Uka Tarsadia University(Diwaliba Polytechnic)
Diploma in Chemical Engineering
Objective Type Questions (Chemical Process Technology – II)

UNIT 1 NATURAL PRODUCT INDUSTRY

1. Melting point of fat is _____ and melting point of oil is _____.
   a) Higher, higher
   b) Lower, lower
   c) Higher, lower
   d) Lower, higher
2. Which of the following is an example of fats?
   a) Glyceryl trioleate
   b) Vegetable ghee
   c) Coconut oil
   d) Groundnut oil
3. Select the incorrect statement from the following option.
   a) Oils are saturated triglyceride
   b) Oils have lower melting points
   c) Oils are liquid at room temperature
   d) Examples of oils are glyceryl trioleate, coconut oil, olive oil, etc
4. Which of the following is not a suitable solvent for oils and fats?
   a) Benzene
   b) CCl_4
   c) $CHCl_3$
   d) Water
5. Oils and fats are good conductors of heat and electricity.
   a) True
   b) False
6. Saponification is hydrolysis _____
   a) By alkalis
   b) In digestive tracts of human beings
   c) By acids
   d) By salts
7. . Which of the following act as a catalyst in digestive tracts of human beings?
   a) Lewis acid
   b) Lewis base
   c) Hydrogen peroxide
   d) Lipases

8. Hydrogenation is the conversion of unsaturated acid groups into the saturated one by a catalyst _____
    a) Ti
    b) Pb
    c) Ni
    d) Sn
9. Vegetable ghee is manufactured by _____
    a) Saponification
    b) Hydrogenation
    c) Oxidation polymerisation
    d) Reduction polymerisation
10. Hydrogenolysis is a reaction which leads to the reduction products of _____
    a) Aldehyde
    b) Ketone
    c) Alcohol
    d) Ester
11. he catalyst used in the addition of iodine is _____
    a) Ni/ Pt
    b) Lewis acids
    c) CH_3MgCl
    d) $HgCl_2$
12. Drying oils are used as the medium of paints and varnishes.
    a) True
    b) False
13. Which of the following is responsible for rancidity?
    a) Alkalies
    b) Ketones
    c) Aldehydes
    d) Alcohols
14. The number of milligrams of KOH required for the saponification of one gram of oil or fat is called _____
    a) Acid number
    b) Iodine number
    c) Richert-Meissl number
    d) Saponification number
15. odine number is defined as number of grams of iodine needed for the iodination of _____ gram/grams of oil or fat.
    a) 1
    b) 5

c) 100
d) 1000

16. Richert-Meissl number is defined as the volume of 0.1M KOH solution required for the neutralisation of _____ gram/grams of fat or oil.
    a) 1
    b) 5
    c) 100
    d) 1000
17. Which of the following tells the amount of free fatty acids present in fat or oil?
    a) Acid number
    b) Iodine number
    c) Saponification number
    d) Richert-Meissl number
18. Which of the following helps in the classification of oils into drying, semi-drying and non-drying categories?
    a) Acid number
    b) Iodine number
    c) Saponification number
    d) Richert-Meissl number
19. Which of the following is of special value in testing the purity of butter and desi-ghee?
    a) Acid number
    b) Iodine number
    c) Saponification number
    d) Richert-Meissl number
20. The smaller is the saponification value, the higher will be the molecular weight of oil or fat.
    a) True
    b) False
21. Heptoses are _____
    a) sugars
    b) proteins
    c) amino acids
    d) monomers
22. Fructose is a _____
    a) aldose sugar
    b) ketose sugar
    c) monosaccharide
    d) polymer
23. Sucrose and lactose are _____
    a) monosaccharides

b) disaccharides
c) pentoses
d) polysaccharides

24. Which type of carbohydrates lead to the formation of glycolipids and glycoproteins?
    a) Oligosaccharides
    b) Monosaccharides
    c) Glycogen
    d) Glucose
25. Which of the following polysaccharide is not entirely composed of glucose subunits?
    a) Lactose
    b) Starch
    c) Glycogen
    d) Cellulose
26. Complete the following reaction: R-CC-R' + H_2 ——> _____
    a) R-CH-CH-R'
    b) R-CH_2-CH_3
    c) R-CH_2-CH_2-R'
    d) All of the mentioned
27. . How is selective hydrogenation achieved?
    a) Heat supplied
    b) Catalyst used
    c) Reactants
    d) Products(B)
28. In presence of what, the compounds undergo catalytic hydrogenation?
    a) Nickel
    b) Platinum
    c) Palladium
    d) All of the mentioned
29. Fill in the blank: _____ molecular weight olefins are generally hydrogenated in the liquid phase.
    a) Lower
    b) Higher
    c) Moderate
    d) None of the mentioned
30. Diolefins undergo catalytic hydrogenation to produce which type of hydrocarbon?
    a) Saturated
    b) Unsaturated
    c) Aromatic
    d) Azo(A)

