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Roll No.

341751(41)

**B. Pharmacy (Seventh Semester) Examination,
April-May/Nov.-Dec. 2020**

(PCI Scheme)

(Pharmacy Branch)

INSTRUMENTAL METHODS of ANALYSIS - Theory

(Theory : BP701T)

Time Allowed : Three hours

Maximum Marks : 75

Note : Question paper is of three parts i.e. Part A, B and C. Part A consist of 20 MCQ's each of 1 mark. All questions are compulsory. Part B consists of 3 long answer questions of which attempt any two. Each of 10 marks. Part C consists of 9 short answer questions, attempt any seven question. Each of 5 marks.

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Part-A

(Multiple Choice Questions) 20×1=20

1. (i) Which technique is used to analyze colloidal system ;
- (a) Nephelometry
 - (b) Turbidimetry
 - (c) (a) and (b)
 - (d) None
- (ii) The intensity of scattered light is usually measured at which angle :
- (a) 90°
 - (b) 44°
 - (c) 60°
 - (d) 70°
- (iii) Ultraviolet spectrascopy wavelength range is :
- (a) 200 to 300 nm
 - (b) 200 to 400 nm
 - (c) 400 to 800 nm
 - (d) All of the above

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- (iv) $n \rightarrow \sigma^*$ transition is seen in which compound :
- (a) Alcohol
 - (b) Aromatic compounds
 - (c) Carbonyle compounds
 - (d) None
- (v) Which compound shows $\pi \rightarrow \pi^*$ transition :
- (a) Double & triple bond containing compounds
 - (b) Aromatic compound
 - (c) (a) and (b)
 - (d) None
- (vi) Which statement is false about Chromphore :
- (a) It is covalent unsaturated compound
 - (b) It contains π electron
 - (c) They require high energy for electron transition
 - (d) They require low energy for electron transition

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- (vii) λ_{max} increases with absorption of radiation in which shift :
- (a) Red shift
 - (b) Blue shift
 - (c) (a) and (b)
 - (d) None
- (viii) Which type of vapour is stored in Mercury lamp:
- (a) Mercury vapour
 - (b) Hydrogen vapour
 - (c) Xe
 - (d) Ozone
- (ix) Which is important region in IR spectra :
- (a) Finger print region
 - (b) Functional group region
 - (c) (a) and (b)
 - (d) None
- (x) Which movement is required for the IR spectroscopy :

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- (a) Dipole movement
 - (b) Spin movement
 - (c) Round movement
 - (d) All of the above
- (xi) In which type of vibration, bond angle decreases:
- (a) Symmetrical
 - (b) Asymmetrical
 - (c) Rocking
 - (d) Scissoring
- (xii) Nujol is :
- (a) Polymer
 - (b) Crude oil
 - (c) Mineral oil
 - (d) Volatile oil
- (xiii) Which material is used to prepare rod of globar source :
- (a) Silicon dioxide
 - (b) Silicon carbide

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- (c) Silicon oxide
- (d) All of the above
- (xiv) Full form of TLC is :
- (a) Thin layer chromatography
- (b) Thick layer chromatography
- (c) Tough layer chromatography
- (d) None of the above
- (xv) Which force is involved in chromatography?
- (a) Hydrogen bonding
- (b) London force
- (c) Electrostatic force
- (d) All of the above
- (xvi) The compounds with more affinity towards stationary phase will :
- (a) travel slow
- (b) travel fast
- (c) (a) and (b)
- (d) None

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- (xvii) Which of the following is not a feature of carrier gas used in gas chromatography :
- (a) It must be chemically inert
- (b) It should be suitable for the detection
- (c) It should not be completely pure
- (d) It should be cheap
- (xviii) Which detector is not used in GC :
- (a) FID
- (b) TCD
- (c) (a) and (b)
- (d) TMD
- (xix) In reverse phase HPLC, there is a :
- (a) Non-polar solvent / polar column
- (b) Polar solvent / Non-polar column
- (c) Polar solvent / Polar column
- (d) All of the above
- (xx) Which of the following columns are not used in liquid or high performance liquid chromatography
- (a) Analytical column

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- (b) Separation column
- (c) Guard column
- (d) Capillary column

Part-B

(Long Answer Type Questions) 2×10=20

Note : Attempt any two questions.

