B. Pharm, Sem, VII (CBSGS) 03/12/16

SUB - PJ

Pharm, Jurisprudence. Dec 2016

QP Code : 501101

(3 Hours) **[Total Marks : 70**

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

1. (a) Define (**any five**) 5
   (i) 'Displaced person' as per Pharmacy Act.
   (ii) 'Cosmetic' as per D & C Act.
   (iii) 'Cannabis' as per NDPS Act.
   (iv) 'Magic Remedy' as per DMR (OA) Act.
   (v) 'Ceiling Price' as per DPCO.
   (vi) 'Adulterant' as per Food Safety and Standards Act.
   (b) (i) Define 'Dutiable goods, Alcohol, Spirit store' as per MTP (ED) Act. 3
   (ii) Differentiate between Restricted and Unrestricted preparations. 2
   (c) (i) Discuss measures taken for preventing and combating abuse of narcotic drugs and illicit traffic. 3
   (ii) Differentiate between Cognizable and Non cognizable offences. 2

2. (a) Explain ' Calculation of MRP for scheduled formulation'. 4
   (b) Define 'Invention' as per Indian Patent Act. Elaborate on the criteria to be satisfied by an invention to be patentable in India. 4
   (c) Distinguish between Manufacture in Bond and Manufacture outside Bond. Explain process to obtain rectified spirit. 3

   OR

   (c) Elaborate on duties of government analyst and procedure to be followed on receipt of sample for analysis.

3. (a) Define Illicit traffic under NDPS Act and write the offences and penalties related to illegal possession of NDPS. 4
   (b) Write a note on 'Forms and manner of application for import licence'. 4
   (c) Comment on various provisions for welfare of workers under Factories Act 3

   OR

   (c) Write a role of ISO and comment on ISO 9000 and ISO 14000

4. (a) Summarize the different types of licences for Sale of drugs (other than Homeopathic Medicines) under D and C Act. 4
   (b) Explain the process of approval of Institutions or Authorities providing courses of study and examination under Pharmacy Act. 4

   OR

   (b) Write a note on 'Schedule M' under D and C Act.

B.Pharm, Sem- VII (CBSGS) 28/11/16

SUB- P & P-II Dec 2016

Q.P. Code : 501001

(3 Hours) **[Total Marks : 70**

N.B. : (1) **All** the questions are **compulsory.**
(2) Draw chemical structures and diagrams wherever necessary.

1. Answer the following :- **15**
   (i) Name the precursor molecule for biosynthesis of lysergic acid.
   (ii) Define and give example of virgin oil.
   (iii) Mention biological source/s and structure of urushiol.
   (iv) Give Biological source/s and name of a O-anthraquinone glycoside.
   (v) Give biological source and name probable constituent responsible for pesticidal activity of Neem.
   (vi) Mention biological use and nutraceutical potential of Ginkgo.
   (vii) Give structure of any one naturally occuring thiophene derivative and source of the same
   (viii) Give two sources for lecithin.
   (ix) Name a test to identify gossypol and source of the same.
   (x) Name two drugs containing steroidal alkaloids.
   (xi) Give biological source pharmacological acitivities and constituents of Hypericum.
   (xii) Name any two marketed nutraceutical preparations with their potential uses.
   (xiii) Name and draw two dignostic microscopical characters to identify Linseed powder.
   (xiv) Name the chemical nucleus present in quinine and give a specific chemical test to detect the same.
   (xv) Name any two alkoloidal drugs official in Indian Pharmacopoeia.

