DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary End Semester Examination – Summer ~~2020~~ 2022

Course: B. Pharmacy **Sem:** III

Subject Name: Pharmaceutical Organic Chemistry-II **Subject Code:** BP301T

Max Marks: 75 **Date:**24/08/2022 **Duration:** 3.45 Hrs.

Instructions –

1. **All questions are compulsory**
2. **Answers to MCQs should be written in full sentences**
3. **Draw diagrams / figures wherever necessary**
4. **Figures to right indicate full marks**

I. Multiple Choice Questions (All questions are compulsory) **(20 Marks)**

1) Benzene reacts with acetic anhydride in presence of $AlCl_3$ to form
   a) Benzophenone b) Acetophenone
   c) Phenyl Acetate d) Chlorobenzene

2) Which of the following cycloalkane has the lowest heat of combustion per carbon item?
   a) Cyclopropane b) Cyclopentane
   c) Cyclohexane d) None of these

3) Acetylenes Contain
   a) Carbon – Carbon Bond (c-c) b) Carbon – Carbon Double Bond
   c) Carbon – Carbon Triple Bond d) No Bond.

4)Which Catalyst used during halogenation Benzene
   a) Lewis Acid b) Lewis Base
   c) Platinum d) Ni/ Platinum

5) Which of the following is used in manufacturing of Bakelite
   a) Phenol b) Formaldehyde
   c) Ethyl Alcohol d) Both A and B

6) Which of the following is most acidic
   a) Benzyl alcohol b) Para Chloro phenol
   c) Para Fluoro Phenol d)Meta Chloro Phenol

7) Which of the following statement is true regarding Halogenation of Benzene
   I. Activation of electrophile by Lewis catalyst
   II. Attack of electrophile by aromatic ring
   III. Attack ofaromatic ring by activated electrophile
   IV. Activated electrophile protonation to regenerate aromatic ring

   a) I & III b) I & IV c) I & II d) II & IV

8)Halogen through are electron withdrawing in nature they are ortho, para directors in electrophilic aromatic substitution.
   a) Positive charge accommodated on halogen b) They are ring activators
   c) Formation of stable hydronium ion d) Because they are electronegative in nature

9) Which is most acidic in following compounds:
   a) 2 chloro-propanol b) m-chlorophenol

c) Cresol d) Phenol

10) Organic compound which contains one or more Benzene ring are termed as

a) Aryl b) Arenes

c) Benzenes d) Benzyls

11)Benzimidazolium chloride reacts with _____ to yield benzene

a) H_3PO_2 b) HBF_4

c) KCN d) SnO_2

12)Phenols with _____ gives colored complexes

a) Diazonium Salt b) Bromine

c) $FeCl_3$ d) Aspirin

13) Mono Nitration of n-methyl aniline gives _____ used as a major product

a) Ortho-nitro, n-methyl aniline b) Para-nitro, n-methyl aniline

c) Meta-nitro, n-methyl aniline d) Ortho, Para di-nitro, n-methyl aniline

14) Sulphonation of phenol at room temperature gives

a) *p*- isomer b) *o* - isomer

c) *m*-isomer d) Both *o*- and *p*- isomers

15) The degree of unsaturation of lipid can be measured as

a) Saponification b) Iodine

c) RM d) Polenske number

16) Molecular formula for DDT is

a) $C_{14}H_9Cl_5$ b) $C_{10}H_5Cl_5$

c) $C_{10}H_9Cl_5$ d) $C_{10}H_9Cl_2$

17) Which of the following is weaker than benzoic acid

a) *p*- Nitrobenzoic Acid b) *p* - Chlorobenzoic Acid

c) p-Methylbenzoic Acid d) *o*- Chlorobenzoic Acid

18) Highly unsaturated oil exposed to undergo oxidation and polymerization to form

a) Drying Oil b) Hardening Oil

c) Rancid Oil d) Saponification

19) Which of the following is not ortho-para directing

a) -OH b) -SH

c) $-NH_2$ d) -CN

20)Which of this is the simplest example of polynuclear hydrocarbon

a) Pyrene b) Dibenzoanthracene

c) Naphthalene d) None of these

II.Long Answers(Answer any **Two**) **(20 Marks)**

1) Write the principle, reaction and mechanism of Nitration and Friedel Craft's Alkylation in benzene.

2) Give the synthesis, reactions and medicinal uses of anthracene & naphthalene

3) How acidity of aromatic carboxylic acid is analyzed. Explain the effects of substituents on acidic strength of benzoic acid.

