



**ARKAJAIN**  
**University**  
Jharkhand

**3<sup>rd</sup> Semester Examination – 2021-22**

Subject : Physical Pharmaceutics I  
Course : B. Pharmacy  
Full Marks : 75

Roll No : .....

Time : 3 Hours.

**Instructions to the Candidates:**

- Read the question paper very carefully.
- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into Three Parts –A, B & C.
- Part-A is containing 20 multiple choice questions or objective type Questions.
- Part- B containing THREE questions out of which TWO questions are to be answered.
- Part C containing NINE questions out of which SEVEN questions are to be answered.
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**PART A**

**MULTIPLE CHOICE QUESTIONS**

(20x1=20)

1. The solution which can't hold no more solute is termed as:  
a. Concentrated solution      b. Dilute solution      c. Saturated solution      d. Aqueous solution
2. In BCS classification class II drugs are with  
a. Low solubility with high permeability      b. High solubility and low permeability  
c. Low solubility and low permeability      d. High solubility and high permeability
3. Gram equivalent weight of solute in one liter of solution  
a. Molarity      b. Molality      c. Normality      d. Mole fraction
4. Which one of the following is limitation of Nernst's distribution law?  
a. Dilute solution      b. Constant temperature      c. Same molecular state      d. All of these
5. Energy dependent diffusion is  
a. Active transport      b. Passive diffusion      c. Facilitated diffusion      d. Filtration
6. The ratio of the speed of light in vacuum relative to that in the considered medium is known as  
a. Refractive index      b. Dipole moment      c. Optical rotation      d. Dielectric constant
7. The units of Dipole moment  
a. Coulomb meters      b. Debye      c. Stat c. cm      d. All of these
8. The induced dipole moment per unit electric field is called  
a. Polarizability      b. dipole moment      c. dielectric constant      d. none of these
9. The unit of surface tension in CGS system is  
a. Newton/metre      b. Dy/cm      c. milli-newton/metre      d. All of these
10. Which of the following statement is in-correct?  
a. Interfacial tension is less than surface tension.      b. Interfacial tension is more than surface tension  
c. The unit of surface tension is same as that of interfacial tension      d. All of these
11. Tween 60 is a surfactant of type  
a. Anionic      b. Cationic      c. Non-Ionic      d. Amphoteric
12. The HLB range for lipophilic surfactant is  
a. 9 to 16      b. 16 to 20      c. more than 20      d. 3 to 8



13. Cohesive forces are the forces acting  
 a. between molecules of different molecule      b. between molecules of same material  
 c. between water and glass capillary tube      d. Due to gravity
14. 8- Hydroxyquinilline can complex with which of the following for better antimalarial action  
 a. Iron      b. cobalt      c. Zinc      d. Antimony
15. Caffeine + gentisic acid complex  
 a. mask bitter test of caffeine    b. improve absorption    c. enhances solubility    d. All of these
16. Cyclodextrins are:  
 a. mono-sacchrides    b. di- sacchirides      c. cyclic oligo sacchirides    d. All of these
17. Among all these proteins, which protein level is high?  
 a. albumin      b. globulin      c. alpha- acid      d. glycoprotein
18. Which of the following buffers is basically used in the Parenteral preparations  
 a. Acetate buffer    b. Phosphate buffer      c. Citrate buffer      d. All of these
19. Which of the bellow condition could lead to cell lysis, if not properly monitored?  
 a. Isotonicity      b. Hypertonicity      c. Hypotonicity      d. None of these
20. Maximum buffer capacity equals to  
 a. 0.576C      b. 57.6C      c. 2.303C      d. 0.2303C

### PART B

ANSWER ANY TWO OUT OF THREE

(2x10=20)

1. Explain the electrical double layer with neat diagram.
2. What is Refractive index? Explain it.
3. Classify complexes. Write down the major applications of complexation.

### PART C

ANSWER ANY SEVEN OUT OF NINE

(7x5=35)

1. Shortly write about various diffusion principles in biological system.
2. What is HLB? Briefly write about HLB scale.
3. Briefly write about changes in the state of matter.
4. Shortly write about surface and interfacial tensions.
5. What is a surface active agent? Shortly write about various surfactants.
6. Shortly write about the various differences of crystalline and amorphous form.
7. Briefly write about dipole moment.
8. What is buffer? Shortly write about the various applications of buffers.
9. Shortly write about the various interfaces with diagrams.