31. Which is the most widely used catalyst for hydrogenation if aromatics?
    a) Cadmium
    b) Zinc
    c) Nickel
    d) Iron
32. How can be citric acid produced other than from lemons?
    a) Aerobic fermentation of starch
    b) Anaerobic fermentation of starch
    c) Aerobic fermentation of glucose
    d) Anaerobic fermentation of glucose
33. Which of the following is an example of bacterial and yeast polysaccharide?
    a) Starch
    b) Glycogen
    c) Cellulose
    d) Dextrans
34. When all the monosaccharides in a polysaccharide are same type, such type of a polysaccharide is called a
    a) Glycogen
    b) Homoglycan
    c) Heteroglycan
    d) Oligosaccharide
35. In which of the following forms, glucose is stored in plants?
    a) Glycogen
    b) Starch
    c) Dextrin
    d) Cellulose
36. Which of the following are the storage polysaccharides?
    a) Glycogen
    b) Cellulose
    c) Chitin
    d) Glucose
37. Which of the following is an analogous to starch?
    a) Cellulose
    b) Glycogen
    c) Sucrose
    d) Chitin
38. Which of the following carbohydrate is assimilated first?
    a) Sucrose
    b) Maltotriose

c) Glucose
d) Fructose

39. Who introduced the first method of dextrin utilization?
    a) Vakeria and Hinchliffe
    b) Oura
    c) Bisson and Fraenkel
    d) Does and Bisson
40. Which of the following microorganism produces dextran?
    a) Bacillus polymyxa
    b) Bacillus thuringiensis
    c) Leuconostoc mesenteroides
    d) Streptomyces olivaceus
41. Which of the following carbohydrates are mainly present in whey?
    a) glucose
    b) lactose
    c) fructose
    d) sucrose
42. Lactobacillus bulgaricus is a homofermentative organism.
    a) True
    b) False
43. Which of the following product utilises whey as its raw material?
    a) lactic acid
    b) acetic acid
    c) glutamic acid
    d) lysine
44. Ethanol is fermented from which type of source?
    a) Fat
    b) Lipids
    c) Starch
    d) Fiber
45. Anaerobic respiration and anaerobic fermentation are same.
    a) True
    b) False
46. Micro organism which is not involved in fermentation of sugar are
    a) Lactobacillus
    b) invertaze
    c) zymase
    d) None of these
47. Which of the following are an example of epimers?
    a) Glucose & Galactose

b) Glucose & Ribose
c) Mannose & Glucose
d) a) & c)

48. Fructose and Glucose can be distinguished by
    a) Selwinoff's reagent
    b) Benedict's reagent
    c) Fehling's reagent
    d) Barfoed's reagent
49. Which of the following carbohydrates is a triose?
    a) Glucose
    b) Ribose
    c) Ribulose
    d) Glyceraldehyde
50. Lactose is a disaccharide of which of the following sugar units?
    a) Glucose and fructose
    b) Glucose and galactose
    c) Glucose and sucrose
    d) Glucose and ribose

UNIT 2 PULP AND PAPER PRODUCT

1. _____ are made primarily of bleached chemical softwood pulps and which could have bleached softwood sawdust or hardwood pulps to impart smoothness.

