Registration No. | | | | | | | | | | |

Total Number of pages: 02 **B.Pharma**
15PH301

3rd Semester Regular /Back Examination 2017-18
PHYSICAL PHARMACEUTICS – I
BRANCH: B.Pharma
Time : 3 Hours
Max Marks : 100
Q. Code: B802
Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions: dash fill type** **(2x10)**

a) Two main types of liquid crystals are termed as _____ and ____. Cholesterol is converted to a liquid crystalline phase in the presence of _____ and water.

b) Pharmaceutical decomposition can be classified as _____, _____, ____, _____ and _____.

c) Order of a reaction can be determined by _____ method, _____ method and _____ _____ method.

d) Work of adhesion is the sum of surface tensions of two phases minus _____ _____. Work of cohesion is twice of _____ _____.

e) The Nerst potential at the surface is defined as the difference in potential between actual surface and _____ region of the solution. The zeta potential is defined as the difference in potential between _____ plane and the _____ region of the solution.

f) Actual chemical name of span 80 is _____ _____. Antifoaming agents have ____ HLB values.Detergents have _____ HLB values.

g) In thermodynamics, Efficiency of heat engine = work / ____ .
Change of entropy = ____ / T .
Helmholtz Free energy function= ___ - TS.Gibbs free energy = ___-TS

h) Raoults law states that partial pressure of volatile constituent is the product of ____ _____ and its mole fraction in solution.

i) The blood plasma contains carbonic acid / _____ and acid/alkali sodium salts of _____ _____ as buffers.

j) The activity of a solute in a solution is expressed as the product of _____ and _____ _____. Real solution becomes more ideal when ____ _____ approaches one.

Q2 **Answer the following questions : Short answer type**

a) What is 'vapor pressure' and 'equilibrium vapor pressure' of a liquid? **(2x10)**

b) Define critical temperature , critical pressure.

c) What are 'crystal lattice' and 'crystal habit'?

d) What is eutectic point? Explain by phase diagram.

e) What is the effect of amorphous nature of a drug on therapeutic activity?

f) State Van't Hoff equation and how is it used to determine solubilty of a substance?

g) Explain lowering of vapor pressure by Raoults law equation.

h) Define reaction rate and reaction order .

i) Define thermodynamics, entropy and enthalpy.

j) What are the uses of complexing agents and complexes? Give some examples.

Q3 **a)** Explain polymorphism and its significance on therapeutic activity. How is polymorphism of a substance determined? Give some examples. **(10)**

b) What are the differences between crystalline and amorphous substance? How can a crystalline substance be changed to amorphous type? **(5)**

Q4 **a)** Explain ionization of (i) water and (ii)weak acids. **(10)**

b) What is the significance of ionization of drugs in the body? Explain with suitable examples. **(5)**

Q5 **a)** Discuss on buffers in pharmaceutical and biological system. Write short notes on pH indicators. **(10)**

b) Discuss on various types of tonicity of buffered solutions and its effect on blood cells. **(5)**

Q6 **a)** What do you mean by ideal solution? In real solution describe steps of changes of a solute in a solvent. Derive the 'solubility parameter' expression . **(10)**

b) Explain various factors on which solubility of gases in liquids depends. **(5)**

Q7 **a)** Write on the classification of complexes. How are inorganic complexes formed? Explain with suitable examples and ionic configurations. **(10)**

b) How is 'analysis of complex compounds ' performed? **(5)**

Q8 **a)** Explain First law and second of thermodynamics. **(10)**

b) What is entropy? What are the criteria for spontaneity and equilibrium? **(5)**

Q9 **a)** Discuss on the influences of temperature, light, solvent, catalytic species on drug stability. **(10)**

b) How do you calculate half life and shelf life of pharmaceutical product? **(5)**

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Total Number of pages:02 **B.Pharm**
15PH302

3rd Semester Regular / Back Examination 2017-18
PHARMA ENGINEERING-I
BRANCH: B.Pharma
Time : 3 Hours
Max Marks :100
Q.Code: B876

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions: multiple choice type (select the correct one).** **(2x10)**

a) Filtration is carried out when there is a difference in
a)size, b) boiling point, c) solubility, d) density.

b) In 1-2 parallel countercurrent heat exchanger, -----
a) '1-2' denotes the number of passes in tube side.
b) '1-2' denotes the number of passes in shell side.
c) '2' denotes the number of passes in tube side.
d) '2' denotes the number of passes in shell side.