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3<sup>rd</sup> Semester Examination -2021-22

Subject : Communication Skills  
Course : B. Pharmacy [ Lateral ]  
Full Marks : 70

Roll No: .....

Time : 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into Three Parts -A, B & C.
- Part-A is containing 12 multiple choice questions.
- Part- B containing SIX questions out of which FOUR questions are to be answered.
- Part C containing FOUR questions out of which TWO questions are to be answered.
- Do not write anything except your Roll No. on the question paper.
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PART A

MULTIPLE CHOICE QUESTIONS

(12x1=12)

1. Communication means.
  - a. Abilities one use in giving and receiving information
  - b. Technique used in communication
  - c. Language used
  - d. All of the above
2. What do you understand by the term Active Listening.
  - a. Replying right
  - b. Using gadgets to listen carefully
  - c. Close attention to people listening to you
  - d. None of the above
3. Adapting communication style to audience means.
  - a. We should keep the language of listener in mind
  - b. We should give regard to the position of the listener
  - c. Medium of communication is in accordance with the matter that needs to be communicated
  - d. All of the above
4. What are the three main elements of communication.
  - a. Sender, Medium and receiver
  - b. Sender, message and receiver
  - c. Sender, receiver and feedback
  - d. Sender, encoding, feedback
5. What is encoding.
  - a. Using different medium of communication
  - b. Using of words and symbol in communication
  - c. Using different styles
  - d. None of the above
6. What do you understand by the term media in communication.
  - a. Publication of various modes of communication.
  - b. Reading the message in proper terms
  - c. Publication of message
  - d. Manner in which encoded message is transmitted
7. What do you understand by decoding.
  - a. Converting the symbols encoded by the sender
  - b. Able to read the senders message
  - c. Give different interpretation of the message received
  - d. Both a & b
8. What is the role of noise in communication.
  - a. Encoding
  - b. Barrier in Communication
  - c. Decoding
  - d. None of the above



9. Communication \_\_\_\_\_ interpersonal skill.
- Inhibit
  - Doesn't affect
  - Enhance
  - All of the above
10. Communication is classified in \_\_\_\_\_ main category.
- Three
  - Two
  - One
  - None of these
11. What is the kind of communication generally practiced in an organization.
- Informal
  - Formal
  - Grapevine communication
  - None of these
12. What do you understand by vertical communication
- Communication from higher management to lower level
  - Communication between colleagues
  - Communication with other organization
  - None of these

### PART B

#### ANSWER ANY FOUR OUT OF SIX

(4x7=28)

- What are the different elements of communication process?
- What do you mean by the term barriers in communication?
- State the various kinds of barriers in communication with an example for each?
- What do you understand by the term self-awareness? State its importance.
- What do you mean by the term visual perspective?
- What are the major factors affecting perspective?

### PART C

#### ANSWER ANY TWO OUT OF FOUR

(2x15=30)

- What do you understand by the term communication? How many kinds of communication are there? What is the importance of communication?
- What do you understand by the term perspective in communication? How perspective affects communication?
- State the importance of interview. Mention all the Do's and Don'ts of an interview.
- What do you mean by group discussion? State the importance of group discussion.





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**3<sup>rd</sup> Semester Examination – 2021-22**

Subject : Pharmaceutical Microbiology Roll No: .....  
Course : B. Pharmacy  
Full Marks : 75 Times : 3 Hours.

**Instructions to the Candidates:**

- Read the question paper very carefully.
- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into Three Parts –A, B & C.
- Part-A is containing 20 multiple choice questions or objective type Questions.
- Part- B containing THREE questions out of which TWO questions are to be answered.
- Part C containing NINE questions out of which SEVEN questions are to be answered.
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**PART A**