2. (i) Discuss Beex wax and Carnuaba wax with respect to their biological source, method of preparation and their utility in Pharmaceutical Industry. **4**
   (ii) Differentiate tannis with respect to their chemistry chemical tests and suitable examples. **4**
   (iii) Write the detailed biosynthetic pathway for Atropine. **3**

3. (i) Give detailed account of 'Vasaka'.
   (ii) Write a note on cyanogenetic glycosides. **4**
   (iii) Describe two nutraceutical drugs used as 'Immunomodulatory'. **4**
   3

[TURN OVER

4.	(i)	Discuss Ergot with respect to chemistry, life cycle, chemical test and uses.	4
	(ii)	Give Pharamacognostic account of 'Kurchi'.	4
	(iii)	Write a short note on 'Isothiocyanate glycosides'.	3
5.	(i)	Discuss 'opium' with respect to chemistry collection and preparation.	4
	(ii)	Give an account of 'Cochineal'.	4
	(iii)	Write a short note on Cod-liver and Rice bran oil.	3
6.	(i)	Give Structure, sources and uses of emetine.	4
	(ii)	Give detailed account of aloes.	4
	(iii)	Give an account of Pyrethrum as pesticide.	3

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B. Pharm, Sem-VII (CBSGS)
Sub - Pharmaceutics-IV Dec 2016

Q.P. Code : 500900

(3 Hours) [Total Marks : 70

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

1. (a) (i) State the methods and limits for Particulate matter evaluation in Injectables. 2
(ii) What are Pyrogens? Name the tests to detect them. 2
(b) Attempt **any two** : 4
(i) Justify the need for adjusting tonicity of eye drops.
(ii) What are the advantages of in-situ ophthalmic gels.
(iii) Give the significance of Preservative Efficacy Test.
(c) (i) What are the limitations of sustained drug delivery systems? 2
(ii) State variables to be considered while designing a SR drug delivery system. 2
(d) State Arrhenius equation and explain its role in shelf life determination. 3

2. (a) Elaborate on vehicles used in formulation of Parenterals. 4
(b) Explain factors affecting ocular bioavailability. 3
(c) Discuss the degradation pathway for a drug susceptible to hydrolysis and explain methods to stabilise it. 4

OR

What is photolytic degradation? How is it prevented in pharmaceuticals?

3. (a) State the I.P. tests for Quality control of rubber closures for injectables. 4

OR

Explain types of plastics used in parenteral packaging. How are they evaluated?
(b) Comment on drug properties for it's candidature for sustained release products. 4
(c) Write a note on Accelerated stability studies as per ICH Guidelines. 3

TURN OVER

4. (a) Discuss the procedure for manufacture of small volume parenterals. 4
   (b) Write briefly the I P. Sterility test method. 3
   (c) Explain matrix and reservoir type of Drug Delivery Systems. 4

OR

Write a note on Ion-exchange controlled Drug Delivery Systems.

5. (a) Enlist types of large volume parenterals and elaborate on their packaging. 4
   (b) How are sustained release systems evaluated? 3
   (c) Explain the interactions between primary packaging and a sterile formulation. 4

6. (a) Give the diagrammatic layout for sterile products manufacture and mention classes of production area. 4
   (b) Write a note on HI PA filters. 3
   (c) Enlist types of contact lenses and elaborate on contact lens solutions. 4

B. Pharm, Sem - VII (CBSGS) 18/11/2016

SUB - Pharmacology. IT Dec 2016

QP Code : 500802

(3 Hours) **[Total Marks : 70**

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

1. (a) Answer the following :– **12**
   (i) Classify antipsychotics.
   (ii) Give role of misoprostol in management of peptic ulcer.
   (iii) Justify use of antimicrobials in treatment of diarrhoea.
   (iv) Describe the triple action of histamine.
   (v) Explain mechanism of action of phenytoin.
   (vi) Why are non-steriodal anti-inflammatory drugs contraindicated in the third trimester of pregnancy.

   (b) Answer the following :– **3**
   (i) Name any two therapeutic uses of serotonergic drugs.
   (ii) Enlist contraindications for use of emetics.
   (iii) ——— is an example of an atypical anti-psychotic agent.

2. (a) Answer (any **two**) of the following :– **8**
   (i) Describe the stages of general anaesthesia.
   (ii) Describe the pharmacological actions of ethanol.
   (iii) Describe pharmacotherapy of Parkinson's disease.