2. What is Beer-Lambert's Law? Discuss in detail with mathematical derivation.
3. Discuss about different types of vibrational motion. Explain in brief different factors affecting vibrations.
4. Write the principle, construction and working of Gas Chromatography detectors.

Part-C

(Short Answer Type Questions) 7×5=35

Note : Attempt any seven questions.

5. Discuss about flame photometry in brief including its principle, instrumentation and applications.

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6. Explain in brief about different detectors used in HPLC.
7. Write a short note on ion-exchange chromatography
8. Write a detailed note on Nepheloturbidometry
9. Discuss about principle, methodology, advantages and disadvantages of thin layer chromatography.
10. Give a note on factors affecting electrophoretic mobility.
11. Write a note on detectors of IR spectrometer.
12. Discuss concept of different electronic states in fluorimetry.
13. Write the instrumentation of UV spectrophotometer.

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**B. Pharmacy (Seventh Semester) Examination,
April-May/Nov.-Dec. 2020**

(PCI Scheme)

INDUSTRIAL PHARMACY THEORY

(BP702T)

Time Allowed : Three hours

Maximum Marks : 75

***Note : Read all the instruction carefully given in part
I, II and III.***

Part-I

(Multiple Choice Questions) 20×1=20

***Note : Attempt all the questions. Each question
carries 1 mark.***

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1. Choose the correct answer :

- (i) The part of pharmaceutical industry where a lab scale formula is transformed into a viable product by development of reliable practical method of manufacture is called :
- (a) Scale up
 (b) Pilot plant
 (c) Production
 (d) All of these
- (ii) The space required in pilot is divided into :
- (a) Administration and information area
 (b) Physical testing area
 (c) Standard equipment and floor space
 (d) All of these
- (iii) The full name of SUPAC is :
- (a) Scale up and postapproval changes
 (b) Scale up and preapproval changes
 (c) Sale up present changes
 (d) None of these

- (iv) Which of the following is not a scale-up process?
- (a) Laboratory to pilot-scale
 (b) Pilot-scale to industrial-scale
 (c) Industrial to pilot-scale
 (d) Laboratory to industrial-scale
- (v) Which of the following is not the step in technology transfer process?
- (a) Research phase
 (b) Control phase
 (c) Development phase
 (d) Production phase
- (vi) The product name along with its strength, generic name, MFC number, effective date, shelf life, market, packaging details, are given in :
- (a) Master formula card
 (b) Master packaging card
 (c) Master formula
 (d) Specifications and standard test procedure
- (vii) The transfer of technology between sites of different companies is called as :

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- (a) Inter-company transfer
 - (b) Intra-company transfer
 - (c) Technology transfer
 - (d) Technology transfer protocol
- (viii) National Research Development Corporation (NRDC) was established in India by the Government of India in :
- (a) 1953
 - (b) 1970
 - (c) 1980
 - (d) 1990
- (ix) CTD is divided into modules.
- (a) 3
 - (b) 4
 - (c) 5
 - (d) 6
- (x) Which of the responsibility's of regulatory affair personnel?
- (a) To analyze the content of the active ingredient in the formulation

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- (b) Work with federal, state and local governing agencies to get the approval for drug
 - (c) To undertake stability studies of the drug products
 - (d) To supervise the production of the formulation
- (xi) What is the primary focus of Phase III clinical testing?
- (a) How to manage costs?
 - (b) To generate data regarding the efficacy and safety of the drug
 - (c) The optimal range of effective dosage.
 - (d) The analysis of data results from the small-subset target population
- (xii) The guidelines for good manufacturing practice in India is :
- (a) 21CFR Part 4
 - (b) Scheduling M
 - (c) 21CFR Part 211
 - (d) Eudralex Volume 4

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- (xiii) The part of a quality system covering the manufacture and testing of pharmaceutical dosage forms or drugs and active pharmaceutical ingredients, diagnostics, pharmaceutical products and medical devices is called :
- (a) Good manufacturing practice (GMP)
 - (b) Good regulatory practice (GRP)
 - (c) Good clinical practice (GCP)
 - (d) Good laboratory practice (GLP)
- (xiv) Which of the following was developed by Bill Smith to improve its processes by minimizing defects?
- (a) ISO
 - (b) Continuous improvement
 - (c) Six sigma
 - (d) Quality control
- (xv) Which of the following concerned about quality for achievement of TQM?
- (a) The Managing Director
 - (b) The Operative

