PALGAD/AMAZON / SINHAGAD / PARANA / KARNAFULI / SURAMA / SIYANA – I

(CBCS): WINTER - 2015

SUBJECT : ADVANCED PHARMACEUTICAL ANALYSIS

Day : Monday
Date : 04-01-2016

Time : 10:00AM TO 1:00 P.M.
Max. Marks : 60

N.B.:

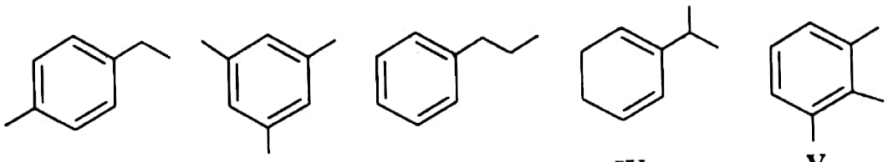
1) Attempt **ANY THREE** questions from each section.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION – I

Q.1 a) Determine the most likely structure of a compound, with the molecular formula C_9H_{12}, which gave a 1H NMR spectrum consisting of : **[05]**

i) A doublet at δ 1.25.
ii) A septet at δ 2.90.
iii) A multiplet at δ 7.25.

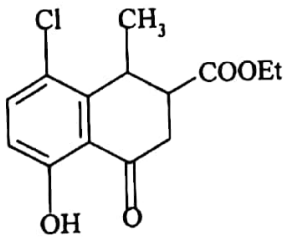
Justify your answer.



I II III IV V

b) Calculate the λ max for the following compounds: **[05]**

i)



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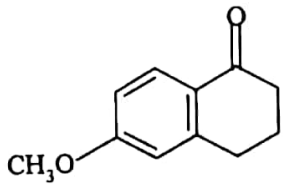
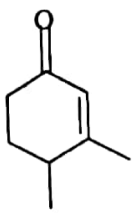


Q.2 How will you differentiate the following compounds using 1H NMR? **[10]**

a)



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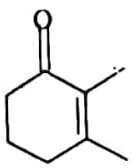
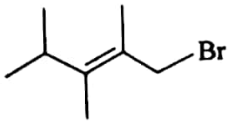
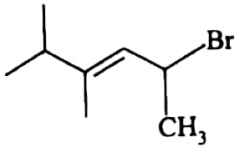


b)



and



P.T.O.

Q.3 Discuss the methods to improve efficiency of separation in HPLC. **[10]**

Q.4 Write elaborate notes on: **[10]**

a) Stationary phases in GC

b) Quantitative herbal analysis by HPTLC

SECTION – II

Q.5 Give theory and instrumentation of XRD technique. **[10]**

Q.6 Discuss the principle and instrumentation of Differential Thermal Analysis (DTA). Explain the factors affecting DTA. **[10]**

Q.7 What is difference between ion pair and ion exchange chromatography? Describe principle and theory of ion pair chromatography. **[10]**

Q.8 Write short notes on the following: **[10]**

a) Chiral Chromatography

b) Radioimmuno assay

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M.Pharm - Sem - I - 2016

SINHGAD-I

PALGAD/ AMAZON/PARANA/KARNAFULI/SURAMA/SIYANA-I (CBCS) WINTER - 2015

SUBJECT : RESEARCH METHODOLOGY AND BIOSCREENING

Day : Wednesday
Date : 06-01-2016

Time : 10:00AM TO 1:00 P.M.
Max. Marks : 60.

N.B.:

1) Answer any **THREE** questions from Section-I and any **THREE** questions from Section-II.
2) Answer to the two sections should be written in **SEPARATE** answer books.
3) The use of non-programmable electronic pocket calculator is **ALLOWED.**
4) Figures to the **RIGHT** indicate full marks.

SECTION-I

Q.1 What is the meaning of research? Elaborate the purpose and objectives of research. **(10)**

Q.2 Give the importance of literature survey in research. Enlist various sources of information in research. **(10)**

Q.3 Write various components of research paper. **(10)**

Q.4 Write short notes on any **TWO** of the following: **(10)**

a) Plagiarism
b) Quality by design
c) Components of questionnaire.

SECTION-II

Q.5 What is the importance of LD_{50} and ED_{50} to toxicity and effectiveness of drugs? Elaborate. **(10)**

Q.6 Describe bioscreening of antidepressant drugs. **(10)**

Q.7 An achievement test in spelling was administered to two randomly selected students from two schools. Test the null hypothesis that there was no significant difference in achievement between the two populations from which the samples were selected at the 0.05 level of significance. Use the method of separate variances. **(10)**

School A	School B
N = 40	N = 45
$\bar{X}$ = 82	$\bar{X}$ = 86
S = 12.60	S = 14.15

Q.8 Write short notes on any **TWO** of the following: **(10)**

a) Dealing with radioactive materials
b) Importance of CPCSEA
c) Types of errors.