   (b) Write short note on any **one** of the following :– **3**
   (i) Valproic acid
   (ii) Diazepam

3. (a) Answer (any **two**) of the following :– **8**
   (i) Classify non-steroidal anti-inflammatory drugs. Describe the general adverse effects and uses of NSAIDs.
   (ii) Give role of corticosteroids and leukotrine antagonists in management of asthma.
   (iii) Comment on use of xanthine oxidase inhibitors in pharmacothereapy of gout.

   (b) Answer (any **one**) of the following :– **3**
   (i) Describe the biosynthesis and role of bradykinin.
   (ii) Write a note on therapeutic uses of antihistaminics.

[TURN OVER

4. (a) Write short notes on any **two** of the following :– 8
   (i) Pharmacotherapy of inflammatory bowel disease.
   (ii) Prokinetic agents
   (iii) Antacids
   (b) Answer (any **one**) of the following :– 3
   (i) Compare H_2 blockers with proton pump inhibitors.
   (ii) Write a note on irritant purgatives.

5. (a) Answer (any **two**) of the following :– 8
   (i) Describe pharmacology of chlorpromazine.
   (ii) Discuss management of Alzheimer's disease.
   (iii) Describe mechanism of action of local anaesthetic agents. Why are amides preferred over esters?
   (b) Write short note on any **one** of the following :– 3
   (i) MAO inhibitors.
   (ii) Preanaesthetic agents.

6. (a) Describe symptoms and management of any **two** of the following :– 8
   (i) Arsenic toxicity
   (ii) Opioid toxicity
   (iii) Mercury toxicity
   (b) Write short note on any **one** of the following :– 3
   (i) Biosynthesis of eicosanoids
   (ii) Ergotamine.

B. Pharm, Sem - VII (CBSGS) 11/11/16

SUB - PA - III Dec 2016

Q.P. Code : 500702

(3 HOURS) **Total Marks-70**

N.B:

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

Q.1.A. Do as directed: (Any seven) (7)

i. How is the base peak assigned in a mass spectrum?
ii. Give any one reason for tailing observed in TLC.
iii. Give one example of a bulk property detector used in HPLC.
iv. Name any one type of column used in gas chromatography.
v. Give an example of a compound which shows distinct isotope peaks in the mass spectrum.
vi. Name one solvent used in NMR spectroscopy.
vii. Name one mode of elution used in HPLC analysis.
viii. Give formula for chemical shift and state what each term means.

Q.1.B. Explain the following terms: (Any four) (8)

i. Anisotropic effect (with one example)
ii. Fast atom bombardment ionisation
iii. Accuracy studies
iv. Preparative columns
v. Capacity factor

Q.2.A. Answer the following: (Any two) (8)

i. Distinguish between UPLC and HPLC. (any 4 points)
ii. Write a note on Ion Pair chromatography.
iii. With reference to GC MS, explain the significance of this hyphenated technique (2 points), and discuss one interface used.

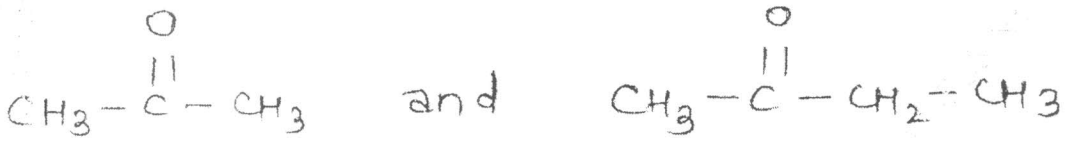
Q.2.B. Compound 'R' when analysed by HPLC on a 25 cm length column, was found to elute at 8.07 min. The peak width at base was found to be 0.87 min. When 'R' was analysed on a 15 cm length column, the retention time was observed to be 6.28 min with peak width at base=0.36 min. (3)
Calculate the number of theoretical plates and justify which column length is more suitable for quantitative analysis of 'R'.