III.Short Answers(Answer any **Seven**) **(35 Marks)**

1) Write the methods of preparations of deiphenyl methane.

2) Write the mechanism for diazotization reaction.

3) Explain the Huckel's rule with suitable examples.

4) Define angle strain. Discuss why higher cycloalkanes are more stable than lower members.

5) Write the chemical reactions of fats and oils.

6) Explain the molecular orbital structure of benzene.

7) Explain the directive effects of substituent towards electrophilic substitution reactions of benzene.

8) Give the structure and used of saccharin, resorcinol and phenanthrene.

9) Explain Bayer's strain theory and Sache-Mohrs theory.

------END OFPAPER------

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary End Semester Examination – Summer ~~2020~~ 2022

Course: B. Pharmacy | Sem: III

Subject Name: Physical Pharmaceutics – I | Subject Code: BP302T

Max Marks: 75 | Date:27/08/2022 | Duration: 3.45 Hr.

Instructions –

1. All questions are compulsory
2. Answers to MCQs should be written in full sentences
3. Draw diagrams / figures wherever necessary
4. Figures to right indicate full marks

Q. 1. Multiple Choice Questions (MCQs) = 20 x 1 = 20 (All the questions are compulsory)

1. Identify the property not to be considered as a derived property…

a) Solubility b) Bulk Density

c) Angle of repose d) porosity

2. Mark the state showing faster dissolution…

a) Amorphous b) Metastable

c) Stable d) All show the science rule

3. Maximum amount of a solute which can dissolve in 100g of a solvent at room temperature is called…

a) Solubility b) Solution

c) Capacity d) Eligibility

4. Amorphous substance do not have…

a) Sharp melting point b) Characteristic geometrical shape

c) regularity of the structure d) All of the above

5. Surfactants are characterized by the presence of …

a) Water solubilizing and fat solubilizing grow in the same molecule

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b) Only negative charges

c) Only positive charges

d) None of the above

6. The pH of pharmaceutical buffer system can be calculated by …

a) pH partition theory

b) Noyes Whitney law

c) Henderson – Hasselbalch equation

d) Michalis menten equation

7. The term pH was first used by…

a) Søren Peter Lauritz Sørensen

b) Low's Pasteur

c) James kelvin

d) Alfrad columb

8. Stalagmometer is used to determine…

a) Viscosity

b) Surface tension

c) Solubility

d) Particle size

9. If the gold number is less than the protective action will be…

a) More

b) Less

c) Half

d) Zero

10. If temperature of the liquid is increased the surface tension will …

a) Remain constant

b) Increased

c) Decreased

d) can't be predicted

11. Sorbitan esters, used as nonionic surfactants, are …

a) Tweens

b) Spans

c) Pola waves

d) Poloxalkolis

12. Air permeability method is used to determine the_____of powder

a) Volume

b) Density

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c) Weight
d) Specific surface area

13. Following gel shows a thixotropic behavior …

a) Bentonite
b) Starch
c) Pectin
d) Silica

14. The colligative property are related to the …

a) Total number of solute particles
b) pH
c) Number of ions
d) Number of ingredients

15. Unit of surface tension is …

a) Dyne/meter
b) dyne/cm
c) cc/mm
d) none of the above

16. The number of moles of solute per liter of solution is called …

a) Normality
b) Molarity
c) Mole fraction
d) None

17. If one part of solute is dissolved in 1 – 10 parts of the solvent, then the solute will be…

a) Soluble
b) Sparingly soluble
c) Freely soluble
d) None

18. Particle size and shape can be determined by using…

a) Microscopy
b) Sieving method
c) Sedimentation
d) All

19. HLB stands for ____ that are helpful to determine the type of emulsion …

a) Highly lipophilic base
b) High low balance
c) Hydrophilic lipophilic balance
d) All

20. Determination of surface tension is possibly by…

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a) X – ray diffraction
b) Karl fisher method
c) Capillary rise method
d) Sedimentation method

Q. 2. Long Answers = 2 x 10 = 20 (Answer 2 out of 3)

1. Define surface tension explain any one method for determination of surface tension with its limitations
2. Explain in detail various physicochemical properties of drug molecules. Give its application.
3. Elaborate the term buffers and highlight their application. Explain any one method for determination of pH

Q. 3. Short Answers = 7 x 5 = 35 (Answer 7 out of 9)

1. Explain ideal solubility parameters for solubility.
2. Explain virous factors influencing solubility of drugs.
3. Explain critical solution temperature. Give its application
4. Define and classify polymorphism. Difference between polymorphism and amorphism.
5. Explain HLB scale and its applications.
6. Define and classify complexation with its application
7. What is protein binding? write the importance of protein binding.
8. Write a note on
    a. Maximum buffer capacity
    b. Buffer equation.
9. Define interfacial tension. Write a note on surfactant.