c) A wet solid is dried over a long period of time by unsaturated air of nonzero constant relative humidity. The moisture content eventually attained by the solid is termed as the
a) unbound moisture content, c) free moisture content
b) bound moisture content, d) equilibrium moisture content

d) Which one of the following is the conversion factor when poise is converted to kg/m/sec?
a) 0.1, b)10.5, c) 10.1, d) 10

e) To prepare milk powder which dryer is suitable,
a)tray dryer, b)spray dryer, c) freeze dryer, d)vacuum dryer

f) Which one is suitable to grind a fibrous substance?
a) ball mill, b) hammer mill, c) fluid energy mill, d) roller mill

g) In drying operation, unit of 'moisture content' is
a) %w/v, b) %w/w, c) gm/cm^2, d) gm/gm

h) In industry, very fine solid particles are collected efficiently from a gas by
a) gravity filter, b) membrane filter, c) HEPA filter, d) cyclone separater

i) Sigma blade mixer is useful to mix
a) liquid substances, b) suspension,
c) semisolid substances, d) solid substances.

j) Drying rate is expressed in CGS system as
a) gm/min, b) gm/◦C/min , c) gm/square cm/min, d)gm/gm

Q2 **Answer the following questions:Short answer type** **(2x10)**

a) State Stephan-Boltzman law of heat radiation and express each term alongwith respective units.

b) Classify different types of evaporator equipments.

c) What are the various applications of distillation operation in Pharmaceutical Industry?

d) Classify dryers giving suitable examples.

e) What is vortex, and how is vortex formed in a liquid?

f) What is filter aid, and how does it function?

g) What are the objectives of unit operation 'size reduction'?

h) What are the uses of sieve analysis? How is it expressed?

i) Mention factors influencing mixing of solid-solid, solid-liquid and liquid-liquid in mixing equipment.

j) What are the important characteristics of liquid to be considered before its evaporation?

Q3 **a)** State and explain Fourier's law of heat transmission alongwith equation and explain the related parameters alongwith their units. Deduce the equation for heat transfer by 'conduction through resistances in parallel series' . Differentiate log mean radius with that of arithmetic mean in conduction of heat. **(10)**

b) A tube of 60 mm outer diameter is insulated with silica foam (50 mm thick, thermal conductivity ,k - 0.055 w/m-°C)followed by a layer of cork(40 mm thick, k - 0.05 W /m -°C). If the temperature ofthe outer surface of pipe is 150°C and thatof cork'ssurface is 30° C , calculate the heat loss inWatt per meter ofpipe. **(5)**

Q4 **a)** What do you understand by 'multiple effect evaporator'? Describe one such evaporator .Write its advantages and disadvantages. **(10)**

b) What are the factors influencing evaporation? Distinguish evaporation and other heat processes. **(5)**

Q5 **a)** Write in detail on McCabe Thiel method for calculation of number of theoretical plates in rectification column. **(10)**

b) Describe Raoults law. What is its significance in distillation? What are constant boiling mixtures? Give examples.How are they separated? **(5)**

Q6 **a)** Discuss on various types of propellers usedfor liquid mixing, and flow patternscreated in a liquid at various conditions. **(10)**

b) Write short notes on Sigma blade mixer, Planetary mixer. **(5)**

Q7 **a)** What are 'constant rate of drying' and 'falling rate of drying'? Explain with suitable figure. Derive the equation used for 'total time of drying calculation'. **(10)**

b) Classifyvarious types of dryers. What are the advantages of Fluidised bed dryer? **(5)**

Q8 **a)** Write on the theory of filtration along with related mathematical equation.Write short note on 'filter aids'. **(10)**

b) Give a short description of 'filter press'. **(5)**

Q9 **a)** How is sieve analysis carried out? What are the standards of sieves? **(10)**
What are the factors affecting size reduction operation? State laws governing energy and power requirements of mills. Give names of some mills used in pharmaceutical industry?

b) Draw and describe bag filter and what is its use in pharmaceutical industry? **(5)**

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Total Number of Pages: 3

B.PHARM
15PH303

3rd Semester Regular / Back Examination 2017-18
Organic Chemistry-II
Branch: B.Pharma
Time: 3 Hours
Max marks: 100
Q Code: B979

Answer Part-A which is compulsory and any four from the Part-B.

The figures in the right hand margin indicate marks.

