विद्याधनं सर्वधन प्रधानम्।

Mumbai Educational Trust Institute of Pharmacy (Degree)

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SECOND YEAR SEMESTER III (Revised CBCS- 2019)

MULTIPLE CHOICE PRACTICE QUESTIONS

Pharmaceutical Organic Chemistry II

1) Polarizable alkyl group donate electron density, and thus exhibit
   a) Electron donating inductive effect
   b) Electron withdrawing inductive effect
   c) both A and B
   d) None of above
2) Resonance effect are only observed with substituents containing
   a) Lone pairs
   b) Pi bonds
   c) C) Both a and b
   d) None of above
3) Nitro group (NO2) directs electrophilic aromatic substitution to the
   a) Para position
   b) Meta position
   c) Ortho position
   d) all of above
4) Which of the following statement is false about cyclohexane
   a) It is saturated cyclic hydrocarbon
   b) All C-C-C bond angle are 109° 28’
   c) It is a unstable, strained compounds
   d) It can exist in two conformations which are designed as the boat and chair form
5) What is hybridization of the ring atoms in an aromatic compounds?
   a) SP
   b) SP^2
   c) P
   d) SP^3

6) Which of the following compounds is not aromatic?
    a) Benzene
    b) Phenanthrene
    c) Cyclooctatetraene
    d) Napthalene
7) How many Pi electrons are there in an anti-aromatic compounds

a) 4n + 4

b) 4n

c) 2n + 2

d) 4n + 2

8) Which of the following features is not characteristic of aromatic compounds

a) They are planar

b) They have an uninterrupted cloud of delocalized pi electrons

c) They are cyclic

d) The ring atoms must be carbon atoms.

9) Which of the following would be most reactive towards electrophilic bromination?

a) Nitrobenzene

b) Toluene

c) Bromobenzene

d) Phenol

10) Which of the following is least reactive toward electrophilic aromatic substitution?

a) Nitrobenzene

b) Toluene

c) Bromobenzene

d) Phenol

11) Which is strongest Lewis acid

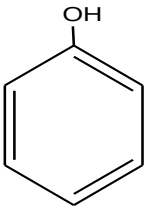
a) BF3

b) BCl3

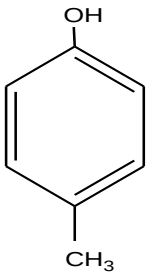
c) BH3

d) BBr3

12) Which of the following compound is least acidic?



a



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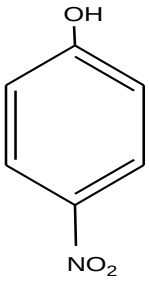

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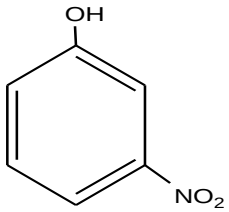
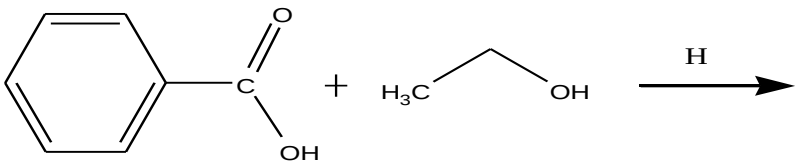
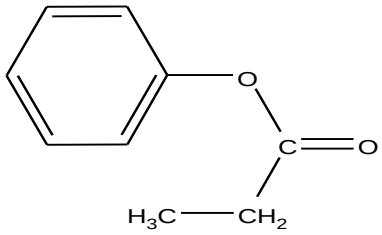


d

13) Product of the following reaction is:



a)



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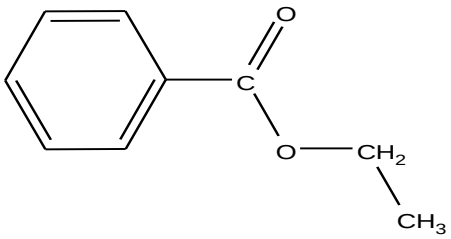