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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary End Semester Examination – Summer 2022

Course: B. Pharmacy Sem: III

Subject Name: Pharmaceutical Microbiology Subject Code: BP303T

Max Marks: 75 Date:30/08/2022 Duration: 3.45 Hr.

Instructions –

1. **All questions are compulsory**
2. **Answers to MCQs should be written in full sentences**
3. **Draw diagrams / figures wherever necessary**
4. **Figures to right indicate full marks**

Q. 1. Multiple Choice Questions (MCQs) = 20 x 1 = 20 (All the questions are compulsory)

i) Psychrophiles would be expected to grow .....

a) in hot spring
b) at refrigeration temperatures
c) on human body
d) at low pH

ii) Flagella are made up of protein subunits called .....

a) flagellin
b) flageva
c) flagelas
d) none of above

iii) Scanning electron microscopy is used to observe .....

a) internal parts of cell
b) surface topography
c) flagella
d) all of these

iv) Common mode of reproduction in bacteria is ----------

a) transverse binary fission
b) longitudinal binary fission
c) budding
d) sexual reproduction

v) ..... of the following shows cocci in bunch arrangement.

a) Staphylococcus
b) Streptococcus
c) Arthococcus
d) Diplococcus

vi) ..... bacteria use CO2 as the sole source of carbon and sunlight as a source of energy.

a) Photoautotroph
b) Chemoautotroph
c) Chemoheterotroph
d) Chemolithotroph

vii) Talc powder is generally sterilized by.....

a) Autoclave
b) Hot air oven

c) Radiations d) Filtration

viii) Select yeast from following……..

a) *Aspergillus* b) *Saccharomyces*

c) *Microsporum gypseum* d) *Penicillium*

ix) U.V. light causes formation of …… dimers.

a) adenine b) thymine

c) gunine d) cytosine

x) Heat sensitive materials can be best sterilized by ……

a) filtration b) autoclaving

c) dry heat sterilization d) any one of above

xi) …….. is used as standard disinfectant in RW coefficient test.

a) Phenol b) Alcohol

c) Glutarldehyde d) Dettol

xii) Efficiency of HEPA filter is……..

a) 99.97 % b) 90.97 %

c) 97.97 % d) 88.97 %

xiii) A lysogenic bacterium……

a) carries a prophage b) causes lysis of other bacteria on contact

c) is often a human pathogen d) is usually not capable of living

xiv) Test microorganism used for microbiological assay of Vitamin B_{12} is……..

a) Lactobacillus leichamannii *b) Lactobacillus casei*

c) Lactobacillus viridescens *d) Lactobacillus plantarum*

xv) …… is called as bakers yeast.

a. Saccharomyces cervesiae *b. Aspergillus niger*

c. Candida albicans *d. Aspergillus awamorii*

xvi) The HEPA Filter stands for……

a) High-Efficiency Particulate Air b) High-Energy Particles in Air

c) High-Evaluation Protection d) Hepatitis A

xvii) DOP test is used for validation of……..

a) Membrane filter b) HEPA filter

c) Aseptic room d) Autoclave

xviii) Magnification of an oil-immersion objective is.....

a) 10x
b) 1000x
c) 100x
d) 50x

xix) Which of the following agents are used as a preservative in ophthalmic solutions?

a) Chlorocresol
b) Benzalkonium chloride
c) Phenol
d) Dichlorobenzyl alcohol

xx) An agent which kills all vegetative cells of disease producing organisms but not necessarily spore form is called as .....

a) sterilizer
b) disinfectant
c. fungicide
d. germicide

Q. 2. Long Answer questions = 2 x 10 = 20 (Answer 2 out of 3)

i) Define Microbiology. Explain in detail scope of microbiology related to pharmaceutical field.

ii) Enumerate various methods of sterilization and discuss moist and dry heat sterilization with special reference to pharmaceutical applications.

iii) What are disinfectants? Explain different methods of evaluation of disinfectants

Q. 3. Short Answer questions = 7 x 5 = 35 (Answer 7 out of 9)

i) Define pure culture and explain methods used for isolation of pure culture

ii) Discuss methods of microbiological assay of antibiotics.

iii) Describe in detail sources and types of microbial contamination.

iv) Write a note on bacterial growth curve.

v) Discuss the contributions of Louis Pasteur

vi) Describe methods of cultivation of animal viruses.

vii) List out various staining techniques. Explain Gram staining in detail.

viii) What are Fungi? Explain classification of fungi.

ix) Write in detail IMViC tests with significance.