   a) Tissues
   b) Fiber
   c) Paper
   d) Uncoated groundwood
2. _____ is mainly made from kraft or sulfite softwood pulps and may contain limited amounts of mechanical pulp or recycled fiber.
   a) Coated groundwood
   b) Tissue
   c) Uncoated groundwood
   d) Uncoated wood-free paper
3. _____ are made for specific uses which include capacitor, cigarette, and greaseproof papers.
   a) Kraft wrapping
   b) Bag
   c) Speciality paper
   d) Kraft paperboards
4. _____ is a thick paper of low density and quality used for making solid fiber boxes and is of papers that requires very low strength.
   a) Kraft paperboard
   b) Chipboard
   c) Bag
   d) Kraft wrapping
5. _____ are made with a min. of 25%t rag fiber from cotton. They are high quality, long lasting, expensive papers.
   a) Newsprint
   b) Rag bond
   c) Linear board
   d) Fine papers
6. _____ are made for writing, typing, and printing purposes. They may be white or colored, are manufactred from bleached kraft or sulfite softwood pulps.
   a) Fine papers
   b) Tissue
   c) Greaseproof paper
   d) Bond paper

7. Wrapping tissues are manufactured from bleached sulfite or kraft pulps and are soft and absorbent.
   a) True
   b) False
8. Sanitary tissues are used for wrapping clothes, flowers, etc. and are made of bleached kraft or sulfite softwood pulps that impart very high strength.
   a) True
   b) False
9. _____ are manufactured from highly refined chemical pulps, resulting in a very dense, translucent sheet.
   a) Liner board
   b) Bond paper
   c) Rag bonds
   d) Grease proof paper
   Answer: d
10. The _____ is a device for continuously forming, pressing, and drying a web of paper fibers.
    a) Paper machine
    b) Pulp extractor
    c) Lignin formation
    d) Jack machine

11. _____ is utilized for applying the pulp slurry to a screen.
    a) Draining
    b) Pressuring
    c) Drying
    d) Forming

12. ._____ is for allowing water to drain by means of a force such as gravity or a pressure difference developed by a water column.
    a) Drying
    b) Pressuring
    c) Forming
    d) Draining

13. _____ is for further de-watering by squeezing water from the sheet.
    a) Draining
    b) Drying
    c) Pressuring
    d) Forming

14. _____ is for air drying or drying of the sheet over a hot surface.
    a) Draining
    b) Drying
    c) Pressuring
    d) Forming
15. _____are steam filled drums designed to heat the web by direct contact and remove water by evaporation.
    a) Winder
    b) Dryer
    c) Converters
    d) Reel
16. Fillers include _____ which could interfere with rosin/alum sizing, clays, and TiO_2.
    a) Calcium hydroxide
    b) Calcium silicate
    c) Calcium carbonate
    d) Hydrogen silicate
17. Films and laminates include polyethylene, aluminum foil, etc.
    a) True
    b) False
18. Recycling fiber is the process of separating useful fiber from the contaminants of waste paper.
    a) True
    b) False
19. Tissue paper is used in _____.
    a) Cigarette
    b) Toilet paper
    c) Napkin paper
    d) All of above
20. Fibrous raw material is _____.
    a) Ground wood
    b) Reuse pulp
    c) Cotton
    d) All of above

21. Grease proof paper is _____type of paper.
    a) Wrapping paper
    b) Tissue paper
    c) Writing paper
    d) Ground wood paper

22. Which process is used to treat all types of woods for pulping process?
    a) Mechanical pulping
    b) Neutral-sulfite semi-chemical(N.S.S.C.)
    c) Kraft process
    d) Chemical mechanical pulping
23. Mechanical pulp is pulp produced by using only mechanical attrition to pulp lingocellulosic materials; no chemicals are used.
    a) True
    b) False
24. The total yield under the supervision of mechanical pulp is around?
    a) 50-55%
    b) 90-98%
    c) 20-50%
    d) 100%
25. The use of mechanical pulps' confined mainly to only non-permanent papers like newsprint and catalog paper.
    a) True
    b) False
26. Chemi-mechanical processes were originally named chemi-groundwood processes.
    a) True
    b) False
27. What is the name of the process which involves steps like mild chemical treatment and followed by moderate mechanical refining.
    a) Semi-chemical process
    b) Vapor-chemical process
    c) Differential-chemical process
    d) Saturated-chemical process
28. What is the range of yield in the Semi-chemical process?
    a) 70-95%
    b) 60-80%
    c) 30-40%
    d) 55-65%
29. Bleaching is the treatment of wood (and other lignocellulosic) pulps with chemical agents to decrease their brightness.
    a) True
    b) False
30. Bleaching of chemical pulps is achieved by lignin addition.
    a) True
    b) False