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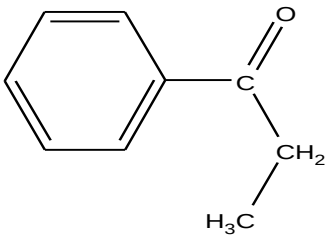

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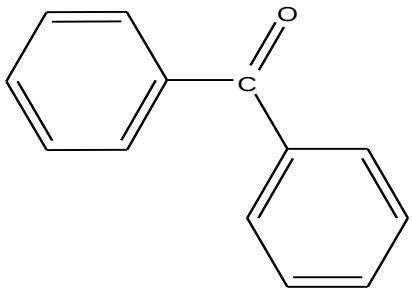
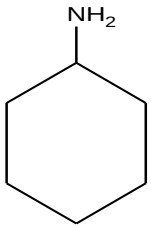
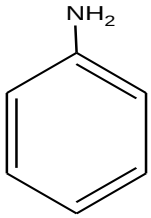
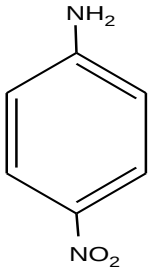
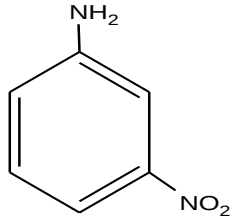


14) Which of the following compounds is most basic

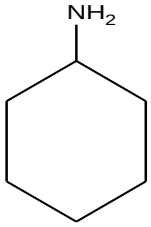
a) 

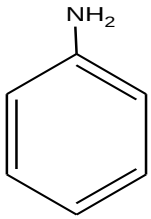
b) 

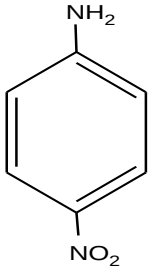
c) 

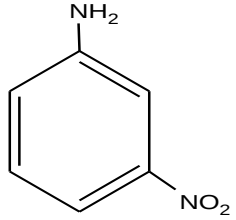
d) 

15) Which of the following compounds is least basic

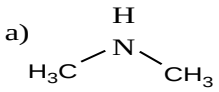
a) 

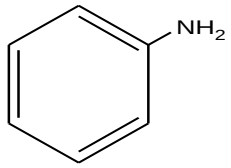
b) 

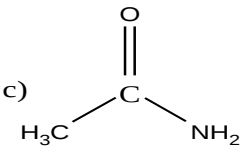
c) 

d) 

16) Which of the following compounds is most basic

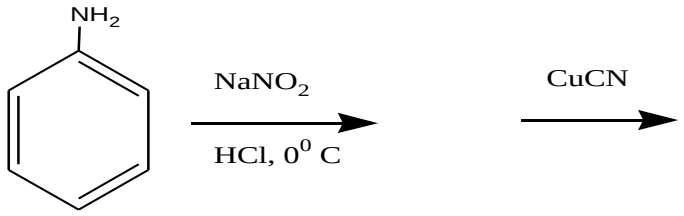
a) 

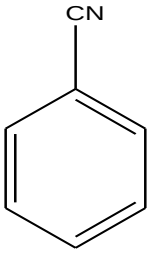
b) 

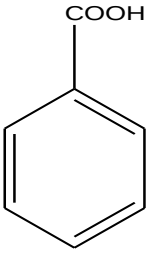
c) 

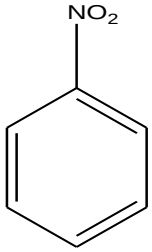
d) NH_3

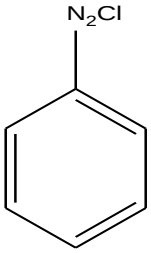
17) What is major product of the following reaction?



a) 

b) 

c) 

d) 

18) When highly unsaturated oils are exposed to air, undergo oxidation, and polymerization to form a thin waterproof film. Such oil are called
   a) Saponification
   b) Rancidification
   c) Drying
   d) All of above