-----END OF THE PAPER------

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – Summer 2022

Course: B. Pharmacy **Sem: III**

Subject Name: Pharmaceutical Engineering **Subject Code: BP304T**

Max. Marks: 75 **Date: 30/07/2022** **Duration: 3.45 Hrs.**

Instructions –

1. **All questions are compulsory**
2. **Answers to MCQs should be written in full sentences**
3. **Draw diagrams / figures wherever necessary**
4. **Figures to right indicate full marks**

Q. 1. Multiple Choice Questions (MCQs) = 20 x 1 = 20 (All the questions are compulsory)

1) When principle of conservation of energy is applied to flow of fluids then resulting equation is known as
   a) Reynold's Number b)Bernoulli's theorem
   c) Hagen-poistuile's equation d)Kick's theory
2) If the vapour pressure of the liquid is more the evaporation rate is
   a) High b) Low
   c) Medium d) Too low
3) Mechanism of fluid energy mill is
   a) Impact pressure b) Attrition and Impact
   b) Cutting d) None of the above
4) Climbing film evaporator also called as
   a) Falling film evaporator b) Triple effect evaporator
   c) Rising film evaporator d) Forced circulation
5) Which of the following is not an advantage of size reduction?
   a) Improved dissolution rate b) Improved physical stability
   c) Improved absorption rate d) Drug degradation
6) Which of the following theory not describe rate of filtration?
   a) Darcy's Law b)Poiseuille's equation
   c) Kozeny carman equation d) Noye's Whitney equation
7) Flow pattern in liquid-liquid mixing
   a) Radial flow b) Tangential flow
   c) Longitudinal flow d) All of the above
8) Alcohol and water is example of
   a) Positive mixture b) Negative mixture

c) Neutral mixture d) None of the above

9) Centrifugation is used for....
   a) Mixing b) Purification
   c) Separation d) Sizing

10) Which of the following is type of stainless steel?
   a) Martensitic b) Ferritic
   c) Austenitic d) All of the above

11) Which of the following is not a filter aid?
   a) Diatomaceous earth b) Perlite
   c) Cellulose d) Cotton

12) Austenitic consists of
   a) 13 to 20% chromium +6 to 22% nickel +0.1 to 0.25% carbon
   b) 12 to 20% chromium +2% Nickel+0.2 to 0.4 % carbon
   c) 20 to 40% chromium+12% nickel +1 to 25 carbon
   d) 15 to 30 % chromium+0.15%carbon

13) Impingement, enlargement and straining are related to
   a) Mixing b) Centrifugation
   c) Filtration d) All of these

14) What is pore size of filtration membrane to remove bacteria?
   a) 0.25µm b) 0.27µm
   c) 0.22µm d) 0.26µm

15) Mixing device technically called as
   a) Impellers b) Turbines
   C) Paddles d) All of these

16) Raoult's law is related to
   a) Vapour pressure b) Atmospheric pressure
   c) Osmotic pressure d) All of the above

17) Heat transfer place as per
   a) Zeroth law of thermodynamics b) First law of thermodynamics.
   c) Second law of thermodynamics d) Kirchhoff's law

18) Corrosion of metal involves
   a) Physical reaction b) Chemical reaction
   c) Both a) and b) d) None of the above

19) Free moisture content is
   a) Total water content minus equilibrium moisture content.
   b) Total water content plus equilibrium moisture content
   c) Ratio of total water content to the equilibrium moisture content
   d) Total water present in solid minus water in environment.

20) Tunnel dryer is varient of
   a) Rotary drum dryer b) Fluidized bed dryer

c) Tray dryer d) Spray dryer

Q. 2. Long Answers) = 2 x 10 = 20 (Answer 2 out of 3)

1) Discuss in detail various modes of heat transfer. Draw a neat diagram of shell and tube heat exchanger and explain its working.
2) Define distillation, write application of distillation and explain construction working laboratory scale vacuum distillation unit.
3) Define and classify evaporation and Describe in detail factor affecting evaporation.