31. _____ pulps are not susceptible to colour reversion.
    a) Chemical
    b) Mechanical
    c) Dithionite
    d) Hydrousulfite
32. Bleaching of mechanical pulps is called _____ to distinguish it from bleaching of chemical pulps.
    a) Brightening
    b) Bloating
    c) Blackening
    d) Branding
33. The purpose of the recovery boiler is to recover the inorganic chemicals as smelt, burn the organic chemicals so they are not discharge from the mill as pollutants, and recover the heat of combustion in the form of heat.
    a) True
    b) False
34. There are three zones in recovery boilers; which are as follows in top to bottom order?
    a) Oxidation, drying and reducing zone
    b) Reducing, drying and oxidation zone
    c) Drying, oxidation and reducing zone
    d) Drying, reducing and oxidation zone
35. A type of paper pulp derived from cotton or linen is known as
    a) RAG pulp
    b) Dissolving Pulp
    c) Bleached pulp
    d) Kraft pulp
36. When a wood pulp contain cellulose more than _____is known as Dissolving pulp.
    a) 90%
    b) 80%
    c) 50%
    d) 60%
37. Brightness is a term used to describe the _____ of pulp or paper, on a scale from 0 to 100.
    a) Whiteness distribution
    b) Whitnessobstructivness
    c) Coquettes
    d) Bleach
38. _____ is a fresh pulping liquor for the Kraft process, consisting of the active pulping species NaOH and Na_2S, small amounts of Na_2CO_3.

a) Black liquor
b) White liquor
c) Red liquor
d) Green liquor

39. _____ is the waste liquor from the Kraft pulping process after pulping is completed.
a) Black liquor
b) White liquor
c) Red liquor
d) Green liquor

40. _____ is the partially recovered form of Kraft liquor. It is obtained after burning of the black liquor in the recovery boiler.
a) Black liquor
b) White liquor
c) Red liquor
d) Green liquor

41. The low _____ removal makes chemical recovery difficult in the semi-chemical process.
a) Lignin
b) Pulp
c) Hardwood
d) Softwood

42. .Wood species is an important variable during Kraft cooking process.
a) True
b) False

44. Cellulose is a material which can exist in crystalline and amorphous states
a) True
b) False

45. Which is the part where lignin is highly concentrated?
a) Outskirts of lamella
b) Middle lamella
c) Mitochondria
d) Pith
Answer: b
Explanation: Lignin is more highly concentrated in the middle lamella and primary cell wall regions of the wood fiber than any other part of cell wall.

46. Cellulose is a linear polymer of anhydro-D-glucose connected by beta-(1-4)-linkage?
a) True
b) False.

47. What are the chemical elements present in wood?
    a) C, O, H, N
    b) Co_2, O_2, N_2, H_2
    c) Co_2, O_2, N_2, H
    d) Co_2, O_2, N, H_2
48. Microfibrils occur in which section of cell wall?
    a) Primary
    b) Secondary
    c) Tertiary
    d) Quaternary
49. _____ decreases the strength of pulp yield, and are not ideal for dissolving pulp process.
    a) Terpne
    b) Hemicellulose
    c) Lignin
    d) Microfibrils
50. Elemental chlorine can be used for bleaching of pulp instead of
    a) Chlorine Dioxide and Hypochlorite
    b) Chlorine Troxide and Hypochlorite
    c) Chlorine Dioxide and Hydrochlorite
    d) Chlorine Dioxide and Hydrochloro

UNIT 3 FUELS AND INDUSTRIAL GASES

1. All types of coals can be converted into coke.
   a) True
   b) False
2. The process of converting coal into coke is called _____
   a) Coking
   b) Carbonization
   c) Decarbonization
   d) Isomerization
3. Depending on the behaviour of the coal, when it is heated in the absence of air, it can be categorized into _____ categories.
   a) 2
   b) 3
   c) 4
   d) 5
4. Only bituminous type of coal can be coked.
   a) True
   b) False
5. Fuels are classified as primary and secondary fuel based on the _____
   a) Capacity to burn
   b) Availability
   c) State
   d) Occurrence
6. Which fuel is partially carbonized and is considered as primary stage in coal formation?
   a) Coal bitumen
   b) Anthracite
   c) Peat
   d) Lignite
7. Which fuel is called secondary stage in the formation of coal?
   a) Lignite
   b) Bituminous coal
   c) Peat
   d) Anthracite
8. Which fuel is commonly available in both caking and Non-caking forms?
   a) Lignite
   b) Bituminous coal
   c) Peat
   d) Anthracite