Part-A

Q.1 Choose the correct answer: (2 x 10)

a) 2-Butene exhibits which type of isomerism?
A) Geometrical isomerism B) Keto-enol tautomerism
C) Chain isomerism D) None of the above

b) The compound which is isomeric with diethyl ether is
A) Methyl n-propyl ether B) 1-Butanol C) 2-Methyl propan-2-ol D) All of the above

c) 1-Butene and cyclobutane exhibit which type of isomerism:
A) Ring-chain B) Position C) Tautomerism D) Functional

d) Isomers are similar in:
A) Molecular formula B) Molecular charge C) Configuration D) Dipole moment

e) Select the pair of compounds which exhibit *cis-trans* (geometrical) isomerism:
A) Lactic acid and tartaric acid B) Malonic acid and succinic acid
C) Fumaric acid and maleic acid D) Acetic acid and crotonic acid

f) Isomers which can be interconverted through rotation around a single bond are:
A) Position isomers B) Enantiomers C) Metamers D) Conformers

g) Meso tartaric acid and d-tartaric acid are:
A) Position isomers B) Racemic mixture C) Enantiomers D) Diastereomers

h) d- and l-forms of an optically active compound differ in:
A) Boiling points B) Melting points C) Specific rotation D) Specific gravity

i) The most stable conformation of Cyclohexane is:
A) Boat form B) Chair form C) Eclipsed form D) Staggered form

j) Which statement is wrong about enantiomorphs?
A) They rotate the plane of polarized light to different directions
B) Normally, they possess same physical properties
C) The shapes of their crystals are same
D) Their biological properties are different

Q.2 **Fill in the blanks** **(2x10)**

a) _____ and _____ are examples of polynuclear aromatic hydrocarbons.

b) On nitration of toluene, the nitro group will enter in _____ position.

c) Benzene reacts with acetyl chloride in presence of aluminium chloride to form _____.

d) Formation of phenol from chlorobenzene is an example of _____ aromatic substitution reaction.

e) Phenol is acidic because of resonance of its _____ ion.

Answer the followings

f) What is Friedel Craft's reaction?

g) Write the structure and numbering of isoquinoline.

h) Give the application of NBS in organic synthesis.

i) What is Walden inversion?

j) What is asymmetric carbon?

Part-B

Q.3 **a)** Define and classify isomerism with suitable examples. **(5)**

b) Discuss briefly the concept of optical activity. Add a note on enantiomerism and diastereoisomerism. **(5)**

c) Discuss the conformations of ethane. **(5)**

Q.4 **a)** Discuss the general method of preparation of Pyrrole. **(5)**

b) Describe the chemical properties of Pyrrole **(10)**

Q.5. **a)** Discuss the structure of benzene. Outline any two methods of preparation benzene. **(5)**

b) Discuss the mechanism of electrophilic substitution reactions of benzene with suitable examples. **(10)**

Q.6 **a)** Discuss structure and the general methods of preparation of phenol. **(5)**

b) Describe the physical and Chemical properties of phenols with suitable examples. **(10)**

Q.7. **a)** Discuss structure and the general methods of preparation of Phenanthrene. **(5)**

b) Discuss the chemical properties of Phenanthrene with reference to the electrophilic substitution of aromatic compounds **(10)**

Q.8 **a)** Discuss the general methods of preparation of Furan. **(5)**

b) Discuss the chemical properties with mechanism of reactions of Furan. **(10)**

Q.9 Discus the preparation and synthetic applications of the following organic reagents: **(5X3)**

a) Diazomethane

b) Aluminium tert-butoxide

c) Lithium Aluminium Hydride

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Total Number of Pages: 01 **B.Pharm**
15PH304

3rd Semester Regular / Back Examination 2017-18
PHARMACOGNOSY-II
BRANCH: B.Pharma
Time: 3 Hours
Max Marks: 100
Q.CODE: B1050

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the correct option of the followings** **(2 x 10)**

a) Chemical responsible for sweet taste of Fennel. (Geraniol/Anethole)
b) Pleasant flavor of Mentha is due to presence of (Jasmone/Menthofuran)
c) Garlic is not an antioxidant. (True/False)
d) Synonym of Caraway. (Carum/Anethum)
e) Family of Wool. (Bombycidae/Bovidae)
f) Caramel is a Volatile oil. (True/False)
g) Allergens are glycoprotein. (True/False)
h) Family of Orange peel. (Ericaceae/Rutaceae)
i) Von Perquatte defined Allergy. (True/False)
j) Family of Coriander. (Umbelliferae/Myrtaceae)

Q2 **Answer the following questions: *Short answer type*** **(2 x 10)**

a) Write the chemical constituents of Dill.
b) What is the biological source of Gaultheria oil?
c) Define Pharmaceutical aids.
d) Write two uses of Nutmeg.
e) Write the chemical constituents of Citronella oil.
f) Write the biological source of Momordica.
g) Write the biological source of Cardamom.
h) Write the chemical constituents of Valerian.
i) What is Ecuelle?
j) Write the uses of Green tea.