TURN OVER

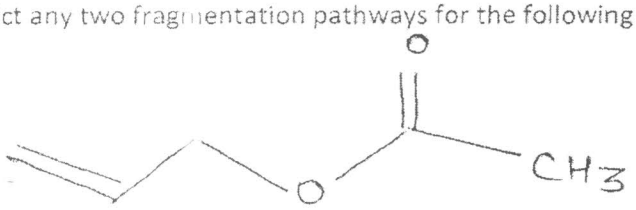
Q.3.A. Answer the following: (Any two) (8)

i. Explain the various parameters obtained from a proton NMR spectrum taking ethanol as an example.

ii. Suggest a suitable spectroscopic method to distinguish the following pairs of compounds, giving spectral characteristics.



iii. Depict any two fragmentation pathways for the following compound



Q.3.B. State three advantages of HPTLC over conventional T.L.C. (3)

Q.4.A. Answer the following: (Any Two) (8)

i. Explain the principle of MALDI. Give any two applications of this technique.

ii. Explain the principle of FT-NMR. Draw a time domain spectrum and depict its conversion to frequency domain spectrum.

iii. Explain how 'Limit of detection' studies are conducted during validation of analytical procedures.

Q.4.B. Explain the term 'Resolution' pertaining to HPLC analysis. (3)

Q.5.A. Answer the following: (Any Two) (8)

i. Discuss the working of electron capture detector. Give any one advantage and one disadvantage of this detector.

ii. Predict the structure of the following compound whose spectral characteristics are as follows:

Molecular formula: $C_6H_{11}NO_2$

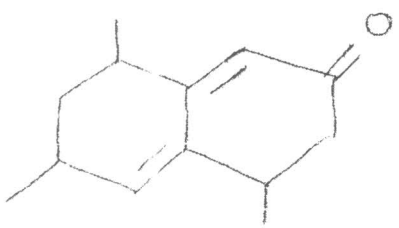
I.R. (cm^{-1}): 3600, 3300, 3050, 2960, 1720, 1150

1 H-NMR (δ-ppm)= 1.36 (t) (3H)
4.14 (q) (2H)
4.31 (bs) (2H)
6.63 (d) (2H)
7.86 (d) (2H)

Give appropriate justification for your answer.

iii. Predict the structure of the following compound whose spectral characteristics are as follows: (Allylic coupling is ignored)
Molecular formula: $C_4H_6O_2$
I.R. (cm^{-1}): 3500, 3050, 2960, 1720, 1620
1 H-NMR (δ-ppm)= 1.90 (s) (3H)
5.62 (d) (1H) (J=3 Hz)
6.22 (d) (1H) (J=3 Hz)
12.5 (s) (1H)
Give appropriate justification for your answer.

Q.5.B Justify and predict the λ max for the following compound showing UV absorbance: (3)



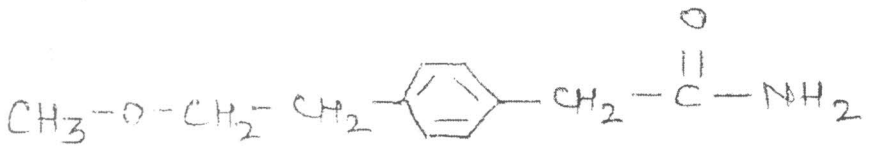
Q.6.A. Answer the following: (Any two) (8)

i. List any four detectors used in HPLC and explain the working of any one detector.

ii. Explain 'Radial development technique' in Paper chromatography.

iii. With the help of a diagram, explain multicomponent analysis by UV spectroscopy using Derivative spectroscopy method.

Q.6.B. Predict the positions of absorption bands in the IR spectra of the following compound: (3)