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SINHAGAD-I (CBCS) : WINTER - 2015

SUBJECT : ADVANCED PHARMACEUTICAL BIOTECHNOLOGY-I

Day : Friday
Date : 08-01-2016

Time : 10:00AM-TO 1:00 P.M.
Max. Marks : 60.

N.B.:

1) Attempt any **THREE** questions from Section-I and any **THREE** questions from Section-II.
2) Both the sections should be written in **SEPARATE** answer books.
3) Figures to the **RIGHT** indicate full marks.

SECTION-I

Q.1 Explain the control dogma of molecular biology. **(10)**

Q.2 What do you understand by Automated DNA sequencing? Explain the dideoxy chain termination method of DNA sequencing. **(10)**

Q.3 Explain the following tools used in DNA manipulation- **(10)**

a) Restriction enzymes
b) Ligase.

Q.4 Write short notes on (Any **Two**) **(10)**

a) Exons and introns
b) RNA splicing
c) Nucleosomes.

SECTION-II

Q.5 Write the importance of rDNA technology for the production of therapeutic proteins. **(10)**

Q.6 Explain with suitable examples different advances in PCR technology. **(10)**

Q.7 What is a cDNA library? Write key steps in constructing a cDNA library. **(10)**

Q.8 Write short notes on (Any **Two**) **(10)**

a) Hot start PCR
b) Reverse transcriptase
c) Recombinant vaccine.

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WINTER - 2015

SIYANA-I (C.B.C.S.)

SUBJECT: ADVANCE CORE SUBJECT-I: f) ADVANCED QUALITY ASSURANCE TECNIQUES-I

Day: Friday
Date: 08-01-2016

Time: 10:00AM-TO 1:00 P.M.
Max. Marks: 60

N.B.:

1) Attempt any **THREE** questions each from Section-I and Section-II.
2) Figures to the **RIGHT** indicate full marks.

SECTION-I

Q.1 What are the major steps involved in outsourcing of manufacturing operations. **(10)**

Q.2 Discuss principles involved in purchasing of materials in pharmaceutical manufacturing plant. **(10)**

Q.3 Discuss design, site location and construction, requirements of equipment in detail. **(10)**

Q.4 Write short notes on any **TWO** of the following: **(10)**

a) Personnel selection and training
b) Reference and working standards
c) Waste material management

SECTION-II

Q.5 Discuss in detail manufacturing aspects of sterile pharmaceutical products. **(10)**

Q.6 Define cross contamination and elaborate on avoiding it in pharmaceutical production. **(10)**

Q.7 Briefly discuss documents and formats in pharmaceutical manufacturing operations. **(10)**

Q.8 Write short notes on any **TWO** of the following: **(10)**

a) Recalled products
b) Process deviations
c) Manufacturing of biological products.

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AMAZON-I (CBCS): WINTER - 2015
SUBJECT: ADVANCED PHARMACEUTICS-I

Day: Friday
Date: 08-01-2016

Time: 10:00AM-TO 1:00P.M.
Max. Marks: 60

N.B.:

1) Attempt any **THREE** questions from Section-I and Attempt any **THREE** questions from Section-II.
2) Figures to the right indicate full marks.
3) Answers to both sections should be written in the **SEPRATE** answer book.

SECTION-I

Q.1 Give an account of the various techniques and tools used for drug- excipient compatibility testing. **[10]**

Q.2 Explain the model dependant and model independent approaches for the comparison of dissolution profiles. **[10]**

Q.3 Explain the Q.1 ICH guidelines for stability testing of pharmaceuticals. **[10]**

Q.4 Write elaborate notes on: **[10]**

a) Optimization by statistical approaches

b) Laser diffraction technique for particle size determination

SECTION-II

Q.5 Classify SAA. Explain the factors affecting micellization. **[10]**

Q.6 Explain the different types of solid dispersions. Elaborate on methods to prepare solid dispersions. **[10]**

Q.7 What are biodegradable polymers? Explain the different mechanisms of biodegradation. **[10]**

Q.8 Write notes on: **[10]**

a) Thermodynamic aspects of polymer solution

b) New techniques in pharmaceutical granulation

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PALGAD - I (CBCS) :WINTER – 2015

SUBJECT – ADVANCED DRUG REGULATORY AFFAIRS-I

Day : Friday
Date : 08-01-2016

Time : 10.00 A.M. To 1.00 P.M.
Max. Marks : **60**

N.B.:

1) Attempt **ANY THREE** questions from Section - I and **ANY THREE** questions from Section - II
2) Answers to both sections should be written in the **SEPARATE** answer books.
3) Figures to the **RIGHT** indicate full marks

SECTION-I

Q.1 Discuss important differences between EU-GMP Guidelines and Schedule M. **[10]**

Q.2 Discuss Quality Risk Management in Detail. **[10]**

Q.3 Discuss Process Management under ISO 9001: 2008. **[10]**

Q.4 Write short note on (**ANY TWO**) **[10]**

a) Personnel Requirement in GMP
b) Injectables Area Requirements
c) Documentation Control

SECTION – II

Q.5 Discuss provisions of stability studies under ICH **[10]**

Q.6 Discuss Matrixing and Bracketing in Detail. **[10]**

Q.7 How will you manage a Clinical Trial? **[10]**

Q.8 Write short note on (**ANY TWO**) **[10]**

a) Quality Risk Management
b) Publication of Clinical Trial
c) Analytical Method Validation

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PARANA-I (CBCS) WINTER - 2015

SUBJECT : ADVANCED PHARMACEUTICAL CHEMISTRY-I

Day : Friday
Date : 08-01-2016

Time : 10:00AM-TO 1:00 P.M.
Max. Marks : 60

N.B.:

1) Attempt any **THREE** questions from Section-I and any **THREE** questions from Section-II.
2) Figures to the **RIGHT** indicate full marks.
3) Answers to both sections should be written in **SEPARATE** answer books.

SECTION-I

Q.1 Describe in details methods for protection and deprotection of -NH_2 and -COOH groups. **(10)**

Q.2 Explain principle of catalysis. How is it different from induction? Write in details about transfer metal catalysis. **(10)**

Q.3 Explain importance of stereochemistry in medicinal chemistry. **(10)**

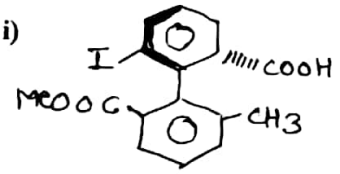
Q.4 Write short notes on any **TWO** of the following: **(10)**

a) Fluorinating agents
b) Hoffmann Degradation
c) Wolf-Kishner reaction.

SECTION-II

Q.5 What is atropisomerism? Give two examples of the same. Assign the configuration (R/S) to the following structures and show the work. **(10)**

i)



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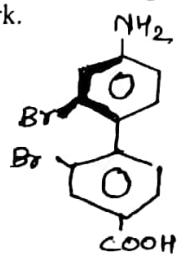

Q.6 **a)** Explain why carbonyl compounds are ambient in nature? **(03)**
b) What are enolate ions? How they are produced? **(03)**
c) What are non-nucleophilic strong bases? Give two examples of such bases along with their method of preparation. **(04)**

Q.7 Complete following reaction sequence giving reaction mechanism and major products of the reactions. **(10)**

Acetone $\xrightarrow[\text{then add EtOCOOEt}]{\text{1) Base}}$ A $\xrightarrow[\text{2 eq.}]{\text{Base}}$ B $\xrightarrow[\text{1 eq.}]{\text{EtI}}$ C

Q.8 Write short notes on any **TWO** of the following: **(10)**

a) Woodward rules for allowed and disallowed motions
b) Hinsberg thiophene synthesis
c) Claisen isoxazole synthesis.

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KARNAFULI-I (CBCS) : WINTER - 2015
SUBJECT : ADVANCED PHARMACOLOGY-I

Day : Friday
Date : 08-01-2016

Time : 10:00AM TO 1:00P.M.
Max. Marks : 60.

N.B.:

1) Attempt any **THREE** questions from each section.
2) Both the sections should be written in **SEPARATE** answer books.
3) Figures to the **RIGHT** indicate full marks.

SECTION-I

Q.1 Describe the general organization of screening. **(10)**

Q.2 What is high throughput screening (HTS)? Explain the principle and applications of HTS in drug research. **(10)**

Q.3 Describe the screening of antidepressant drugs. **(10)**

Q.4 Write notes on any **TWO** of the following: **(10)**

a) Methods of anti-inflammatory activity
b) Methods to induce hypertension in animals
c) Microarrays.

SECTION-II

Q.5 Explain in detail the role of transgenic animals in experimental pharmacology. **(10)**

Q.6 Describe in detail the screening for diuretics. **(10)**

Q.7 Describe in detail screening of anti-adrenergic drugs. **(10)**

Q.8 Write notes on any **TWO** of the following: **(10)**

a) Screening of antithyroid drugs
b) Limitations of *in vitro* testing of drugs
c) Screening of muscle relaxants.