Q3 **a)** Define antioxidant and describe the different types of antioxidant with suitable example. **(10)**
b) What is Photosensitizing agent? Give some examples. **(5)**

Q4 **a)** What is Natural allergen? Describe in details about different types of natural allergen with suitable example. **(10)**
b) Write the Biological source, Chemical constituents and Uses of Ginkgo biloba **(5)**

Q5 **a)** Describe in details about general methods of extraction of Volatile oil. **10)**
b) Write the general properties of Volatile oil. **(5)**
Q6 **a)** Describe the historical prospects and development of Plant Biotechnology. **(10)**
b) Write the applications of Plant Biotechnology in Pharmacy and different allied fields **(5)**

Q7 **a)** Describe the detail and systematic Pharmacognostic study of Clove. **(10)**
b) Write the Biological source, Chemical constituents and Uses of Musk. **(5)**

Q8 **a)** Write the Source, Chemical constituents and Uses of Gelatin and Diatomite **(10)**
b) Write notes on Chocheneal. **(5)**

Q9 **a)** Write the Source, Chemical constituents and Uses of Silk and Cotton. **(10)**
b) Write short notes on Fibres. **(5)**

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Total Number of Pages: 02 **B.Pharma**
15PH305

3rd Semester Regular/Back Examination 2017-18
PATHOPHYSIOLOGY OF COMMON DISEASES
BRANCH : B.Pharma
Time: 3 Hours
Max Marks: 100
Q.CODE: B1131

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions:** **(2x10)**

a) Programmed and coordinated cell death is also called as_____.
b) Normal range of blood pressure of human is_____.
c) Myocardial infarction is also called as_____.
d) Haemoglobin value of a normal adult is_____.
e) Histamine is mainly released from_____ cell.
f) Hepatitis B virus is mainly transmitted through _____.
g) Ulcerative colitis occurs in _____ part of GIT.
h) Continues Epilepsy lasting for more than 30 minute is called as_____.
i) Mantoux test is performed for diagnosis of _____ disease.
j) _____is causative organism of urinary tract infection.

Q2 **Answer the following questions:** **(2×10)**

a) What is hyperplasia? Give an example of it.
b) Define autolysis and necrosis.
c) What is triple response in inflammation?
d) Define primary hypertension and secondary hypertension.
e) What is megaloblastic anaemia?
f) Write the mode of infection of tuberculosis?
g) Define the term renal failure?
h) Name some examples of Sexual Transmitted Diseases.
i) What are the causes of peptic ulcer?
j) Define gout and its symptoms.

Q3 **a)** Describe in detail about pathogenesis of reversible cell injury **(10)**
b) Give a short note on cellular adaptations. **(5)**

Q4 **a)** Describe the vascular events of acute inflammation. **(10)**
b) Give a short note on inflammatory mediators. **(5)**

Q5 **a)** Describe the pathogenesis, sign and symptoms and complications of congestive Heart Failure. **(10)**
b) Write a short note on angina. **(5)**

Q6	**a)**	Describe in detail the etiology, pathogenesis, sign and symptoms of Rheumatoid arthritis.	**(10)**
	b)	Write briefly about depression and mania.	**(5)**
Q7	**a)**	Give a detail note of etiology, pathogenesis, sign and symptoms, complications of diabetes mellitus.	**(10)**
	b)	Write a short note on asthma	**(5)**
Q8	**a)**	Describe about pathogenesis, symptoms and diagnosis of jaundice.	**(10)**
	b)	Write briefly on pathogenesis of atherosclerosis.	**(5)**
Q9	**a)**	Describe about various types of anaemia and its symptoms	**(10)**
	b)	Write the mode of transmission, pathogenesis and symptoms of AIDS.	**(5)**

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Total Number of Pages: 04 **B.Pharma**
15PH306

3rd Semester Regular/Back Examination 2017-18
Environmental Science
BRANCH: B.Pharma
Time: 3 Hours
Max Marks: 100
Q.CODE: B1175