9. Which fuel is the final stage in formation of coal?
    a) Bituminous coal
    b) Anthracite coal
    c) Peat
    d) Lignite
10. Which form of fuel is used as domestic form of fuel?
    a) Wood
    b) Bituminous Coal
    c) Dung cake
    d) Anthracite coal
11. In presence of which gas is the fuel burnt to generate energy in form of heat?
    a) Oxygen
    b) Hydrogen
    c) Methane
    d) Nitrogen
12. Which are the main constituents of fuel from given options?
    a) Carbon and Nitrogen
    b) Oxygen and Hydrogen
    c) Carbon and Hydrogen
    d) Helium and Oxygen
13. Which fuel is used widely in steam power plants?
    a) Oil
    b) Gas
    c) Coal
    d) Petroleum
14. On what basis is the coal classified?
    a) Period of formation
    b) Depending on capacity to burn
    c) Region/area where is it formed
    d) Physical and chemical composition
15. One of the advantages of a solid fuel is _____
    a) low calorific value
    b) requirement of excess air
    c) ash formation
    d) ease of transport
16. One of the disadvantages of a solid fuel is:
    a) clinker formation
    b) moderate ignition temperature
    c) storage
    d) transportation

17. Most available form of solid fuel is:
    a) coal
    b) wood
    c) petrol
    d) lignite
18. Which of the following process is correct in the process of conversion of wood into coal?
    a) wood →peat →lignite →bituminous coal
    b) peat →wood →lignite →bituminous coal
    c) lignite →peat →wood →bituminous coal
    d) wood →lignite →peat →bituminous coal
19. Which of the following fuels has the highest calorific value?
    a) lignite
    b) wood
    c) bituminous
    d) anthracite
20. Gaseous fuel is most suited for IC engine since physical delay is almost
    a) zero
    b) more
    c) less
    d) none of the mentioned
21. Major constituent of natural gas is
    a) ethane
    b) methane
    c) butane
    d) propane
22. Octane of natural gas is
    a) 60-80
    b) 80-100
    c) >100
    d) <60
23. Major disadvantage of LPG as fuel in automobiles is
    a) reduction in life of engine
    b) less power compared to gasoline
    c) all of the mentioned
    d) none of the mentioned
24. Hydrogen gas has _____ self-ignition temperature.
    a) very low
    b) very high
    c) no
    d) none of the mentioned

25. The energy content of air hydrogen mixture is _____ than liquid hydrocarbon fuels.
    a) lower
    b) higher
    c) negligible
    d) none of the mentioned
26. Acetylene and synthesis gas are examples of _____
    a) Primary gaseous fuels
    b) Gaseous fuels
    c) Secondary gaseous fuels
    d) Liquid fuels
27. Which of the fuel does have highest specific energy?
    a) Diesel
    b) Coal
    c) Kerosene
    d) Nitromethane
28. Which fuel is best suitable for blast furnace process?
    a) Diesel
    b) Hydrogen Gas
    c) Coal
    d) Coke
29. Which fuel causes least pollution?
    a) Diesel
    b) Coal
    c) LPG (Liquid Petroleum Gas)
    d) Hydrogen gas
30. Which of the gas is not a constituent of biogas?
    a) Methane
    b) Hydrogen
    c) CO_2
    d) SO_2 (Sulphur di-oxide)
31. Hydrogen can be produced from hydrocarbon by which method?
    a) Thermal decomposition
    b) Partial oxidation
    c) Steam reforming
    d) All of the mentioned
32. During cracking of Natural gas, what is produced?
    a) Carbon
    b) Hydrogen
    c) Both C and H_2
    d) None of the mentioned

