AIKTC KALSEKAR TECHNICAL CAMPUS

Knowledge Resource & Relay Centre (KRRC)

AIKTC/KRRC/SoP/ACKN/QUES/2018-19/

Date: _____

School: _SoP-CBCS_   Branch: __SoP__   SEM: ___VI___

To,
Exam Controller,
AIKTC, New Panvel.

Dear Sir/Madam,

Received with thanks the following **Semester/Periodic** question papers from your exam cell:

Sr. No.	Subject Name	Subject Code	Format SC	HC	No. of Copies
1	Pharmaceutical Chemistry I	BPH_C_601_T		✓	02
2	Pharmaceutics III	BPH_C_602_T		✓	02
3	Pharmaceutical Analysis II	BPH_C_603_T		✓	02
4	Pharmacognosy II	BPH_C_604_T		✓	02
5	Biopharmaceutics & Pharmacokinetics			✓	02
6	Pharmaceutical Excipients			✓	02

Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

03/05/19 sem - VI
CBCS

Time: 3 Hours

Marks : 80

NOTE: All questions are compulsory
   Write structures and reactions wherever necessary

Q.1.A. Answer the following (Any Eight):   (08)
   i. Give an example of a bacterial enzyme and its inhibitor
   ii. Give an example of a drug that targets a nucleic acid
   iii. 'logP influences biological activity'-explain with a suitable example
   iv.   Write the generic name and structure for: 2-Ethylthioisonicotinamide
   v. Identify the forces that are involved in stabilization of the DNA helix
   vi. Explain-'Hydrophobic interactions'
   vii. Give an example of a drug that intercalates with DNA
   viii. Identify the structure given below and write the active form:
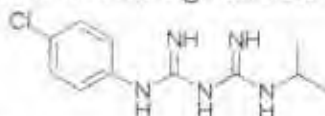
   ix. Write the structure and generic name of:
       (S)-[2,8-bis(trifluoromethyl)quinolin-4-yl]-[(2R)-piperidin-2-yl]methanol

   B. Answer in brief: (08)
   i. Using a suitable example bring out the influence of geometric isomerism on biological
      activity
   ii.   Explain the following terms: a) Efficacy   b) Agonist
   iii. Discuss the metabolic pathways for – CHO functional group.
   iv. Identify two mechanistic classes of drugs that target nucleic acids. Give one example each

   C. Match column A with B and C: (04)

	A	B	C
i	Conjugation with amino acid	3'-Phosphoadenosine-5'-phosphosulfate	S-Adenosylmethionine
ii	Sulfate conjugation	Methyltransferase	Mercapturic acid derivative
iii	Methylation	Y-Glutamylcysteinylglycine	Activation of -COOH group
iv	Conjugation with Glutathione	Glycine	Potential biotoxification

Q.2. Answer the following (Any six):   (12)
   i. "Proteins act as targets for many drugs"- discuss using suitable examples
   ii. Compare and contrast Un-competitive and non-competitive enzyme inhibition
   iii. What are monoclonal antibodies, give example
   iv. Illustrate the signal transduction pathway for GPCR involving adenylate cyclase
   v. Give structure, generic name and enzyme inhibited by:
       3- [(o-Chlorophenyl) -5-methyl-4-isoxazolyl] penicillin.
   vi. Enlist the chemical features of polyene antifungal antibiotics and give example
   vii. Give structure and use of Thiabendazole

Q.3.A. Classify the Cephalosporins given below based on generation and suggest the   (04)
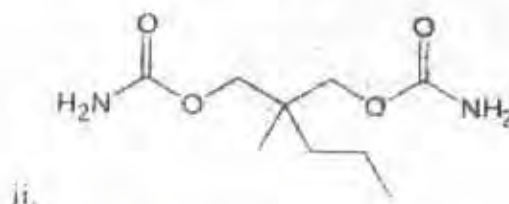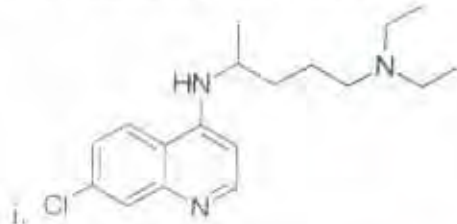   suitable route of administration.
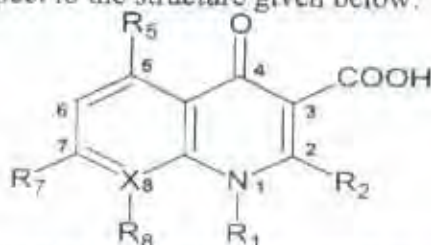   Cefadroxil,   Cefamandole,   Cefuroxime,   Ceftriaxone

B)
i) Methicillin is given through parenteral route. Justify
ii) Give the structures and names of any two degradation products of tetracycline

C) Predict any two Phase-I metabolites for each of the following: (04)

i. ii.