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions: *multiple type or dash fill up type*** **(1 x 20)**

a) Which of these is not a renewable energy source?
a. Tidal energy b. Wind energy
c. Nuclear energy d. Geo Thermal energy

b) If the population of a species increases suddenly, it is called
a. Population growth b. Over population
c. Population forecasting d. Population explosion

c) PAN is a secondary pollutant that
a. Forms when hydrocarbon radical reacts with nitrogen dioxide
b. Cause photochemical smog
c. May cause respiratory diseases in human
d. All of these

d) The energy flow through the Ecosystem is
a. Cyclic b. Linear and one-way
c. Both cyclic and linear d. Linear and two-way

e) Percentage of total water found as fresh water is
a. 87.5% b. 2.5% c. 97.5% d. 75%

f) The water (Prevention and Control of Pollution) Act was enacted in
a. 1974 b. 1986 c. 1966 d. 1990

g) BOD stands for
a. Biological Oxygen Demand b. Basic Oxygen Demand
c. Both (a) and (b) d. None of these

h) Nitrate pollution causes
a. Skin diseases
b. Typhoid
c. Blue baby diseases
d. None of these

i) The rate of biomass per unit area per unit time is known as
a. Biomagnification
b. Biomes
c. Saprophytes
d. Productivity

j) OSDMA stands for _____
a. Odisha State development management authority
b. Odisha State disaster management authority
c. Odisha Soil disaster management authority
d. Odisha Surface disaster management authority

k) BLUE BABY disease is caused by
a. Sodium b. Chlorides
c. Fluorides d. Nitrates

l) Autecology is defined as
a. Study of single species
b. Study of communities
c. Study of physical environment
d. None of these.

m) Automobile exhaust consist of
a. Hydrocarbon, carbon monoxide and nitric oxide
b. Lead vapours
c. Sulphur dioxide
d. Carbon dioxide

n) Sunlight may be converted into electricity through
a. Galvanic cell
b. Carbon electrodes
c. Photo voltaic cell
d. Glass panel

o) The equitable use of resource is necessary for
a. Sustainable development
b. Better life style for man
c. Sustain natural wealth
d. All of these

p) Any material that can be transformed into more valuable and useful and useful product or service is called
a. Resource
b. Mineral
c. Element
d. Product

q) Sundar lal bahugna is known for his association with
a. Kerala sastra sahitya parishad
b. Chipko movement
c. Samaj parivartan samudaya
d. Dasholi gram swarajya mandal

r) Which of the following can be said to be the example of secondary succession
a. Pond b. Farm c. Desert d. Forest

s) Discharge of organic waste water into river will
a. Reduce dissolve oxygen
b. Reduce pH
c. Increase total dissolve solids
d. Toxic to humans

t) Bhopal gas Tragedy was due to leakage of
a. Methyl isocyanate (MIC)
b. CO
c. Both
d. None of these

Q2 Answer the following questions **(2 x 10)**

a) What are the three classes of biodiversity according to Whittaker?
b) How are air pollutants classified?
c) What is an activated sludge process?
d) What do you mean by thermal pollution?
e) What are primary sedimentation tanks?
f) what are natural resources? Give the classification on the basis of origin.
g) Differentiate between Deforestation and desertification.
h) What do you understand by ozone layer?
i) What is full form of AIDS?
j) Give the full form of: GPCB, GEC.

Q3 **a)** Classify various sources of water pollution. Also write various measures to control water pollution. **(5)**

b) Write the aims and objectives of the "Orissa Environmental Society" **(5)**

c) Write short note on "KENDU LEAF TRADE" undertaken by the Orisha Government. **(5)**

Q4 **a)** What do you understand by the term Biogeochemical cycles? Describe water cycle with the help of a neat sketch in detail. **(5)**

b) Explain the aim and objectives of Air (Prevention and control of pollution) Act 1981. **(5)**

c) What do you understand by environmental ethics and what are its objectives. **(5)**

Q5 **a)** What are the sources of noise pollution. **(5)**

b) What are the effects of noise pollution. **(5)**

c) Arrange the following Day time and Night Time **(5)**

Category of Area	Day time (6 am – 9 pm)	Night time (9 am – 6 am)
Industrial Area	70	55
Commercial Area	55	40
Residential Area	50	75
Silence Zone (100 m around premises of hospitals, educational institutions etc)	45	65

d. Fill in the blank Source	Intensity (W/m^2)	Intensity level (dB)	# of times greater than TOH
Threshold of hearing			
Rustling leaves			
Whisper			
Normal conversation			
Large orchestra			
Vacuum cleaner			
Walkman at maximum level			
Military jet takeoff			
Threshold of pain			
Busy street conversation			
Instant perforation of eardrum			
Front row of row concert			