Q. 3. Short Answers = 7 x 5 = 35 (Answer 7 out of 9)

1) Write a note on theories of filtration.
2) Explain principle, construction and working of rotameter.
3) Explain theories of corrosion.
4) Discuss the principle and application of centrifugation.
5) Explain in detail multiple effect evaporators.
6) Write in detail factors affecting size reduction.
7) How will you carry out conveying of solid?
8) Write a note on lyophilizer.
9) List the equipments used for solid mixing in pharmaceutical industry. explains construction and working of sigma blade mixer.

——END OF THE PAPER——

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary End Semester Examination – Summer 2022

Course: B. Pharmacy | Sem: III

Subject Name: Pharmaceutical Engineering | Subject Code: BP304T

Max Marks: 75 | Date:06/09/2022 | Duration: 3.45 Hrs.

Instructions –

1. **All questions are compulsory**
2. **Answers to MCQs should be written in full sentences**
3. **Draw diagrams / figures wherever necessary**
4. **Figures to right indicate full marks**

Q. 1. Multiple Choice Questions (MCQs) = 20 x 1 = 20 (All the questions are compulsory)

i) If the Reynold's number is less than 2000 the flow in a pipe is

a) Turbulent b) Laminar

c) Transition d) None of the above

ii)Size reduction can not be obtained by one of the following method

a) Mechanical b) Cutting

c) Attrition d) Flocculation

iii) A ball mill uses .....

a)Impact b) Impact & Attrition

c) Attrition d) None of the above

iv)In cyclone separator, the separation will depend on

a)Density & Shape b) Shape & Surface area

c)Size & Density d) Surface texture & Size

v)Metal used for making the sieves...

a)Zinc b) Stainless steel

c) Tin d) Aluminium

vi)The body which absorbs all radiation incident upon it is called as

a) Black body b) White body

c) Transparent body d) Opaque body

vii)The liquid which has the highest rate of evaporation is

a) Petrol b) Nail polish remover

c) Water d) Alcohol

viii)Distillation does not involve in one of following process

a)Evaporation b) Extraction

c) Purification d) Separation

ix)Which product is not dried by spray dryer?

a)Bacterial & viral cultures b) fruit juices

c) Lactose d) Serum

x)Which of the following is not the type of energy loss?

a) Friction loss b) Enlargement loss

c) Resistance loss d) losses in fittings

xi)Which distillation method is used for separation of high boiling substance from non volatile impurities?

a)Steam distillation b) Simple distillation

c)Vacuum distillation d) Rectification distillation

xii)Larger the surface area of liquid then evaporation will be....

a) Small b) Large

c) Moderate d) Very small

xiii)Insoluble Impurities from solution during crystallization are removed by....

a)Drying b) Filtration

c) Heating d) Cooling

xiv)Reynold's number may be defined as ratio of one of the following

a)Elastic forces to pressure forces b) Gravity forces to inertial forces

c)Inertial forces to viscous forces d)Viscous forces to inertial forces

xv)Rotameter is available with electric and electronic ..... for recording

a)Device b) Database

c) System d) Transmitter

xvi)Pitot tube is also known as.....tube

a)Insertion tube b) Venturi tube

c) Connective tube d) Conveyer

xvii)Heat transfer takes place according to .....

a)First law of thermodynamics b)Second law of thermodynamics

c)Third law of thermodynamics d)Zeroth law of thermodynamics

xviii)The fractional distillation is process in which liquid evaporates at

a)Constant temperature b) Different temperature

c) Same temperature d) None of the above

xix)with what is the feed introduced in spray dryer

a) Spray b) Atomizer

c) Nucleator d) Heat exchanger

xx)Which factor does not affect separation process of centrifuge

a)Centrifugation time b)Nature of slurry

c)Speed of centrifuge d)Temperature

Q. 2. Long Answers) = 2 x 10 = 20 (Answer 2 out of 3)

i) Define Size separation,write mechanism and explain construction working of sieve shaker machine.

ii)Define filtration,write theories of filtration and factors affecting Rate of filtration.

iii)Write in detail about(any two)

a) Fluid Energy mill b) Fractional distillation

c) Fluidized bed dryer d) Rotary drum filter

Q. 3. Short Answers = 7 x 5 = 35 (Answer 7 out of 9)

i)State and derive Bernoulli's theorem.

ii)Define Heat transfer and write mechanisms of heat transfer.

iii)Write note on Rate of drying curve

iv)Write note on corrosion

v)Define mixing and Factors affecting the mixing process.

vi)Describe in detail about climbing film evaporator.

vii)Write in detail about perforated basket centrifuge.

viii)Write short notes on types of manometers.

ix)Write in detail about factors affecting evaporation and the difference between evaporation and other heat processes.

------END OF THE PAPER------