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- (c) The Quality Manager
 - (d) Everyone in the organization
- (xvi) The objective of ISO-9000 family of quality management is :
- (a) Customer satisfaction
 - (b) Employee satisfaction
 - (c) Skill enhancement
 - (d) Environmental issues
- (xvii) Central Drugs Standard Control Organisation regulates pharmaceutical and medical devices. Who is the head of CDSCO?
- (a) Drug Controller General of India
 - (b) Auditor General of India
 - (c) Chief Medical Officer
 - (d) None of these
- (xviii) Where is the headquarter of CDSCO present?
- (a) New Delhi
 - (b) Mumbai
 - (c) Kolkata
 - (d) Hydrabad

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- (xix) Full name of NABL is :
- National Accreditation Board for Testing and Calibration Laboratories
 - National Affiliation Board for Lab Equipment
 - National Associated Board for Lab Test
 - None of these
- (xx) The following is considered as a division of CDCSO :
- Clinical trails
 - Biologicals
 - DCC-DTAB
 - All of these

Part-II

(Long Answer Type Questions) 2×10=20

Note : Attempt any two questions. Each question carries 10 marks.

2. Write about significance of personnel requirement in pilot plant scale up technique. Discuss pilot plant scale up technique for solid dosage form.

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3. Explain technology transfer protocol and technology transfer from R & D to production.
4. Discuss responsibility of regulatory affairs professionals. Write in details about Investigational New Drug (IND) application process.

Part-III

(Short Answer Type Questions) 7×5=35

Note : Attempt any seven questions. Each question carries 5 marks.

5. Discuss SUPAC guidance.
6. Describe validation in technology transfer process.
7. Explain new drug application for drug approval process.
8. Discuss GLP in details.
9. Write note on quality by design.
10. Discuss clinical research protocols for drug approval process.

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11. Describe total quality management system.
12. Explain organization and responsibility of CDSCO.
13. Discuss six sigma as quality management system in pharmaceutical industry.

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**B. Pharmacy (Seventh Semester) Examination,
April-May/Nov.-Dec. 2020**

(PCI Scheme)

PHARMACY PRACTICE-THEORY

Time Allowed : Three hours

Maximum Marks : 75

Note : Answer all questions from section A. Attempt any two questions from section B and seven questions from section-C.

Section-A

(Multiple Choice Questions) 20×1=20

Note : Attempt all questions from MCQs. All questions carry 1 mark.

1. Multiple Choice questions :

- (i) The word "Hospital" originated from Latin word :
- (a) Hospital
 - (b) Hospice
 - (c) Asclepieia
 - (d) None of the above
- (ii) The objective of hospital pharmacy is :
- (a) To teach hospital pharmacist about ethics of hospital pharmacy
 - (b) To ensure the availability of right medication at reasonable cost
 - (c) To attract greater number of qualified at reasonable cost
 - (d) All of the above
- (iii) The licenses for the restricted sale of drugs are those specified in schedule C1 not in X are issued in the form of respectively :
- (a) 20 A and 21 B
 - (b) 20 B and 21 A

- (c) 20 A and 21 A
 - (d) 20 B and 21 B
- (iv) Selection of drugs in charge floor stock system was decided by :
- (a) PTC
 - (b) Halhi committee
 - (c) Administrative committee
 - (d) None of the above
- (v) The list of drugs used in the hospital is called as :
- (a) Satellite pharmacy
 - (b) Hospital formulary
 - (c) P and TC
 - (d) Bed side pharmacy
- (vi) Hospital formulary in hospital must approved under :
- (a) Pharmacy Act, 1948
 - (b) Drug and Cosmetic Act, 1990
 - (c) Both Pharmacy Act, 1948 and Drug and Cosmetic Act, 1940

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- (d) None of the above
- (vii) Medication adherence is used to :
- (a) Decrease patient safety
 - (b) Increase health care costs
 - (c) Improves long-term therapies and outcomes
 - (d) All of the above
- (viii) information sources are used in medication history interview :
- (a) TDP
 - (b) PTC
 - (c) DPIN
 - (d) None of the above
- (ix) The legal requirements involved in payment of price are :
- (a) Time of payment
 - (b) Place of payment
 - (c) Mode of payment
 - (d) All of the above