Q.4.A. Answer the following with respect to the structure given below: (04)

   i. Name any one drug containing the above basic structure and enzyme inhibited by it
   ii. Annelation of R_1 and R_8 leads to which active drug.
   iii. Indicate any one substitution at R7 that gives potent compound
   iv. Comment on the substituents that influence phototoxicity
B. Indicate to which mechanistic class the following drugs belong to (04)
   (Structures to be written)

    i. Flucytosine
    ii Griseofulvin
    iii Naftifine
    iv. Miconazole
C. Write a note on anti-leprotic drugs (04)

Q.5. A. Name the strongest and weakest drug-receptor interactions.
   Briefly discuss "ionic interactions" and their role in drug receptor binding (04)
   B. List different types of receptors and discuss "Ion channel receptors" in detail (04)
   C. Discuss Kinase linked receptors with respect to : i) structure ii) signal transduction (04)

Q.6. Outline the synthetic pathway for any four of the following drugs along with necessary (12)
   reagents and reaction conditions.
    i) Cloxacillin   ii) Dapsone   v) Mebendazole
    iii) Pyrimethamine   iv) Diloxanide furoate

27/05/19

sem - VI CBCS

Time: 3 Hours   Total Marks : 80

N.B.: 1) All questions are compulsory.
      2) Figures to the right indicate full marks.

Q.1 Answer the following.
a) What are the goals of tablet preformulation studies?   2
b) Write the steps in sugar coating process with a formula for each step.   2
c) Justify the addition of disintegrant in pre granulation and post granulation step. 2
d) Classify film coating polymers with suitable examples.   2
e) Differentiate between chewable and effervescent tablet.   2
f) Write various applications of soft gelatin capsules.   2
g) Give a flow chart for manufacturing of hard gelatin capsule shell.   2
h) Calculate shelf life of a product at 25°C given the following parameters: 2
   Ea= 12Kcal/mol   R= 2 degradation rate at 60°C= 0.0156/min
i) Write the responsibilities of QA department.   2
j) Explain the importance of documentation.   2

Q.2 a) Elaborate on the formulation of chewable tablet.   4
    b) Describe any one perforated coating pan.   4
    c) Discuss the principle and methodology for accelerated stability testing in shelf life 4
       determination.

Q.3 a) Draw the layout for large scale manufacturing of tablets.   4
    b) Discuss batch manufacturing record for any one solid oral formulation.   4
    c) Explain the physics of tablet compression.   4

Q.4 a) State the causes of sticking and weight variation in tablet and suggest remedies for the 4
       same
    b) Describe steps and mechanism involved in hard gelatin capsule filling machine based on 4
       independent dosing system.
                              OR
    b) Discuss the QC tests for hard gelatin capsules.   4
    c) Elaborate on sampling and sampling plan.   4

Q.5 a) List out film coating defects of the coated tablets and suggest methods to rectify these 4
       defects.
    b) Describe the Rotary Die process for large scale manufacture of soft gelatin capsules. 4
    c) Explain hydrolytic degradation in pharmaceuticals and the methods for minimising/ 4
       preventing such degradation.

Q.6 a) Elaborate on packing of capsules.   4
                              OR
    a) Discuss DT and Dissolution testing of tablets.   4
    b) Describe the process of fluidized bed coating.   4
    c) Write a note on environmental and microbiological controls practised in a pharmaceutical 4
       manufacturing facility.

