unity of Direction
 - (b) Unity of command
 - (c) Equity
 - (d) Authority
- (vi) Conversion of subject matter into symbol such as words, actions or pictures in the process of
 - (a) Decoding
 - (b) Feedback
 - (c) Encoding
 - (d) Sender

- (vii) What is the natural perception of people on the process of recruitment
- (a) Positive (b) Negative
- (c) Both positive and negative (d) None of the above
- (viii) In which channel, products are sold to be customers through retailers
- (a) Zero level (b) one level
- (c) Two level (d) Three level
- (ix) In which of the following, we record the credit purchase of goods
- (a) Sales Book (b) Purchase Book
- (c) Case Book (d) Ledger
- (x) Which of the following are types for segmenting the market:
- (a) Demographic
- (b) Geographic
- (c) Psychographic
- (d) All of the above
- (xi) Under the Insurance contract, both the parties should have faith over each other:
- (a) Principle of utmost good faith (b) Principle of Insurable interest
- (c) Principle of indemnity (d) Principle of subrogation
- (xii) Which of the following is concerned with planning, organizing and flow of materials
- (a) Product Management (b) Material management
- (c) Marketing management (d) Administrative management
- (xiii) the procedure followed to rectify the errors in the books of accounts is called
- (a) Errors (b) Omission of errors

- (c) Rectification of errors (d) partial errors
- (xiv) The objectives of production management is
- (a) right quality (b) right quantity
- (c) Right time & cost (d) All of the above

2. Discuss the stages involved in the procedure of exports [14]
3. Explain the 14 principles of Management in detail. [14]
4. Define Administrative Management. Explain its managerial functions. [14]
5. Discuss some methods for training of employers [14]
6. Define Market segmentation. Explain all the variables for segmenting the consumer markets. [14]
7. What is Recruitment? Explain the various sources for requirement of Employees [14]

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B.PHARM.

(4th YEAR, VIII SEM.) EXAMINATION

Elective (NOVEL DRUG DELIVERY SYSTEM)

Time : 3 Hours]

[Max. Marks : 70

Note: Attempt all question as per Instructions.

1. Attempt All questions :

[1×14=14

(i) Which one of the following is NOT true?

(a) Modified release formulations are most useful for drugs with long half-life
(b) Modified release formulations can often reduce side-effects

(c) Modified release formulations can improve patient compliance
(d) Modified release formulations can be used for local drug delivery

(ii) Which of the following medicines does not rely on topical drug delivery?

(a) Nasal spray
(b) Anti-dandruff shampoo
(c) Insulin pen
(d) Nicotine patch

(iii) A tablet to treat a headache must first be dissolved in water before swallowing. Which one of the following best describes this type of tablet?

(a) Modified release
(b) Oral disintegrating
(c) Effervescent
(d) Buccal

(iv) Which of the following is not a category of liposomes

(a) Oligoamellar vesicles
(b) Unilamellar vesicles
(c) Bilamellar vesicles
(d) Multilamellar vesicles

(v) Which of the following properties of liquid dosage forms applied in ocular therapy leads to their poor bioavailability?

- (a) They adhere to the surface of the cornea and the conjunctiva (b) They minimize precorneal loss
- (c) They maximize corneal absorption (d) Their pre-corneal clearance is quick
- (vi) Niosomes are prepared from
- (a) Phospholipids (b) Lecithin
- (c) Nonionic surfactant (d) Spingolipid
- (vii) What is the dermal preparation
- (a) Paste (b) Film
- (c) Cream (d) All of them
- (viii) The possible mechanism of permeation of drug through iontophoresis is
- (a) Active transport (b) Passive transport
- (c) pH partition (d) None
- (ix) Which of the following drug delivery systems has the longest duration of action?
- (a) Nasal preparations (b) Depot injections
- (c) Transdermal patches (d) Implants
- (x) Which of the following methods is unable to improve drug release from transdermal therapeutic systems
- (a) Increasing the surface area of the absorption (b) Applying iontophoresis
- (c) Applying microneedles (d) Applying liposomes
- (xi) Sustained release tablets should follow..... order of kinetics
- (a) First order kinetic (b) Pseudo-first order kinetic
- (c) Zero order kinetic (d) Second order kinetic
- (xii) Which of the following formulations would not be applicable to ocular administration
- (a) Solution (b) Liniment
- (c) Suspension (d) Ointment

(xiii) A molecule that specifically required 'bioactivation' for change in to a pharmacology active molecule

- (a) Enzyme (b) Prodrug
- (c) Vaccine (d) None

(xiv) Which one of the following is NOT true?