Q6	**a)**	What are the various goods and services provided by a forest ecosystem? Describe various threats to our forests.	**(7.5)**
	b)	What are the differences between renewable and non-renewable sources of energy? Explain giving suitable examples.	**(7.5)**
Q7	**a)**	Define the following terms: Smog, Environmental Ethics and Bioaccumulation.	**(5)**
	b)	Write a short note on Rain water harvesting.	**(5)**
	c)	Define the term Acid rain. Discuss the various causes and effects of acid rain on the environment.	**(5)**
Q8	**a)**	Differentiate between the role of CPCB and GPCB.	**(5)**
	b)	How water and forest resources contribute for development and growth of a country?	**(5)**
	c)	What are different Greenhouse gases? Discuss the effect of greenhouse gases on environment.	**(5)**
Q9	**a)**	Define food chain and food web. Depict a food web with the help of a schematic diagram.	**(7.5)**
	b)	In your opinion do the various environmental legislations lead to human-wildlife conflict in India? Discuss.	**(7.5)**

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PH.3.1

3rd Semester Back Examination 2017-18

PHARMACEUTICS – II

BRANCH: B.Pharm

Time : 3 Hours

Max Marks : 70

Q.Code: B800

Answer Question No. 1 which is compulsory and any five from the rest.

The figures in the right hand margin indicate marks.

Q1 **Answer the following questions :** **(2x10)**

a) What are 'crystal lattice' and 'crystal habit'?

b) How do you determine heat of vaporization by ClausiusClapeyron equation?

c) What is the effect of amorphous nature of a drug on therapeutic activity?

d) What is specific conductance?

e) What is wetting agent? What is its application?

f) Define thermodynamics, entropy and enthalpy.

g) What is osmosis ? How is osmotic pressure determined?

h) Define surface tension and interfacial tension.

i) What is surface free energy?

j) Derive the expression for freezing point depression using Raoults law and Clapeyron equation.

Q2 **a)** Explain spreading coefficient with suitable equations and illustrations. **(5)**

b) What is HLB? How is HLB calculated with the help of equations? **(5)**

Q3 **a)** Describe the methods commonly employed for the measurement of vapor pressure of liquid. **(5)**

b) Explain elevation of boiling point by Raoults law. **(5)**

Q4 **a)** Write a short note on pharmaceutical buffer. **(5)**

b) Explain ionization of water. **(5)**

Q5 **a)** Discuss on the tonicity of buffered solutions and its effect on blood cells. **(5)**

b) How can you measure tonicity solutions by different methods? **(5)**

Q6 **a)** What are physical adsorption and chemical adsorption? **(5)**

b) Derive Langmuir isotherm. **(5)**

Q7 Explain the methods for the determination surface and interfacial tensions. **(10)**

Q8 **Write short answer on any TWO of the following :** **(5x2)**

a) Debye- Huckel theory of electrolytes.

b) Phase rule.

c) pH indicators

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PH.3.3

3rd Semester Back Examination 2017-18

BASIC ENGINEERING-I (Unit Operation)

BRANCH : B.Pharma

Time : 3 Hours

Max Marks : 70

Q.Code : B855

Answer Question No. 1 which is compulsory and any five from the rest .

The figures in the right hand margin indicate marks.

Q1 **Answer the following questions** **(2x10)**

a) State and explain Stefan Boltzmann's law of heat radiation.

b) Classify dryers giving suitable examples.

c) Size reduction of a herbal drug (plant material) is essential for the extraction of active ingredients. Explain.

d) Why is sieve analysis method important in pharmaceutical field?

e) How is vortex formed? What are the means to prevent it?

f) What do you mean by 'constant pressure filtration' and 'constant volume filtration'?

g) Explain the term 'Evaporator capacity'.

h) What are the factors affecting constant rate drying?

i) Write on the principle and the application of steam distillation.

j) How do you determine mixing index for solid powder?

Q2 **a)** Derive overall heat transfer coefficients from individual coefficients. **(5)**

b) Draw and describe 1-2 Shell & Tube heat exchanger. **(5)**

Q3 **a)** Explain construction and working of a forced circulation evaporator. **(5)**

b) Classify evaporators .What are the factors that influence on the efficiency of evaporators? **(5)**

Q4 **a)** Describe flash distillation method. Explain with the related equations. **(5)**

b) What are the constant boiling mixtures? Draw typical boiling diagram for constant boiling mixtures. **(5)**

Q5 **a)** Explain the principle and working of drum dryer. **(5)**

b) Explain factors to be considered in the selection of suitable dryers. **(5)**

Q6 **a)** Write in brief on the principle, construction and working of a ball mill with the help of diagram. **(5)**

b) Describe the mechanism of size reduction with suitable example of equipment. **(5)**

Q7 Describe any one fractioning column of your choice alongwith related equations .List its advantages and disadvantages? **(10)**

Q8 **Write on ANY TWO questions of the following :** **(5x2)**

a) List the laws governing size reduction. What is work index?

b) Write on any one air separator.

c) Write on turbine impellor system.

d) Explain the mechanisms of filtration.