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Sem-VI CBCS

3 Hours   80 Marks

N.B:
1. All questions are compulsory
2. Answer all sub questions together
3. Draw neat labelled diagrams wherever necessary
4. Figures to the right indicate full marks

Q.1. A. Do as directed (Answer any EIGHT questions)   8 M
  i. Give two examples of auxochromes.
  ii. Name any two agents used for chemical derivatization to convert non fluorescent compounds to fluorescent ones.
  iii. Name recent sample handling technique used in IR spectroscopy
  iv. Name one source used in Raman spectrophotometer
  v. Name two types of plasma sources used in atomic spectroscopy
  vi. Write one application of X ray diffraction technique
  vii. Name any one radionuclide used for diagnostic purposes
  viii. Name one reference electrode used in potentiometric measurements
  ix. Define the term glass transition temperature

Q.1.B. Do as directed (Answer any THREE)   6 M
  i. Define wavelength maxima? How is it determined?
  Ii. Explain the term correlation coefficient
  Iii. Define the term 'singlet state'. Give formula for quantum yield.
  iv. Glass cuvettes cannot be used for UV spectrophotometric analysis. State whether true or false. Justify

Q.1.C Solve the following: (Answer any TWO)   6 M
  i. Give IR frequencies for following functional groups
  1. Carbonyl stretch of aliphatic aldehyde
  2. Hydroxyl group of alcohols
  3. C≡C stretch of alkenes
  ii. A (1%, 1cm) value for drug A at λ max of 290 nm is 680. An injection of this drug when diluted by a factor of 2000 gave an absorbance of 0.682 when measured in 1 cm cell at λ max of 290 nm. Calculate the concentration of drug A in the original injection.
  Iii. Calculate concentration in microgram per ml of solution of drug X (Molecular weight=202.4) in 0.1 M NaOH, giving as absorbance of 0.723 in a 2 cm path length cell at λ max of 310 nm. Reported molar absorptivity of drug X at λ max 310 nm is 4352.

Q.2 Answer the following: (Answer any THREE)   12 M
  A Enlist three methods for quantitative UV spectrophotometric assay of single component formulation. Explain any one in detail.
  B With the help of suitable diagram explain construction and working of a photon multiplier tube use in Uv-Visible spectrophotometer.
  C Choice of solvent and concentration of analyse play an important role in UV Visible spectrophotometric analysis. Justify
  D Draw block diagram of a double bean UV spectrophotometer. Explain its working.

Q.3	Answer the following: (Answer any THREE)	12 M
A	Explain any four factors that affect the fluorescence of a compound	
B	How many filters are employed in a photofluorimeter? What are they called as? Write role of each of them in fluorimetric analysis.	
C	Differentiate between atomic absorption and atomic emission spectroscopy based on principle and components of instrumentation. Give one advantage and one disadvantage of atomic absorption spectroscopic technique over atomic emission technique.	
D	Discuss various types of interferences encountered in flame photometry	

Q.4	Answer the following: (Answer any THREE)	12 M
A	Explain the term overtones with reference to near IR with suitable diagram. Discuss any one application of near IR spectroscopy.	
B	Enlist any four detectors in IR spectroscopy. Discuss any one in detail	
C	With the help of suitable diagram explain various types of scattering studies in Raman spectroscopy	
D	Give any four points of differentiation between IR spectroscopy and Raman spectroscopy	

Q.5	Answer the following: (Answer any THREE):	12 M
A	Give Braggs Law and its mathematical derivation	
B	Discuss construction and working of glass electrode with suitable diagram	
C	Give principle involved in differential scanning calorimetry. Enlist any two pharmaceutical applications of the same.	
D	Draw a typical thermogravimetric curve. Discuss factors affecting the same	

Q.6	Answer the following: (Answer any THREE):	12 M
A	Discuss any one instrument used in measurement of radioactivity	
B	Write a note on isotope dilution analysis	
C	Nine paracetamol tablets were analysed. The mean of paracetamol content was found to be 508 mg with a standard deviation of 4.5 mg. Calculate the 95% confidence interval for the true paracetanol content in the tablet. [Tabulated 't value' for 8 degrees of freedom is 2.306]	
D	Quantitative estimation of paracetamol tablets was to be performed by UV spectrophotometric analysis. Absorbance values obtained with increasing concentration of paracetamol are as follows	

Concentration (µg/ml)	Absorbance at 257nm
20	0.251
40	0.550
60	0.759
80	1.080
100	1.200

Give the equation of line that best fit the data. What could be the concentration of the solution in µg/ml giving an absorbance of 0.748 at 257 nm

University of Mumbai

DASHBOARD

Notices

1. Correction in (PG1M - 16 Pham Sem w/ Multiple Based) 87904 - Pharmaceutical analysis -I

   QP Code 88 --

   Q.1.C Read as **Stretch of alkynes** instead of **stretch of aliphatic aldehyde**

   Q.2.C Read as **Concentration of analyte** instead of **Concentration of analyse**