**MULTIPLE CHOICE QUESTIONS**

**(20x1=20)**

- Who was the first to observe “animalcules” under the microscope?  
a. Antonie van Leeuwenhoek    b. Otzi the Iceman    c. Robert Koch    d. Marcus Terentius Varro
- An example of an antiseptic would be \_\_\_\_\_.  
a. soap                            b. hand lotion                            c. bleach                            d. rubbing alcohol
- What is the use of Iodine in Gm staining?  
a. Fixative                            b. Stain                            c. Mordant                            d. Solubilizer
- Which of the following structure(s) is /are external to cell wall?  
a. Flagella                            b. Stalks                            c. Sheath                            d. all of these
- Which virus has bullet shape?  
a. Pox virus                            b. Influenza virus                            c. Rabies virus                            d. Polio virus
- Which of the following does not contain protein?  
a. Pili                            b. Flagellum                            c. Lipoteichoic acid    d. Porin
- Which type of cocci forms chain like arrangement?  
a. Staphylococci    b. Diplococci                            c. Tetracocci                            d. Streptococci
- The antiseptic method was first demonstrated by  
a. Lwanowski    b. Lord Lister                            c. Edward Jenner    d. Beijerinck
- Study of Virus is known as:  
a. Virology                            b. Mycology                            c. Phycology                            d. Parasitology
- Who discovered first ‘wonder drug’ penicillin?  
a. Robert Koch    b. Pasteur                            c. Needham                            d. Sir Alexander Flemming
- Who discovered *Mycobacterium tuberculosis*?  
a. Robert Koch    b. Pasteur                            c. Darwin                            d. Needham
- Which part of bacteria is responsible for its motility?  
a. Pilli                            b. Flagella                            c. Sheath                            d. Capsules



13. The following are all examples of sterilization systems for heat sensitive items EXCEPT  
 a. Filtration            b. Gamma ray            c. Autoclave            d. UV light
14. All fungi are \_\_\_\_\_  
 a. Autotrophs            b. heterotrophs            c. saprophytes            d. parasites
15. What do you mean by sterilization?  
 a. Purification of products            b. Recovery of products  
 c. Elimination of contamination            d. Formulation of media
16. Who demonstrated that open tubes of broth remained free of bacteria when air was free of dust?  
 a. Spallanzani            b. John Tyndall            c. Francisco Redi            d. Pasteur
17. Cell can be defined as a basic \_\_\_\_\_ of life.  
 a. functional unit            b. cytological unit            c. lysosomal unit            d. neural unit
18. What do prokaryotic cells lack?  
 a. Cell walls            b. Cytoplasm            c. Membrane bound Nucleus            d. Cell membrane
19. Fluid mosaic model was given by  
 a. Robertson            b. Schwann            c. Dave Donson            d. Singer and Nicholson
20. Which one is the component of flagellum?  
 a. Hook            b. Basal body            c. Filament            d. All of these

### PART B

#### ANSWER ANY TWO OUT OF THREE

(2x10=20)

1. What is microbiology? Discuss the branches and scope of microbiology.
2. Describe the Aseptic area with a neat labeled flow diagram.
3. Discuss the occurrence, morphology, properties and replication in Virus.

### PART C

#### ANSWER ANY SEVEN OUT OF NINE

(7x5=35)

1. Discuss about Robert Koch's postulate.
2. Classify the preservative according to its source and mechanism of action.
3. Describe any one method of acid fast staining technique
4. What are the basic requirements for staining technique?
5. Write short notes on sterility indicators
6. Define Spoilage. Write shortly about the chemical spoilage.
7. Write short notes on chemical sterilization.
8. Discuss briefly about vegetative reproduction of fungi.
9. What are the different factors influence the growth of bacteria?





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3<sup>rd</sup> Semester Examination -2021-22

Subject : Pharmaceutical Organic Chemistry-II  
Course : B. Pharmacy  
Full Marks : 75

Roll No: .....

Times : 3 Hours.

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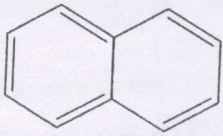
**MULTIPLE CHOICE QUESTIONS**

**PART A**

(20x1=20)

1. Saponification is the value of oil for which the number of mgs of KOH required to saponify the \_\_\_\_\_ present in the 1g of oil.  
a. Fatty materials  
b. Salts  
c. Free acids  
d. Bases
2. What is acid value?  
a. Number of milligram of KOH required to neutralize one gram of oil.  
b. Number of gram of KOH required neutralizing one gram of oil.  
c. Number of Kilogram of KOH required neutralizing one gram of oil.  
d. Number of Milliliter of KOH required neutralizing one gram of oil.
3. What is the characteristic smell for ester?  
a. Fruity like smell  
b. Fish like smell  
c. Rotten egg smell  
d. Alcoholic smell
4. Which of the following statement is correct?  
a. Phenoxide ion is more stable than phenol  
b. Phenoxide ion is less stable than phenol  
c. Phenol has 6 resonating structures  
d. All of the above are correct
5. Which one of the following is meta directing group?  
a. Nitriles  
b. -OH  
c. Halogens  
d. None of these
6. Which of the following is used in the treatment of gastric ulcer?  
a. Resorcinol  
b. Benzene  
c. Cresol  
d. BHC
7. Which of the following statement is incorrect?  
a. Electron withdrawing group increases the basicity of aromatic amines  
b. Electron donating group increases the basicity of aromatic amines