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PH.3.5

3rd Semester Back Examination 2017-18
PHARMACEUTICAL CHEMISTRY-III (ORGANIC CHEMISTRY-II)
BRANCH : B.Pharma.
Time: 3 Hours
Max Marks: 70
Q.CODE: B980
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions :** **(2 x 10)**

a) Enantiomer
b) Racemic mixture
c) Bakelite
d) Chiral carbon
e) Trioxane
f) Functional Isomerism
g) Tautomerism
h) Huckel rule for aromaticity.
i) What are anulenes?
j) Friedel crafts reaction.

Q2 **a)** What is specific rotation? If the specific rotation of one enantiomer of 2-butanol is $+13.5^{o}$ what is the specific rotation of the other enantiomer? Explain **(5)**

b) Which is more stable, cis-2-methyl-3-hexene or trans-2-methyl-3-hexene? Explain. **(5)**

Q3 **a)** Which of the following compounds are chiral? Label all chiral centres. **(5)**
i) 2,4 Dimethylheptane ii) 4-Ethyl-3,3-dimethylheptane iii)2-Chloroheptane iv) 3-Methyl-1-pentene

b) State the necessary condition for a compound to show optical isomerism **(5)**

Q4 **a)** What is Huckel rule? Write the structure of two compounds that follow this rule. **(5)**

b) Why is pyridine aromatic ? explain. **(5)**

Q5 **Write short note on (any TWO) :** **(10)**
Walden Inversion, Aldol condensation, Cannizzaro reaction

Q6 **a)** How is phenol prepared? Give four methods. **(5)**
b) Write a note on acidity of phenol. **(5)**

Q7 Write down the follow chart of Synthesis with reagents :

a) i. Benzene to Nitrobenzene **(5)**
ii. Benzene to Cyclohexane

b) i.Benzene to Toluene **(5)**
ii.Glycerol to Acrolein

Q8 How will you distinguish between:

a) Phenol and Benzyl alcohol **(5)**
b) Maleic acid and Fumaric acid **(5)**

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B. Pharm.
PH.3.7

3rd Semester Back Examination 2017-18
PHARMACOGNOSY - III
BRANCH: B.Pharma
Time: 3 Hours
Max Marks: 70
Q CODE: B1049

Answer question No. 1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 **Objective type questions** **(2 x 10)**

i) What isBrontrager test?
ii) Define the termstotipotency and callus tissue.
iii) Distinguish between cardenoloides and bufadienolides.
iv) Write down the biological sources of diastase and papain.
v) Draw the structures of shikimic acid and phenyl alanine.
vi) Write down the chemical constituents of senega and sarsaparilla.
vii) Write down the biological source, chemical constituents and uses of red squill.
viii) How will you qualitatively detect saponin glycosides?
ix) How will you detect cell viability in a plant cell suspension culture?
x) Write down the biological source and chemical constituents of gentian.

Q2 Define and classify plant tissue culture.Write an account on the applications of plant tissue culture as a source of drug molecules. **(10)**

Q3 Schematically explain the biosynthesis of tropane alkaloids and steroidal glycosides. **(5 x 2 =10)**

Q4 Write down the biological sources, chemical constituents and uses of ginseng, psoralea, rhubarb and saffron. **(2.5 x 4 = 10)**

Q5 **a)** Describe schematically the 'Sta-Otto' method of isolation of glycosides. **(5)**
b) Write down the principle behind the radio-active tracer technique for investigating biosynthetic pathways. **(5)**

Q6 **a)** Explain the morphological and microscopic features of digitalis leaf with the neat sketches. **(5)**
b) Describe the methods of cultivation and collection of aloe. **(5)**

Q7 **a)** Write a note on poisonous plants of India. **(5)**
b) Give an account on marine drugs with special emphasis on cytotoxic and cardio-protective agents. **(5)**

Q8 **a)** Mention different types of cell suspension culture with suitable explanation. **(5)**
b) Write down the pharmacognostic profile of strophanthus. **(5)**

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PH.3.9

3rd Semester Back Examination 2017-18
PATHOPHYSIOLOGY OF COMMON DISEASES
BRANCH : B.Pharma.
Time: 3 Hours
Max Marks: 70
Q.CODE: B1132

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions :** **(2 x 10)**

a) What is atrophy? Give an example of it.
b) Define apoptosis with example.
c) What is chemotaxis?
d) Write two examples of inflammatory mediators.
e) What is pernicious anaemia?
f) Give examples of some carcinogenic agents.
g) What is causative organism of tuberculosis?
h) Name some examples of STDs.
i) What do you mean by renal failure?
j) Define hypertension and its causes.