2. Correction in **2M00546 MASTERS DEGREE IN INFORMATION MANAGEMENT (M.I.M) THIRD YEAR R2019 SEMESTER-II 47105 -**
   Technology Competitive Strategy

   QP Code **59822**

   For question 6 part 13 The word mentioned in the paper is **compative** Please replace this with **competitive**

3. **University of Mumbai (DEPDS): Exam Date - 09/05/2019 (Morning Session)**
   Question Paper link will remain active between **09.30 AM to 10.30 AM.**
   Login to MUAPPS software > Exam > Active Exam to download papers if any Queries please contact on 02226534266 / 02226532034

MENU

QP DELIVERY

11/05/2019

Sem - VI CBCS

(3 Hours) (Total Marks : 80)

Please check whether you have got the right question paper.

N.B.: 1) All questions are **compulsory**.

2) Draw **relevant chemical structures** and **diagrams** wherever **applicable**.

1. a) Answer the following : (10)

   i) Give any two examples of substitution of crude drugs.

   ii) Give any two methods with suitable examples for extraction of volatile oils.

   iii) State whether following statement is true of false with suitable justification:

   "Cholesterol is the precursor molecule for biosynthesis of Citral".

   iv) Give biological source and therapeutic uses of any one sesquiterpene containing drug.

   v) Give the biological source and chemical constituent with structure of any one wood-based volatile oil drug.

   vi) Write the biological sources of any two sweeteners.

   vii) Give the biological source and commercial significance of palmarosa oil.

   viii) Write the biological source and chemical constituent oleo-gum-resin.

   ix) Write biological source of and chemical constituent of any one condensed tannin-containing drug.

   x) Name any one flavorant and perfume each along with their biological sources.

   b) Answer the following: (10)

   i) With the help of examples, write a note on adulteration of crude drugs.

   ii) Outline general extraction scheme of any one drug, based on its chemical property.

   iii) Write in brief about processing and preparation of Ginger for market.

   iv) Write in brief about commercial application of tannins in synthesis of drug.

   v) What are edible vaccines? Give an example with its use.

2. i) Give source, chemistry, cultivation and collection of clove. (04)

   ii) With suitable structures, illustrate shikimic acid pathway. (04)

   iii) Write a note on different methods of manipulation of secondary metabolites. (04)

3. i)   Write a note on chemical methods of evaluation of crude drugs, as per WHO   (04)
         guidelines.

    ii) Write a note on isolation, identification and analysis of menthol.   (04)

    iii) Give a detailed account of curcuminoids.   (04)

4. i)   Explain the principle involved, procedure and application of soxhlet extraction. (04)

    ii) Compare and contrast pale and black catechu.   (04)

    iii) Write a note on colorants of natural origin.   (04)

5. i)   Write a note on natural drugs containing oraganosulfur compounds.   (04)

    ii) Give source, chemistry, chemical test and uses of vanillin and oil of wintergreen. (04)

    iii) Give source, preparation, chemistry, chemical test and uses of Benzoin.   (04)

6. i)   Give an account of two alcohol containing volatile oil drugs.   (04)

    ii) Write a note on green tea.   (04)

    iii) Write a note on supercritical fluid extraction.   (04)

14/05/2019

sem-VI CBCS

Time: 3 hours   **Marks: 80**

Please check whether you have got the right question paper.

N.B: (1) All questions are **compulsory**.
      (2) Figures to the right indicate **full marks**.
      (3) **Use of scientific calculator is permitted.**

Q.1   Answer the following:
   a.   Define: Bioequivalence, Pharmacokinetics   2
   b.   Justify "Biomembranes act as a semi permeable barrier"   2
   c.   Enlist factors affecting topical administration.   2
   d.   Explain the difference between real and apparent volume of distribution.   2
   e.   What are mechanisms of direct enzyme inhibition?   2
   f.   Write a note on Salivary excretion of drugs.   2
   g.   Explain term "Highly permeable" as per BCS classification.   2
   h.   Draw a one compartment open model for IV bolus administration.   2
   i.   Under what circumstances is the value of Ka computed from method of   2
       residuals incorrect?
   j.   Calculate relative bioavailability of tablet containing drug Y if dose   2
       administered is 530mg and [AUC] zero to infinity is 425mg.hr/lit against
       solution of drug Y if dose administered is 125mg and [AUC] zero to
       infinity is 222mg.hr/lit.