19) All six carbon atoms are identical, but there are two types of protons – one type stick either vertically up or down and are called
   a) Equatorial hydrogen
   b) Axial hydrogen
   c) Both a and b
   d) None of above

20) Anthracene undergoes electrophilic substitution reactions mainly at
   a) C-1
   b) C-2
   c) C-9
   d) C-1 and C-2

Answer key:

1: a, 2: c, 3: b, 4: c, 5: b, 6: c, 7: b, 8: d, 9: d, 10: a, 11: a, 12: b, 13: b, 14: a, 15: c, 16: a, 17: a, 18: c, 19: b, 20: c

Physical Pharmaceutics I

1. In a dilatent flow the plot of rate of shear vs shearing stress
   A. Is a straight line
   B. Is a parabola
   C. Is a curve concave upwards
   D. Is a convex curve

2. In a Newtonian flow the plot of rate of shear vs shearing stress
   A. Is a straight line
   B. Is a parabola
   C. Is a curve concave upwards
   D. Is a convex curve

3. HLB value of o/w stabilizing surfactant lies between
   A. 3 to 7
   B. 7 to 10
   C. 1 to 3
   D. 10 to 15

4. Surfactant
   A. Has no effect on interfacial tension
   B. Decreases interfacial tension
   C. Increases interfacial tension
   D. It may increase or decrease interfacial tension

5. The units of interfacial tension is
   A. ergs/ sq.cm
   B. dynes/sq.cm
   C. dynes/ cubic cm
   D. poise

6. Henderson Hasselbalch equation for weak acid and its salt is
   A. pH = pKa – log { [salt] / [acid] }
   B. pH = pKa – log [salt]
   C. pH = pKa – log [acid]
   D. pH = pKa – 1

7. Aqueous solution of salt of weak acid and strong base can have pH between
   A. 1 and 2
   B. 2 and 3
   C. 6 and 7
   D. 7 and 8

8. Units of Surface tension are
   A. ergs/ sq.cm
   B. dynes/sq.cm
   C. dynes/ cubic cm
   D. Debye

9. Dilution of a alkaline solution with water
   A. decreases the pH
   B. increases the pH
   C. No change in pH
   D. Can increase or decrease

10. On adding surfactant, stability of an emulsion increases because
   A. there is no effect on interfacial tension
   B. interfacial tension increases
   C. interfacial tension decreases
   D. interfacial tension increases or decreases

11. The HLB of detergent lies between
    A. 3 to 7
    B. 7 to 10
    C. 1 to 3
    D. 10 to 15

12. Wetting of a solid by liquid is better
    A. angle of contact is near zero degree
    B. angle of contact is right angle
    C. angle contact is 105 degree
    D. angle of contact is obtuse angle

13. Buffer capacity of a buffer is given by
    A. dpH/db
    B. db/dpH
    C. 1 – db/dpH
    D. 1 + db/dpH

14. A rheogram is a
    A. Volume v/s pressure
    B. Pressure v/s temperature
    C. Volume v/s tempetrature
    D. Rate of shear v/s shearing stress

15. Tween 80 is
    A. Not a surfactant
    B. Cationic surfactant
    C. Anionic surfactant
    D. Non ionic surfactant

16. Following is the hypotonic solution is
    A. 0.2 % NaCl
    B. 1.2 % NaCl
    C. 0.9 % NaCl
    D. 3 % NaCl

17. On adding NaCl to water the pH of the solution will be
    A. Between 3 and 4
    B. Between 4 and 5
    C. Between 8 and 9
    D. 7.0

18. Units of Viscosity are
    A. dynes/cm
    B. ergs/cm
    C. poise
    D. ergs/sq.cm

19. Partition coefficient of benzoic acid between water and benzene is given by
    A. C aqueous /C organic
    B. 2 x C aqueous/ C organic
    C. C aqueous/ 2 C organic
    D. C aqueous / Square root of C organic

20. Molar refractivity is
    A. Colligative property
    B. Additive and Constitutive property
    C. Constitutive property
    D. Purely additive property