Q2 Describe in detail about pathogenesis of ischemic cell injury **(10)**

Q3 **Write short notes on :**

a) Cellular events of inflammation **(5)**
b) Inflammatory mediators **(5)**

Q4 Describe in detail the pathogenesis and symptoms of gout. **(10)**

Q5 **Write short notes on :**

a) Depression **(5)**
b) Peptic ulcers. **(5)**

Q6 Write the pathogenesis, symptoms and complications of diabetes mellitus. **(10)**

Q7 Describe the pathogenesis, diagnosis, sign and symptoms of Tuberculosis. **(10)**

Q8 **Write short answer on any TWO :** **(5 x 2)**

a) Anaemia
b) Angina.
c) Urinary tract infection
d) AIDS.

Registration No: | | | | | | | | | | |

Total Number of Pages: 02 **B.Pharma**
PH.3.10

3rd Semester Back Examination 2017-18
Environmental Science
BRANCH : B.Pharma
Time: 3 Hours
Max Marks: 70
Q.CODE: B1176
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 **Define and differentiate under Undernourishment and malnourishment.** **(2 x 10)**

a) Define pollution, pollutants and population explosion.
b) Define the term exploitation and global warming.
c) Write a short note on Environmental Degradation.
d) Define the term Global warming and Soil erosion.
e) Define Air Pollution, Consumers and Biomagnifications.
f) Give the full form of: GPCB, GEC.
g) Define the following terms: Smog, Food web.
h) What are the objects of Environmental protection act 1986.
i) Define the term Total fertility rate, Food chain and Environment.
j) Differentiate between renewable and non-renewable resources.

Q2 **a)** Diagrammatically represent and explain the structure and composition of atmosphere. **(3)**
b) Why water is a unique natural resource. What are the consequences of over utilization and pollution of water. **(2)**
c) Analyze the statement that "Approximately 75% of the earth surface is covered by water then to availability of fresh water is the biggest crisis facing the world today. **(5)**

Q3 **a)** What is urbanization? What are the Environmental problems related to urbanization? How urbanization can be controlled? **(5)**
b) Classify various sources of water pollution. Also write various measures to control water pollution. **(5)**

Q4 **a)** Explain the aim and objectives of Air (Prevention and control of pollution) Act 1981. **(3)**
b) What do you understand by environmental ethics and what are its objectives. **(2)**
c) Discuss the state "Sustainable development is the need of the hour". **(5)**

Q5 **a)** Describe "Environmental Protection Act 1986" **(5)**
b) What are the environmental impacts of a coal based thermal power plant? Suggest suitable solution to the energy problems in view of growing population and industrialization of India. **(5)**

Q6 **a)** What are the sources of noise pollution **(3)**
b) What are the effects of noise pollution. **(2)**

c) Arrange the following Day time and Night Time **(5)**

Category of Area		Day time (6 am – 9 pm)	Night time (9 am – 6 am)
Industrial Area		70	55
Commercial Area		55	40
Residential Area		50	75
Silence Zone (100 m around premises of hospitals, educational institutions etc)		45	65
d. Fill in the blank Source	Intensity (W/m^2)	Intensity level (dB)	# of times greater than TOH
Threshold of hearing			
Rustling leaves			
Whisper			
Normal conversation			
Large orchestra			
Vacuum cleaner			
Walkman at maximum level			
Military jet takeoff			
Threshold of pain			
Busy street conversation			
Instant perforation of eardrum			
Front row of row concert			

Q7 **a)** A fuel has the following % volumetric analysis: **(5)**
CH_4 – 26, H_2 – 48, CO_2 – 11, CO - 5 and N_2 – 10. The volumetric analysis of the dry exhaust gases in CO 2 – 8.8%, N 2 –85.7% and O 2 – 5.5%. Determine the air/fuel ratio by volume if air contains 21% O 2 by volume.

b) What do you understand by the term Biogeochemical cycles? Describe water cycle with the help of a neat sketch in detail. **(5)**

Q8 **a)** Discuss the significance of environmental education in engineering curriculum. **(3)**

b) Write the aims and objectives of the "Orissa Environmental Society" **(2)**

c) Write short note on "KENDU LEAF TRADE" undertaken by the Orisha Government. **(5)**