Q.2   a.   Enlist the difference between active and passive transport.   4
     b.   Explain the effect of particle size of API and diluents on drug absorption.   4
     c.   Explain why glucuronidation is the commonest and most important of all   4
       phase II reactions.

Q.3   a.   Describe the physiological factors affecting the distribution of drugs in   4
       tissues.
     b.   What is the effect of protein binding on the apparent volume of   4
       distribution?
     c.   Describe the method of residuals for the calculation of absorption rate   4
       constant.

                                         OR
       Explain the equation used for calculation of nonlinear kinetic behavior of   4
       drugs.

Q.4   a.   What are the effects of enzyme induction on drug metabolism? Describe in   4
       detail.
     b.   Write a note on hepatic clearance of drugs.   4
     c.   Describe the effect of renal disease state on drug elimination.   4

Q.5   a.   State the factors affecting dissolution rate of a drug according to the   4
modified Noyes-Whitney's equation.

     b.   Describe an official method for the estimation of dissolution rate of coated   4
tablets.

     c.   What are the methods for enhancement of bioavailability of poorly   4
permeable drugs?

OR

Write a note on IVIVC.   4

Q.6   a.   How are the elimination rate constant, elimination half-life and clearance   4
determined after an IV bolus injection?

OR

What is an 'optimal dosage regimen'? For a one-compartment model, state
the mathematical expressions for maximum, minimum, and steady-state
concentrations of drug in the plasma following multiple IV injections.

Q.6   b.(i)   An intravenously administered bolus dose of 25mg of a drug following one
compartment kinetics has a half-life of 14hrs. If the plasma
concentration at zero time is 25mg/L, calculate

       i.)   Elimination rate constant and volume of distribution   01
       ii.)   AUC(zero to infinity) and total clearance of the drug   01
       iii.)   Plasma concentration of the drug after 8 hours   01
       iv.)   Amount of drug left in the body after 12 hours   01

     b.(ii)   A single oral dose of 75mg of a drug (F=0.6) was given to a 70 kg patient.
The plasma concentration-time profile can be described by:

$$C_p = 12(e^{-0.45t} - e^{-1.73t})$$

where, C_p = mg/L, t=hours.
Calculate:

       A. Volume of distribution   01
       B. Tmax   01
       C. Cmax   02

16|05|2017

SEM-VI CBCS

Time: 2 Hours   **Marks: 40**

N. B.: (1) All questions are compulsory.
      (2) Figures to the right indicate full marks.
      (3) Draw neat labelled diagram wherever necessary.

Q1	(a)	Give any two examples of tests performed for characterization of excipients	1
	(b)	Mention the roles/functions of the following excipients	1
		1) Glycerol	
		2) Lactose	
	(c)	Give two examples of artificial flavours	1
	(d)	Enlist any two excipients used for enhancing solubility of active pharmaceutical ingredient	1
	(e)	Explain with suitable examples the advantages of co-processed excipients	2
	(f)	Give the classification of polymers used in controlled release oral dosage forms.	2
	(g)	Illustrate with suitable examples the role of excipients	2

Q2			
	(a)	Discuss in brief safety aspects of excipients used for parenteral dosage forms	2
	(b)	Enlist different permeation enhancers and mention in brief the mechanism of action of any one permeation enhancer.	2
	(c)	Discuss sweeteners used in pharmaceutical products	2

Q3			
	(a)	Explain in brief with suitable examples the need for appropriate storage conditions to maintain functional properties of excipients.	3
	(b)	Mention specific characterization tests performed on co-processed excipients	3

Q4	(a)	Mention in brief the significance of selecting appropriate excipients to avoid interaction with active pharmaceutical ingredients.	3

OR

	(a)	Mention in brief the significance of selection of packaging material with respect to interaction with excipients	
	(b)	Mention in detail the functions, mechanism of action and examples of preservative agents.	3

Q5	(a)	Write a note on Starch with respect to its source, physicochemical properties, manufacturing and safety aspects	3

OR

	(a)	Write a note on Talc with respect to its source, physicochemical properties, manufacturing and safety aspects	
	(b)	Explain the properties and role of Hydroxy Propyl Methyl Cellulose as excipient	3

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Q6 (a) Discuss in brief the need for harmonization of standards of excipients   3
                                OR
     (a) Discuss in brief Pharmacopeial standards of excipients.

     (b) Discuss about the chemical nature, function and safety of Glyceryl   3
          monostearate.