33. Which is the best method for petroleum hydrogenation?
    a) Thermal decomposition
    b) Steam reforming
    c) Partial oxidation
    d) Catalytic reforming
34. Which is the best method for petroleum hydrogenation?
    a) Thermal decomposition
    b) Steam reforming
    c) Partial oxidation
    d) Catalytic reforming
35. Water gas is mixture of
    A) hydrogen and carbon dioxide
    B) hydrogen and carbon monoxide
    C) methane and hydrogen
    D) ethane and methane
36. $C + O_2 \rightarrow$_____
    a) CO
    b) CO_2
    c) CO_3
    d) 2CO
37. $2CO + O_2 =>$ _____
    a) $2CO_2$
    b) CO_2
    c) CO
    d) CO_3
38. The amount of heat liberated by complete combustion of unit quantity of fuel is known as _____
    a) Agitation
    b) Combustion
    c) Calorific value
    d) Thermogenesis
39. What is the significance of calorific value?
    a) Helps in deciding which fuel is good
    b) Helps in locating fuel
    c) Helps in deciding ignition temperature
    d) Helps in deciding fire point
40. How much percent of hydrogen gas does methane contain?
    a) 25%
    b) 50%

c) 68%
d) 85%

41. In which processes does the low boiling fractions of petroleum are used?
    a) Petrol engines
    b) Diesel engines
    c) Oil fired furnaces
    d) Kerosene engines
42. Liquid fuel produces _____ odours on incomplete combustion.
    a) Pleasant
    b) Unpleasant
    c) No odours
    d) Fruity
43. What happens when liquid fuels evaporate?
    a) It increases its calorific value
    b) It reduces the impurities present in it
    c) It increase the ash content present in it
    d) It makes losses and leakages in the container
44. Which kind of liquid fuels are risky to store?
    a) Flammable and volatile
    b) Inflammable and volatile
    c) Flammable and non-volatile
    d) Inflammable and non-volatile
45. According to the organic theory, from which kind of compound does the petroleum is formed?
    a) Plant debris
    b) Animal and vegetable debris
    c) From the decomposers
    d) From sunlight
46. How much percentile of petroleum is present in India?
    a) 20%
    b) 10%
    c) 5%
    d) 1%
47. Under which compound name does the liquid petroleum gas (LPG) are sold?
    a) Urea
    b) Ethylene
    c) Benzoyl peroxide
    d) Butane
48. By which process only saturated hydrocarbons are obtained in LPG?
    a) Straight distillation

b) Thermal Cracking
c) Hydrocracking
d) Reforming

49. In which regions does the LPG containing propane are found?
a) Hotter region
b) Monsoon region
c) Colder region
d) Terrestrial region

50. What happens when LPG is inhaled in large concentrations?
a) It kills a person
b) It increases a person’s eye sight
c) It does not have any effect on person’s health
d) It causes a little anaesthesia

UNIT 4 FERMENTATION INDUSTRY

1. Souring of milk takes place in presence of _____ microorganisms.
   a) Living
   b) Dead
   c) Decomposed
   d) None of above
2. What is the meaning of the word fermentation?
   a) Boil
   b) Cool
   c) Vaporize
   d) None of above
3. Does fermentation include frothing?
   a) Yes
   b) No
   c) Maybe
   d) Can't predict
4. Fermentation is a _____ process.
   a) Physiological
   b) Chemical
   c) Biological
   d) None of above
5. Fermentation is carried out in presence of _____.
   a) Yeast
   b) Bacteria
   c) Both of above
   d) Noneof above
6. What does the microorganisms involved in fermentation require?
   a) Oxygen
   b) Nitrogen
   c) Carbon dioxide
   d) Carbon monoxide
7. What are the microorganisms that exist in plants called?
   a) Bacteria
   b) Yeast
   c) Ferment
   d) None of above
8. What activity of non living complex does fermentation depend upon?
   a) Biological
   b) Catalytic

c) Both of above
d) None of above

9. What are the non living complex of nitrogenous compounds called?
    a) Ferments
    b) Bacteria
    c) Enzymes
    d) None of above
10. Is the process of fermentation fast?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
11. In fermentation, complex compounds are converted into _____ compounds.
    a) More complex
    b) Simple
    c) Non converted
    d) None of above
12. What type of compounds are involved in fermentation process?
    a) Oxygenous
    b) Nitrogenous
    c) Phosphorous
    d) None of above
13. What is the nature of fermentation process?
    a) Exothermic
    b) Endothermic
    c) Both of above
    d) None of above
14. Which gas does fermentation evolve during its process?
    a) Carbon dioxide
    b) Methane
    c) Both of above
    d) None of above
15. Is fermentation process cheaper than chemical synthesis?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
16. Desired changes in fermentation can be brought in how many steps?
    a) 1
    b) 2

