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

Total Number of pages : 01 **B.Pharm.**

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.

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

Total Number of pages : 01 **B.Pharm.**

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.

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

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)**

Registration no: | | | | | | | | | | |

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

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)**

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

Total Number of Pages: 02 **B.Pharm**
15PH105

3rd Semester Regular/Back Examination 2017-18
REMEDIAL BIOLOGY
BRANCH : B.Pharma
Time : 3 Hours
Max Marks : 100
Q.Code : B1239

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 **Chose the correct answer :** **(2x10)**

a) Which of the following is not a simple tissue
a. xylem
b. Parenchyma
c. Collenchyma
d. Sclerenchyma

b) Root develops from part of the plant other than radicle is called
a. Tap root
b. Fibrous root
c. Adventitious root
d. Nodular root

c) Which meristem is present at the base of leaves or internodes on twigs
a. Apical Meristem
b. Cambium
c. Intercalary Meristem
d. Epidermis

d) Disease caused by *Entamoeba histolytica*
a. Amebic Dysentry
b. Bloody diarrhoea
c. Amebiasis
d. All the above

e) Exoerythrocytic phase of malarial infection produces
a. Sporozoites
b. Merozoites
c. Both
d. None of the above

Fill in the blanks

f) Reticulate and parallel venation are characteristics of ----------and ---------- respectively

g) ---------- and ---------- are the types of food and feeding found in Amoeba.

h) Types of Asexual reproduction found in Amoeba are ---------- and ----------.

i) The placenta attached to developing seed near----------

j) Examples of modified undergroung stems are---------- and ----------

Q.2 **Answer the following** **(2x10)**

a) What is phyllotaxy?

b) Name the disease caused by *taeniasaginata*

c) What do you mean by parthenocarpy?

d) What do you mean by epigynous flower?

e) Name the different stages of cell division in plants

f) Why lysosomes is called as suicidal bags?

g) Outline any two modes of control of malaria.

h) What is the function of Mitochondria?

i) Give two examples of parallel venation

j) What do you mean by Zygomorphic.

Q.3 **a)** Explain the structure and life cycle of Silkworm with its economic importance. **(10)**

b) Define Exo-erythrocytic phase of malaria with diagram **(5)**

Q.4 **a)** Describe different modified Root system with examples **(10)**

b) Write shortly about Leaf venation with suitable examples **(5)**

Q.5 **a)** Write the difference between Mitosis and miosis.explain the Miotic cell division with diagrams. **(2+8)**

b) Describe the distinguishing characteristics of family Liliaceae **(5)**

Q.6 **a)** Describe in details about Biological significance and Properties of Nucleic acids. **(10)**

b) Write shortly about plant hormones and their importance **(5)**

Q.7 **a)** Explain Briefly about the Life cycle of Trypanosoma with suitable diagram **(10)**

b) Write details on Locomotion in amoeba **(5)**

Q.8 **a)** Distinguish between family Fabaceae and Solanaceae on basis of Gynoecium Characteristics(with diagram).write economic importance of any one of the above family **(8+2)**

b) Distinguish between T.S of Monocot and dicot Stem with diagram **(5)**

Q.9 **Write notes on any THREE :** **(5×3)**

a) Mitosis

b) Lysosomes

c) Chloroplast

d) Double Fertilization