ANSWER KEY

1. D
2. A
3. B
4. B
5. A
6. A
7. D
8. A
9. A
10. C
11. D
12. A
13. B
14. D
15. D
16. A
17. D
18. C
19. D
20. B

Pharmaceutical Microbiology

1. For the examination of microbial cells we require the use of?

a) High-power microscope

b) Low-power microscope

c) High-power microscope at a magnification of about 1,000 diameters

d) Low-power microscope at a magnification of about 1,000 diameter

2. Lipopolysaccharide in cell walls is characteristic of?

a) Gram-positive bacteria

b) Gram-negative bacteria

c) Fungi

d) Algae

3. Growth of microbes in a solid media is identified by the formation of?

a) pellicle at the top of media

b) colonies

c) sediment at the bottom

d) turbidity

4. Which of the following are true for electron microscopy?

a) specimen should be thin and dry

b) image is obtained on a phosphorescent screen

c) electron beam must pass through evacuated chamber

d) specimen should be thin and dry, image is obtained on a phosphorescent screen and electron beam must pass through evacuated chamber

5. Which among the following are produced by microorganisms?

a) Fermented dairy products

b) Breads

c) Alcoholic beverages

d) Fermented dairy products, breads and alcoholic beverages

6. Which among the following helps us in getting a three-dimensional picture of the specimen?

a) Transmission Electron Microscope

b) Scanning Electron Microscope

c) Compound Microscope

d) Simple Microscope

7. What is the approximate size of the bacterial cell?

a) 2mm in diameter

b) 1mm in diameter

c) 2 micrometer in diameter

d) 0.5 to 1.0 micrometer in diameter

8. Surface area/volume ratio of bacteria is exceedingly low compared to the same ratio for larger organisms of similar shape.

a) True

b) False

9. Poly-beta-hydroxybutyrate (PHB) present in aerobic bacteria can serve as?

a) a reserve carbon and energy source

b) a reserve source of phosphate

c) acceptor of oxygen

d) provides buoyancy

10. Which among the following acts as receptors for bacteriophage attachment in Gram-negative bacteria?

a) Cilia

b) O antigens

c) Lipid A

d) Teichoic acid

11. Which of the following are true for cytoplasmic membrane?

a) hydrophilic barrier

b) hydrophobic barrier

c) site of generation of protonmotive force

d) hydrophobic barrier and site of generation of protonmotive force

12. The organisms which can use reduced inorganic compounds as electron donors are known as _____

a) chemotrophs

b) organotrophs

c) lithotrophs

d) phototrophs

13. Which of the following is a Complex media for fungal growth?

a) Nutrient broth

b) Luria-Bertani media

c) Potato Dextrose Agar(PDA) media

d) Mac Conkey Agar media

13. Which of the following are functions of Maintenance Media?

a) used for assay of vitamins, amino acids

b) used for determining the bacterial content

c) used for determining the type of growth produced by bacteria

d) used for the maintenance of the viability and physiological characteristics

14. Which of the following method is used for a viable count of a culture?

a) Direct microscopic count

b) Plate-count method

c) Membrane-filter count

d) Plate-count method and membrane-filter count

15. The envelope surrounding the nucleocapsid of some animal viruses is made up of which of the following structures?

a) lipoproteins

b) lipopolysaccharides

c) peptidoglycan

d) chitin

16. How much time is required by spores of Clostridium botulinum to be killed by moist heat at 120^0C?

a) 2 hours

b) 15 minutes

c) 24 hours

d) 6-7 hours

17. Which of the following methods is used for killing microorganisms of only certain types and not all microorganisms?

a) Pasteurization

b) Incineration

c) Boiling water

d) Fractional Sterilization

18. Which of the following actions occur due to low temperature?

a) coagulation of proteins

b) death of microorganisms

c) rate of metabolism is reduced

d) denatures proteins

19. Which of the following radiations have the energy to knock electrons away from molecules and ionize them?

a) Non-ionizing radiations

b) Acoustic radiations

c) Subatomic particles

d) Ionizing radiations

20. Which of the following inhibits DNA replication?

a) cathode rays

b) UV light

c) x-rays

d) gamma rays

Answers Key

1. c
2. b
3. b
4. d
5. d
6. b
7. d
8. b
9. a
10. b
11. d
12. c
13. d
14. d
15. a
16. b
17. a
18. c
19. d
20. b