c) 3
d) 4

17. Which process is used to synthesize complex compounds?
    a) Fermentation
    b) Chemical synthesis
    c) Both of above
    d) None of above
18. Can unwanted compounds be removed in fermentation process?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
19. What is the favourable temperature (°C) for fermentation?
    a) 20
    b) 25
    c) 30
    d) 35
20. At low temperature, fermentation process becomes_____.
    a) Slow
    b) Fast
    c) Very fast
    d) None of above
21. What are generally added as nutrients during fermentation process?
    a) Organic salt
    b) Inorganic salt
    c) Both of above
    d) None of above
22. What are the substances that retards fermentation process called?
    a) Preservatives
    b) Poisons
    c) Inhibitors
    d) None of above
23. What are the general retardents used?
    a) Fumic acid
    b) Boric acid
    c) Chloric acid
    d) None of above
24. What happens to ferments when the concentration of solution are high?
    a) Active
    b) Inactive

c) Highly active
d) None of above

25. What type of solution should be used to favour fermentation process?
    a) Dilute
    b) Concentrated
    c) Medium concentrated
    d) None of above
26. Does fermentation process require air?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
27. What is the chemical formula of boric acid?
    a) BH_2O_2
    b) BH_3O_3
    c) BH_4O_4
    d) None of above
28. During aerobic fermentation, oxygen is required or not?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
29. Alcohol fermentation process is _____.
    a) Aerobic
    b) Anaerobic
    c) Both of above
    d) None of above
30. Acetic acid fermentation process is _____.
    a) Aerobic
    b) Anaerobic
    c) Both of above
    d) None of above
31. Enzymes are _____ in nature.
    a) Colloidal
    b) Flocculate
    c) Suspension
    d) None of above
32. In how much quantity do we use enzymes?
    a) Small
    b) Large

c) Very large
d) None of above

33. Is enzyme specific in nature?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
34. Is enzyme sensitive to pH?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
35. Enzymatic reactions involve which type of reaction?
    a) Oxidation
    b) Reduction
    c) Hydrolysis
    d) All of above
36. Can enzyme change the final state of equilibrium?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
37. Enzyme activity can be destroyed by which substances?
    a) Preservatives
    b) Poisons
    c) Inhibitors
    d) None of above
38. Raw materials are subjected to which action after physical and chemical treatment?
    a) Stain
    b) Bacterial
    c) Microbial
    d) None of above
39. What is the process of centrifuging the liquids called?
    a) Clarification
    b) Filtration
    c) Flocculation
    d) None of above
40. Can the fermentation process be contaminated during its operation?
    a) Yes
    b) No

c) Maybe
d) Can’t predict

41. The vessel in which fermentation is carried out is called _____.
    a) Containers
    b) Beakers
    c) Fermenters
    d) None of above
42. What is the material used for pipe connecting the fermenting vessel made of?
    a) Plastic
    b) Ceramic
    c) Stainless steel
    d) None of above
43. Which enzyme is used to convert molasses into fructose and glucose?
    a) Zymase
    b) Invertase
    c) Both of above
    d) None of above
44. Which enzyme is used to convert glucose into ethyl alchol?
    a) Zymase
    b) Invertase
    c) Both of above
    d) None of above
45. How many steps are involved in saccharification?
    a) 1
    b) 2
    c) 3
    d) 4
46. What is the temperature(°C) used in malting process of saccharification?
    a) 5
    b) 15
    c) 25
    d) 35
47. What is the enzyme used to convert starch into maltose?
    a) Zymase
    b) Invertase
    c) Diastase
    d) None of above
48. How much percent of water does rectified spirit contain?
    a) 5
    b) 15

c) 25
d) 35

49. What is the clay that can decolorize oil without chemical treatment?
    a) Decolorizer
    b) Clayland
    c) Fuller’s earth
    d) None of above
50. What is the nature of graph for substrate in concentration vs time?
    a) Increasing curve
    b) Decreasing curve
    c) Increasing straight line
    d) Decreasing straight line