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- (x) The function of P and TC in hospital is :
- (a) Note review adverse drug reactions
 - (b) Develop policies regarding drug safety
 - (c) Increase duplication of drugs
 - (d) All of the above
- (xi) Medline database is produced by :
- (a) MEDLARS
 - (b) MEDLINE
 - (c) NLM
 - (d) MICROMEDEX
- (xii) The quality of good counselor in patient counselling is :
- (a) Be a good listener
 - (b) Be flexible
 - (c) Be empathetic
 - (d) All of the above
- (xiii) Internal teaching program involved in training of in hospital :
- (a) Student nurses
 - (b) Post graduate student

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- (c) Physical
- (d) Administrator
- (xiv) In prescription, inscription contain :
- (a) Date of issue of the prescription
- (b) Name and quantity of prescribed ingredients
- (c) Prescriber direction to the pharmacists
- (d) Name and addressed of patient
- (xv) The word "budget" derived from the old English word :
- (a) Budgettee
- (b) Sack
- (c) Pouch
- (d) Sachet
- (xvi) "The Thalidomide Tragedy" is consumption of drugs :
- (a) Analgesic
- (b) Steroidal
- (c) Sedative
- (d) Sulpha

- (xvii) OTC drugs used as anti-histaminic drugs :
- (a) Diphenhydramine
- (b) Bromophenaramine
- (c) Chlorophenaramine
- (d) All of the above
- (xviii) The excess of codeine OTC drugs use may lead to :
- (a) Liver damage
- (b) High blood pressure
- (c) Drowsiness
- (d) Stomach bleeding
- (xix) Mention the items which cannot be represented by inventory carrying cost :
- (a) Deterioration cost
- (b) Taxes are inventory
- (c) Insurance cost
- (d) All of the above
- (xx) is not part of nurse data sheet in IUD :
- (a) Name of the investigations drugs
- (b) Manufacturer or other source

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(c) Strength and form of investigational drug

(d) Amount received

Section-B

(Long Answer Type Questions) 2×10=20

Note : Answer any two questions. Each question carries 10 marks.

2. Explain drug distribution system in hospital to out-patient.
3. Write an objective of layout design and plan of an ideal retail and whole sale drug store.
4. Write objective of inventory control. Discuss classification of inventory control.

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Section-C

(Short Answer Type Questions) 7×5=35

Note : Attempt any seven questions. Each questions carries 7 marks.

5. Write objective of hospital pharmacy
6. Why coding is important for drug use?
7. Give difference between floor and non floor stock system.
8. Write the goal of medication history interview.
9. Write a note on therapeutic drug monitoring.
10. What is community pharmacy medicine management?
11. Write note on drug information services.
12. What are OTC drugs? Discuss history behind the OTC drugs.
13. Write characteristics and importances of budget.

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**B. Pharmacy (Seventh Semester) Examination,
April-May/Nov.-Dec. 2020**

(PCI Scheme)

(Pharmacy Branch)

NOVEL DRUG DELIVERY SYSTEM-THEORY

(BP704T)

Time Allowed : Three hours

Maximum Marks : 75

Note : All the sections are compulsory. Internal options are given in section (b) and (c).

Section-A

(Multiple Choice Questions)

Note : Attempt all questions. Each question carries 1 mark.

1. Choose the correct answer : 20×1=20

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- (i) Which of the following is an advantage of controlled drug delivery?
- (a) Poor patient compliance
 - (b) Maintenance of steady plasma level of the drug
 - (c) May lead to under medication or over medication
 - (d) Unavoidable fluctuations of drug concentration
- (ii) Controlled release drug delivery follows :
- (a) First order drug release
 - (b) Second order drug release
 - (c) Zero order drug release
 - (d) Pseudo zero order drug release
- (iii) Which of the following is a natural polymer?
- (a) Poly lactic Acid
 - (b) Poly lactic-co-glycolic acid
 - (c) Poly capro lactone
 - (d) Chitosan
- (iv) The number of monomers that combine together to form a polymer molecule is called :