- (a) Drug release from reservoir systems is controlled by diffusion (b) Drug release from matrix systems is controlled by diffusion
- (c) Drug release from reservoir systems normally follow zero-order kinetics (d) Drug release from matrix systems normally follows zero-order kinetics

2. Write a short note on (any four)

[3.5×4=14]

- (i) Write a note on iontophoresis
- (ii) Discuss the concept of drug targeting.
- (iii) Write a note on drug immobilization techniques
- (iv) Write a note on erythrocytes
- (v) Write a note on pharmacosomes

3. Attempt any two questions of the following.

[7×2=14]

- (i) Write a note on nanoparticles
- (ii) Write a note on liposomes
- (iii) Write a note on niosomes

4. Attempt any two questions of the following.

[7×2=14]

- (i) Write a note on nasal drug delivery
- (ii) Write a note on ocular drug delivery
- (iii) Write a note on colonic drug delivery

5. Attempt any one of the following:

[14×1=14]

- (i) Discuss the design and evaluation methods of implants.
- (ii) Discuss the various methods for the preparation of microencapsulation.

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B.PHARM.

(4th YEAR, VIII SEM.) EXAMINATION

JUN 2018

Elective (NOVEL DRUG DELIVERY SYSTEM)

Time : 3 Hours]

[Max. Marks : 70

Note: Attempt all question as per Instructions.

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[1×14=14

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(d) Buccal

(iv) Which of the following is not a category of liposomes

(a) Oligoamellar vesicles

(b) Unilamellar vesicles

(c) Bilamellar vesicles

(d) Multilamellar vesicles

(v) Which of the following properties of liquid dosage forms applied in ocular therapy leads to their poor bioavailability?

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(xiii) A molecule that specifically required 'bioactivation' for change in to a pharmacology active molecule

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- (c) Vaccine (d) None

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- (c) Drug release from reservoir systems normally follow zero-order kinetics (d) Drug release from matrix systems normally follows zero-order kinetics

2. Write a short note on (any four)

[3.5×4=14]

- (i) Write a note on Ionotophoresis
- (ii) Discuss the concept of drug targeting.
- (iii) Write a note on drug immobilization techniques
- (iv) Write a note on erythrocytes
- (v) Write a note on pharmacosomes

3. Attempt any two questions of the following.

[7×2=14]

- (i) Write a note on nanoparticles
- (ii) Write a note on liposomes
- (iii) Write a note on niosomes

4. Attempt any two questions of the following.

[7×2=14]

- (i) Write a note on nasal drug delivery
- (ii) Write a note on ocular drug delivery
- (iii) Write a note on colonic drug delivery

5. Attempt any one of the following:

[14×1=14]

- (i) Discuss the design and evaluation methods of implants.
- (ii) Discuss the various methods for the preparation of microencapsulation.

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B.PHARM.

(4th YEAR, VIII SEM.) EXAMINATION

Elective (GMP, QUALITY ASSURANCE AND VALIDATION)

Time : 3 Hours]

[Max. Marks : 70

Note: *Attempt all question as per Instructions. Draw well labeled diagram wherever necessary.*

1. Attempt All questions :

[1×14=14

(i) Identification of amino acid by TLC the best reagent are

- | | |
|---------------------|-----------------------|
| (a) Copper sulphate | (b) Ninhydrin |
| (c) Iodine | (d) KMno ₄ |

(ii) The mean of sampling distribution is

- | | |
|--|--|
| (a) Less then mean of process distribution | (b) More then mean of process distribution |
| (c) Equal to mean of process distribution | (d) Any of the above |

(iii) Efficiency of HEPA filter should be

- | | |
|-----------|-----------|
| (a) 99.99 | (b) 99.87 |
| (c) 99.96 | (d) 99.56 |

(iv) Government Opium factory situtated at

- | | |
|------------|---------------|
| (a) Delhi | (b) Hyderabad |
| (c) Mumbai | (d) Neemuch |

(v) Rf value ranges from

- | | |
|--------------|----------------|
| (a) 0 to 1 | (b) 0 to 02.00 |
| (c) +2 to -2 | (d) +1 to -1 |

(vi) Central tendency of a process is monitored in

- | | |
|-----------------|----------------|
| (a) Range chart | (b) Mean chart |
| (c) p- chart | (d) c-chart |

- (vii) RM value is
 (a) $1/R_f$ (b) $\log R_f$
 (c) $(\log 1/R_f - 1)$ (d) $(\log 1/R_f + 1)$
- (viii) GMP falls in
 (a) Schedule X (b) Schedule J
 (c) Schedule M (d) All of the above
- (ix) The principle in paper chromatography are
 (a) Adsorption (b) Partition
 (c) Ionexchange (d) Molecular diffusion
- (x) The mobile phase used in GSC or GLC
 (a) Organic solvent (b) Buffers
 (c) Non polar solvent (d) Carrier Gas
- (xi) High, cost, low volume items requires
 (a) No inspection (b) Little inspection
 (c) Intensive inspection (d) 100% inspection
- (xii) Temperature used in hot air oven
 (a) 100°C for 1 hour (b) 120°C for 1 hour
 (c) 160°C for 1 hour (d) 60°C for 1 hour
- (xiii) Dispersion of a process in monitored in
 (a) Range chart (b) Mean chart
 (c) p-chart (d) c-chart
- (xiv) Process control is carried out
 (a) Before production (b) During production
 (c) After production control (d) All of the above