PHARMACEUTICAL ENGINEERING

1. Which property is measured under fluid dynamics?

A. Temperature

B. Pressure

C. Velocity

D. Viscosity

2. Which of the following is an ultrafine grinder?

A. Ball mill

B. Fluid energy mill

C. Hammer mill

D. Cutter mill

3. Which of the following mills do not have sieves attached to them?

A. Hammer mill

B. Ball mill

C. Fluid energy mill

4. Which size separation involves separation of different size fractions by movement of air?

A. Sedimentation

B. Sieving

C. Cyclone method

D. Elutriation

5. Which evaporator is used for viscous liquids?

A. Falling film evaporator

B. Climbing film evaporator

C. Horizontal tube evaporator

D. Single effect evaporator

6. Which of the following stands for Overall heat transfer coefficient?

A. Re
B. U
C. Q
D. D

7. What is one major advantage of multi-pass heat exchanger over shell and tube heat exchanger?

A. Steam inlet & condensate outlets are reversed
B. Expansion of the tube sheets occurs
C. Velocity of the fluid can be increased as it is passed many times
D. Vent outlet is not required

8. Crude oil is separated into its various components using this method

A. Simple distillation
B. Steam distillation
C. Molecular distillation
D. Flash distillation

9. Which of the following theories holds true for porous substances?

A. Capillarity theory
B. Diffusion theory
C. Pressure gradient theory
D. Mier's theory

10. If the moisture in the solid is less than EMC, then the following phenomenon will occur

A. Sorption
B. Desorption
C. Dissolution
D. Diffusion

11. All except one is a freezing medium in Lyophilisation

A. Liquid nitrogen
B. Alcohol bath
C. Brine (salt and ice mixture)

12. Which type of mixture is a paste?

A. Positive mixture
B. Negative mixture
C. Simple mixture
D. Neutral mixture

13. Which of the following factors does not affect mixing?

A. Particle density
B. Particle shape
C. Particle charge
D. Temperature

14. Which mechanism of mixing involves haphazard movement of molecules with constant change in speed and direction?

A. Bulk transport
B. Turbulent mixing
C. Laminar mixing
D. Molecular diffusion

15. All but one is example of filtration:

A. Separation of microbes to make air sterile
B. Collecting crystalline solid from the mother liquor after crystallization
C. Separation of a solid from a liquid using centrifugal force
D. Clarifying a turbid solution using a membrane

16. Which of the following is correct for plate and frame filter?

A. Filter medium is sandwiched between plate and frame
B. Filter medium is placed above plate and frame
C. Filter medium is placed below plate and frame
D. The position of the filter medium is not crucial

17. For centrifugal clarification, identify the false statement

A. Centrifugal force overcomes gravity and causes effective separation
B. Used when particle size is less than 5 microns
C. Centrifugal effect is a ratio of Gravitational force to Radial force
D. It can be used to test stability of suspensions

18. Which of the following is a batch centrifuge?

A. Semicontinuous centrifuge
B. Supercentrifuge
C. Perforated basket centrifuge
D. Tubular bowl centrifuge

19. Identify the alloy of Nickel

A. Brass
B. Monel
C. Stainless Steel
D. Bronze

20. Which of the following is not used for preventing corrosion?

A. Proper design of equipment
B. Coating
C. Sacrificial anode method
D. Exposure to oxygen and moisture

ANSWER KEY

1. C
2. B
3. C
4. C
5. A
6. B
7. C
8. D
9. A
10. A
11. C
12. D
13. D
14. B
15. C
16. A
17. C
18. C
19. B
20. D