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- (a) Degree of Polymerisation
 - (b) Addition polymerisation
 - (c) Crosslinking
 - (d) Condensation Polymerisation
- (v) In microcapsules core material may consist of :
- (a) Polyacrylates
 - (b) Chitosan
 - (c) Starch derivatives
 - (d) Drug
- (vi) Surface morphology of microcapsules is determined by :
- (a) Phase contrast microscopy
 - (b) Scanning electron microscopy
 - (c) Transmission electron microscopy
 - (d) None of the above
- (vii) Bioadhesion implies attachment of a drug carrier system to :
- (a) A specific biological location
 - (b) A mucus coat

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- (c) Both of the above
- (d) None of the above
- (viii) Higuchi Leeper Pump doesn't contain :
- (a) Salt Chamber
- (b) Water Chamber
- (c) Drug Chamber
- (d) None of the above
- (ix) Rose Nelson Pump consist of chambers.
- (a) 1
- (b) 2
- (c) 3
- (d) 4
- (x) Swelling and expanding systems are also known as :
- (a) Floating systems
- (b) Plug type system
- (c) Mucoadhesive system
- (d) Effervescent system

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- (xi) Hydrodynamically balanced system is also known as :
- (a) Plug type system
- (b) Effervescent system
- (c) Floating systems
- (d) Mucoadhesive system
- (xii) Avelumab is a type of :
- (a) Liposomes
- (b) Monoclonal Antibodies
- (c) Nanoparticles
- (d) Niosomes
- (xiii) Which of the following is not a component of Liposomes?
- (a) Lecithin
- (b) Phospholipids
- (c) Cholesterol
- (d) Polymer
- (xiv) The active ingredient of NITRO DUR transdermal patch is :

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- (a) Nitroglycerine
 - (b) Norelgestromin
 - (c) Lidocaine
 - (d) Nicotine
- (xv) Ligands are :
- (a) Active agents which interact exclusively with specific targets/receptors
 - (b) Antigens
 - (c) Receptors
 - (d) Lipid components of the cell membrane
- (xvi) In reservoir type diffusion systems, the rate of release of drug is given by :
- (a) Nerst law
 - (b) Fick's Ist Law of Diffusion
 - (c) Noyes and Whitney equation
 - (d) None of the above
- (xvii) Antiviral drug loaded in carriers having antiviral activity is an example of :
- (a) Physical targeting

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- (b) Dual Targeting
 - (c) Inverse Targeting
 - (d) Double targeting
- (xviii) Alzet osmotic pump is a type of :
- (a) Diffusion Controlled release system
 - (b) Activated controlled released system
 - (c) Microreservoir dissolution controlled system
 - (d) None of the above
- (xix) Which of the following drug is used in ocusert system?
- (a) Progesterone
 - (b) Pilocarpine
 - (c) Metronidazole
 - (d) Mebendazole
- (xx) An example of IUD's (Intra Uterine Device) is :
- (a) Progestasert
 - (b) OROS
 - (c) Compudose implant
 - (d) Syncro-Mate-B implant

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Section-B

(Long Answer Type Questions) 2×10=20

Note : Attempt any two questions. Each question carries 10 marks.

2. What is Microencapsulation? Describe any two techniques of Microencapsulation.
3. Describe various formulation approaches for the development of Transdermal drug delivery systems.
4. Describe the physicochemical and biological properties of drug influencing design of controlled release drug delivery system.

Section-C

(Short Answer Type Questions) 7×5=35

Note : Attempt any seven questions. Each question carries 5 marks.

5. Differentiate between controlled and sustained release dosage forms. Define delayed release and extended release dosage forms.

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6. Describe any one implantable Osmotic pump in detail.
7. Give the advantages and disadvantages of mucoadhesive drug delivery system.
8. Discuss the pharmaceutical applications of (any two) :
 - (a) Liposomes
 - (b) Nanoparticles
 - (c) Monoclonal Antibodies
 - (d) Niosomes
9. Give a brief account on formulations of Nasopulmonary drug delivery system.
10. Describe floating drug delivery system.
11. Describe the principle of bioadhesion/mucoadhesion.
12. Give different methods or approaches to overcome ocular barriers.
13. Give advantage and disadvantages of intrauterine devices with examples.

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