- c.  $K_b$  value is directly proportional to aromatic amines  
d. None of these
8. As per the Bronsted and Lowry concept, a base is a substance that.....?  
a. Accepts proton  
b. Donates proton  
c. Accepts neutron  
d. Donates neutron
9. Which of these is not an acid, Despite being a Hydrogen Compound?  
a.  $\text{CH}_4$   
b.  $\text{CCl}_3\text{COOH}$   
c.  $\text{H}_2\text{S}$   
d.  $\text{HF}$
10. Which of the following is a correct order of acidity?  
a. Carboxylic acid > Phenol > Water > Alcohol  
b. Carboxylic acid < Phenol < Water < Alcohol  
c. Carboxylic acid > Water > Phenol > Alcohol  
d. Carboxylic acid > Alcohol > water > Phenol
11. What is the name of the given structure?  
  
a. Naphthalene  
b. Anthracene  
c. Phenol  
d. None of these
12. Which of the following is a characteristic of an aromatic compound?  
a. Planar  $\text{C}_6$  ring  
b. Delocalised  $\pi$  bonding  
c.  $\text{sp}^2$  hybridised C atoms  
d. All of the above
13. Which of the following is incorrect for benzene?  
a. Planar  $\text{C}_6$  ring  
b. Localised  $\pi$  bonding  
c.  $\text{sp}^2$  hybridised C atoms  
d. It shows reactions characteristics of  $\text{C}=\text{C}$  double bonds
14. Which of the following statement is correct?  
a. Electron withdrawing group increases the acidity of aromatic acids  
b. Electron withdrawing group decreases the acidity of aromatic acids  
c. Electron withdrawing group has no relation with the acidity of aromatic acids  
d. None of the above
15. "The stability of carbocyclic compounds (i.e., those of which the molecular structure includes one or more rings of carbon atoms) depends on the amount by which the angles between the chemical bonds deviate from the value." This statement is true or false?  
a. True  
b. False
16. Which of the following statement is incorrect?  
a. Benzene can show nucleophilic substitution reaction  
b. Benzene can show Electrophilic substitution reaction  
c. Resonance is directly proportional to stability  
d. Benzene can never show addition reaction
17. As per Lewis Concept, a Molecule in Which the Central Atom has an Incomplete Octet is \_\_\_?  
a. Base  
b. Acid  
c. Alkali  
d. A neutral solvent
18. Identify the correct IUPAC name  
a.  $(\text{CH}_3\text{CH}_2)_2\text{NCH}_3$  = N-Ethyl-N-methylethanamine  
b.  $(\text{CH}_3)_3\text{CNH}_2$  = 2-methylpropan-2-amine  
c.  $(\text{CH}_3\text{NHCH}(\text{CH}_3)_2$  = N-Methylpropan-2-amine  
d.  $(\text{CH}_3)_2\text{CHNH}_2$  = 2, 2-Dimethyl-N-propanamine



19. What is the hybridisation of nitrogen in amino group?

- a. Sp
- c. Sp<sup>3</sup>

- b. Sp<sup>2</sup>
- d. Sp<sup>3</sup>d

20. What is the ideal acid value of pharmaceutical oil?

- a. 0
- c. 2

- b. 1
- d. 3

### PART B

#### ANSWER ANY TWO OUT OF THREE

(2x10=20)

1. Explain the effect of substituents on reactivity and orientation of mono substituted benzene compounds towards electrophilic substitution reaction.
2. Write any five methods of preparation of polynuclear hydrocarbons.
3. Write an exhaustive note on analytical, synthetic and other evidences in the derivatives of structure of benzene.

### PART C

#### ANSWER ANY SEVEN OUT OF NINE

(7x5=35)

1. Write a short note on acid value and saponification value of oils.
2. Explain Baeyer's strain theory with its limitation.
3. Explain diazotization reaction with its two applications.
4. Write the structure and three uses of BHC and chloramine.
5. Write the structure and three medicinal uses of naphthalene, phenanthrene & anthracene.
6. Write a short note on Friedel craft alkylation and Friedel craft acylation reaction.
7. Write a brief note on acidity of phenols.
8. Write any three important reactions of benzoic acid.
9. Write any four qualitative tests for phenol.