2. Attempt any four questions of the following. [3.5×4=14]
 (i) Write a note on master formula record.
 (ii) How standard operating procedures (SOP) is useful towards smooth manufacturing.
 (iii) Give an introductory note on Total Quality Management.
 (iv) Discuss different source of quality variation in drug manufacturing.
 (v) What do you mean by NDA? Comment.
3. Attempt any two questions of the following. [7×2=14]
 (i) Give a short note on GLP.
 (ii) Define the term "validation". Describe the stages occurred towards validation.
 (iii) Discuss the safety measure required during an analytic process.
4. Attempt any two questions of the following. [7×2=14]
 (i) Differentiate between the GMP and cGMP.
 (ii) Discuss the validation of analytical method.
 (iii) Write short note on sampling plan.
5. Attempt any One of the following: [14×1=14]
 (i) Give the basic concept of quality assurance system.
 (ii) Discuss in detail control of quality variation.

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B.PHARM.**(4th YEAR, VIII SEM.) EXAMINATION
STANDARDIZATION OF HERBAL DRUGS***Time : 3 Hours]**[Max. Marks : 70***Note:** *Attempt all question as per Instructions. Draw well labeled diagram wherever necessary.***1. Attempt All questions :****[1×14=14**

- (i) The 1mg of Lycopodium contains how many sports:
- (a) 94000 (b) 9400
(c) 96000 (d) 9600
- (ii) Vein-islet number of *Dhaturametel*
- (a) 19-22 (b) 12-16
(c) 18-24 (d) 9-11
- (iii) Palisade ratio of *Digitalis purposes*
- (a) 3.7-4.2 (b) 5-6.5
(c) 2.2-3.6 (d) 4.2-5.5
- (iv) Which is note a character of leaf epidermis
- (a) Cuticle stomata (b) Trichomes
(c) Water – pore (d) Chlorophyl
- (v) Multicellular, unbranched, uniseriate, bi-cellular, conical trichome are present in
- (a) Datura (b) Dugitalis
(c) Ephedra (d) Belladonna
- (vi) Which is not a type of calcium oxalate crystals present in plant
- (a) Prismatic (b) Acicular
(c) Tetragonal (d) Macrospenoidal

- (vii) Moisture content in extract can be determined by
 (a) Karl-Fisher Reagent (b) H₂O₂ treatment method
 (c) Sonication (d) Ash value
- (viii) Rf value varies from
 (a) 1 to 14 (b) 0 to 1
 (c) 0 to 10 (d) -1 to +1
- (ix) LOD is abbreviated form of
 (a) Loss of drying (b) Loose on drying
 (c) Loss on drying (d) Loss on drying
- (x) Herbs are dried in
 (a) Sunlight (b) Dark
 (c) Shade (d) Morning and evening sunlight
- (xi) Which is quantitative method
 (a) Immunoassay (b) Mass spectrometry
 (c) NMR spectrometry (d) FTIR spectrometry
- (xii) Addition on one pure drug with another pure drug by mistake/accident is termed as
 (a) Deterioration (b) Contamination
 (c) Substitution (d) Cross-contamination
- (xiii) Volatile oil from flower or leaf is obtained using
 (a) Clevenger apparatus (b) Soxhlet apparatus
 (c) Distillation apparatus (d) Evaporator
- (xiv) Rf value is used in
 (a) Thin layer Chromatography (b) High performance liquid chromatography
 (c) Column chromatography (d) Gas chromatography

2. Attempt any four questions of the following. [3.5×4=14]

- Discuss general methods for screening of natural products for antifertility activity.
- Discuss general methods for screening of natural products for hypoglycemic activity.
- Discuss general methods for screening of natural products for anti-bacterial activity.
- Discuss methods of extract oils from herbs.
- Discuss morphological evaluation of herbal drug.

3. Attempt any two questions of the following. [7×2=14]

- Discuss quality control of herbal drugs.
- Discuss various Ayurveda formulation.
- Discuss various types of ash values.

4. Attempt any two questions of the following. [7×2=14]

- Discuss WHO guidelines regarding standardization of herbs.
- Discuss general methods for screening of natural products for psychopharmacological activity.
- Discuss extraction and isolation of any one drug.

5. Attempt any One of the following: [14×1=14]

- What are chromatographically techniques used for standardization of drug?
- What are physical and chemical standardization parameters for herbal drugs?