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PALGAD / AMAZON/ PARANA/ KARNAFULI/SURMA/ SIYANA/SINHAGAD-I (CBCS): WINTER - 2015

SUBJECT: PHARMACEUTICAL ADMINISTRATION (PHARMACEUTICS)

Day: Monday
Date: 11-01-2016

Time: 10:00AM-TO 1:00 P.M.
Max. Marks: 60

N.B.:

1) Attempt any **THREE** questions from each section.
2) Figures to the right indicate full marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION-I

Q.1 Discuss planning process in detail. **(10)**

Q.2 Discus various measures taken to produce positive organization culture? **(10)**

Q.3 Explain effective Manger development process. **(10)**

Q.4 Write short notes on any **TWO** of the following: **(10)**

a) Formal and informal organizations

b) Line and staff concept

c) Decision making process

SECTION-II

Q.5 Discuss Maslow's theory of motivation in detail with its use. **(10)**

Q.6 Discuss control processes. Describe feed back and feed forward control in detail. **(10)**

Q.7 Discuss various productivity problems and their measurement. **(10)**

Q.8 Write short notes on any **TWO** of the following: **(10)**

a) Preventive control

b) Communication process

c) Operations Management

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AMAZON/PARANA/KARNAFULI/SIYANA/SURAMA/SINHAGAD-I PALGAD-I
(CBCS) (2012 COURSE): SUMMER 2016
SUBJECT: ADVANCED PHARMACEUTICAL ANALYSIS

Day: Friday
Date: 01-07-2016

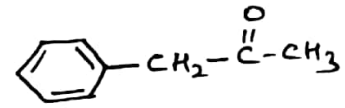
Time: 10:00AM-TO 1:00PM
Max. Marks: 60

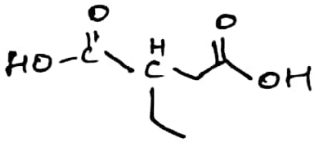
N.B.:

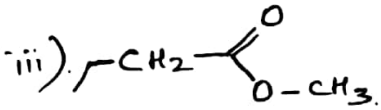
1) Attempt any **THREE** questions from Section-I & Section-II each.
2) Figures to the right indicate **FULL** marks.
3) Answers to both sections should be written in **SEPARATE** answer book.

SECTION- I

Q.1 Write the multiplicities and chemical shifts for the following structures **(10)**

i) 

ii) 

iii) 

iv) 

Q.2 Write the mass spectrometirc fragmentation pattern for esters and aldehydes **(10)**

Q.3 Write the instrumentation involved in HPTLC **(10)**

Q.4 Write notes on: (Any Two only)

a) Coloumn efficiency **(05)**

b) LC-MS-MS **(05)**

SECTION-II

Q.5 Discuss in detail supercritical fluid chromatography **(10)**

Q.6 Write detailed note on **(10)**
a) Types of ELISA techniques and their comparison
b) Various aspects of chiral chromatography techniques

Q.7 Describe theory, instrumentation and applications of thermogravimetric analysis **(10)**

Q.8 Write note on:

a) Differential scanning calorimetry **(05)**

b) XRD **(05)**

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PARANA – I (2012 COURSE) (CBCS): SUMMER – 2016
SUBJECT : ADVANCED PHARMACEUTICAL CHEMISTRY – I

Day : Wednesday
Date : 06-07-2016

Time : 10:00AM TO 1:00PM.
Max. Marks : 60

N.B.:
1) Attempt any **THREE** questions from Section I & any **THREE** questions from Section – II.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in the **SEPARATE** answer books.

SECTION – I

Q.1 Explain the concept of catalysis with its classification. Discuss in detail about transition metal catalysis. **[10]**

Q.2 Discuss various methods for the protection and deprotection of -OH and -NH_2 groups. **[10]**

Q.3 **a)** Explain what are nucleophic and non-nucleophilic bases. Give structures of any two strong non-nucleophilic bases used for generation of enolate anions. **[05]**

b) Discuss in detail nucleophilic fluorination reactions. **[05]**

Q.4 Write short notes on **ANY TWO** of the following: **[10]**

a) Homogeneous and heterogeneous reductions

b) Hoffmann degradation

c) Pinacol pinacolone rearrangement

SECTION – II

Q.5 What are "α – methylene lactones"? How do they differ from conjugated lactones? Give one example of each along with their preparation. **[10]**

Q.6 Discuss electrocyclic reactions in detail. **[10]**

Q.7 Discuss the stereochemistry and its importance in medicinal chemistry. **[10]**

Q.8 Write notes on **ANY TWO** of the following: **[10]**

a) Hinsberg thiophene synthesis

b) Fisher indole synthesis

c) Knorr and Paal – Knorr pyrole synthesis

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