B. Pharm., Sem-VII, SUB- PC-III 07111

Dec 2016

Q.P. Code : 500602

(3 Hours) **[Total Marks 70]**

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

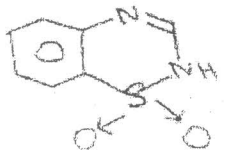
1. **Answer the following questions :**
   (i) Depict the activation of procarbazine. 2
   (ii) Give the name and structure of a nucleoside reverse transcriptase inhibitor. 1
   (iii) Name a 1,4-dihydropyridine analogue used in cerebral stroke. 1
   (iv) Give the structure and biological activity of 4'-[1-hydroxy-2-(isopropyl amino) ethyl] methyl sulphonanilide. 1
   (v) Give the name and structure of a chlorine containing thiazide diuretic. 1
   (vi) Name the enzyme inhibited by ramipril. 1
   (vii) Give the name and therapeutic use of 1-hydrazinonaphthalazine. 1
   (viii) Give the mechanism of action of niacin. 1
   (ix) Give the structure of a thiazolidinedione containing drug and name it. 1
   (x) Give the mechanism of action of aspirin as an antiplatelet agent. 1
   (xi) Indicate the mechanistic subclass of the following drugs : 1
   (a) Loratidine (b) Nizatidine
   (xii) Name the drug that inhibits the enzyme Na^+-K^+ATP ase in cardiac cells. 1
   (xiii) Classify the following local anaesthetics drugs into chemical classes : 2
   a) Benzocaine b) Bupivacaine c) Diclonine d) Eugenol

2. (a) List the N-musturd drugs that function as alkylating agents. Describe their mechanism of action and SAR. 4
   (b) Outline the synthesis of Warfarin indicating the reagents and reaction conditions. 3
   (c) List the therapeutic targets exploited in the treatment of HIV infection. Give the structures and mechanism of action of drugs acting upon any two targets. 4

3. (a) What is HMG-CoA Reductase? Describe the development of HMG-CoA reductase inhibitors. 4
   (b) Outline the synthesis of Procainamide indicating the reagents and reaction conditions. 3
   (c) Give the advantage of second generation H_1 antagonists. With respect to loratidine and cetirizine explain the structural modifacations that resulted in decreased CNS side-effects. 4

TURN OVER

4. (a) Answer the following questions with respect to the structure given below : 4



(i) Identify the scaffold in this structure.

(ii) State the acidic functional group present in this structure.

(iii) Give the effect of replacing the C6-H with a -Cl function.

(iv) Give the name and use of a drug having this scaffold.

(b) Given below are the chemical names of drugs used in the treatment of hypertension. Draw their structure and state to which class they belong. 3

(i) 1-(4-amino-6, 7-dimethoxy-2-quinazoliny1)-4-(2-furoyl)-piperazine.

(ii) 2-hydroxy-5 [1-hydroxy-2-[(1-methyl-3-phenyl propanol) amino)] ethyl] benzamide.

(iii) 1-(isopropylamino)-3- (1-naphthyloxy) -2- propanol.

(c) Explain the mechanism of action of following drugs (any **two**) : 4

(i) Amylnitrite (ii) Lidocaine (iii) Mexilitine

5. (a) Discuss the structure-activity-relationship of the following (any **two**) : 4

(i) ACE inhibitors (ii) 1, 4-dihydropyridine analogues as calcium channel blockers.

(b) Outline the synthesis of chlorambucil or azidothymidine indicating the reagents and reaction conditions. 3

(c) With respect to the following scaffold, answer the questions given below: 4

(i) Identify the chemical class of this structure.

(ii) Identify the most acidic proton in this structure & justify your answer.

(iii) Give example of a first generation agent belonging to this class.

(iv) Indicate the structural modification in this class of drugs that led to the second generation analogues.

6. (a) Describe the various agents used as antiplatelet agents with respect to their mechanistic class. (Structures needed). 4

(b) Outline the synthesis of lidocaine indicating the reagents and reaction conditions.. 3

(c) Write short notes on (any **two**) : 4

(i) Platinum containing anticancer agents.

(ii) Halogen containing general anesthetics.

(iii) Combination drug therapy in HIV infection.

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Course: FOURTH YEAR BACHELOR OF PHARMACY [CBSGS] (SEM VII)(Prog T10027)

QP Code: '500602

Correction:

Q5 (a) Discuss the structure-activity- relationship of the following: **remove (any two)**

(i) ACE inhibitors (ii) 1,4-dihydropyridine analogues as calcium channel blockers

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