UNIT 5 RUBBER CHEMICALS

1. What was the word fibre originally referred to?
   a) Cotton
   b) Wood
   c) Fish net
   d) Nylon
2. How many types of synthetic products of fibre are there?
   a) 1
   b) 2
   c) 3
   d) 4
3. Which synthetic fibre material includes cellulose?
   a) Synthetic
   b) Semi synthetic
   c) True synthetic
   d) None of above
4. Which synthetic fibre material includes nylon?
   a) Synthetic
   b) Semi synthetic
   c) True synthetic
   d) None of above
5. Under which category does viscose rayon come under?
   a) Synthetic
   b) Semi synthetic
   c) True synthetic
   d) None of above
6. How many methods of long chain molecules are there in true synthetic fibre material?
   a) 1
   b) 2
   c) 3
   d) 4
7. Under which category does orlon come under?
   a) Synthetic
   b) Semi synthetic
   c) True synthetic
   d) None of above
8. Under which category does dacron come under?
   a) Synthetic

b) Semi synthetic
c) True synthetic
d) None of above

9. True synthetic polymers after polymerization is taken into _____ form before processing it into fibre form.
   a) Solid
   b) Liquid
   c) Melt
   d) Vapour
10. Which is the best method of classification for synthetic fibers?
   a) Rotating
   b) Spinning
   c) Still
   d) Standing
11. How many important properties of fibres are there?
   a) 1
   b) 2
   c) 3
   d) 4
12. Which is the important property of fibre?
   a) Length
   b) Breadth
   c) Height
   d) None of above
13. Which is the important property of fibre?
   a) Chimp
   b) Crimp
   c) Comp
   d) None of above
14. Which is the important property of fibre?
   a) Total section
   b) Cross section
   c) Mid section
   d) None of above
15. How many classification arises when length of fibre is considered?
   a) 1
   b) 2
   c) 3
   d) 4

16._____ filamentsare individual fibers whose length is almost infinite.

a) Single
b) Semi continuous
c) Continuous
d) None of above

17. Cotton is an example of which fibre?

a) Natural
b) Semi synthetic
c) Synthetic
d) None of above

18. Wool is an example of which fibre?

a) Natural
b) Semi synthetic
c) Synthetic
d) None of above

19. _____ is the curl or waviness placed in synthetic fibers by chemical or mechanical action.

a) Staple
b) Crimp
c) Section
d) None of above

20. How is cross section of fibre measured in?

a) Meters
b) Grams
c) Denier
d) None of above

21. Which process of rayon was first patented?

a) Copper rayon
b) Ammonium rayon
c) Cupramonium rayon
d) None of above

22. Which is the largest man made fibre?

a) Viscose
b) Glucose
c) Repose
d) None of above

23. Which functional groups in the cellulose molecule allow water absorption to take place in the fiber?

a) Carboxyl
b) Keto
c) Hydroxyl
d) None of above

24. Which functional groupholds molecules together despite strong bending?
a) Carboxyl
b) Keto
c) Hydroxyl
d) None of above

25. Viscose and acetate has to be blended with what component to manufacture carpets?
a) Cotton
b) Rayon
c) Wool
d) None of above

26. Viscose process is based on which pulp?
a) Sulphate
b) Chromate
c) Alumina
d) None of above

27. What are cotton linters?
a) Short attached fibres
b) Long attached fibres
c) Medium attached fibres
d) None of above

28. How much percent of cellulose does linters consists of?
a) 65
b) 75
c) 85
d) 95

29. Which chemical is used in the purification of chemical cotton?
a) KOH
b) NaOH
c) $Ca(OH)_2$
d) None of above

30. How is chlorine used in purification of chemical cotton?
a) Hypochlorite
b) Hypodermite
c) Hypoflorate
d) None of above

31. What type of material are used in bleach tanks?

a) Plastic
b) Ceramic
c) Stainless steel
d) None of above

32. In chemical cotton process, what is the end product obtained?
a) α–cellulose
b) β–cellulose
c) γ–cellulose
d) None of above

33. How much percent of cellulose is obtained after purification of chemical cotton?
a) 80
b) 90
c) 98
d) None of above

34. What is used in delusterizing the yarn?
a) Sulphur dioxide
b) Carbon dioxide
c) Titanium dioxide
d) None of above

35. Does fibre industry require dyes in its making?
a) Yes
b) No
c) Maybe
d) Can't predict

36. Where is the main energy requirement for fibre industry being used up?
a) Pump
b) Chemical reaction
c) Both of above
d) None of above

37. How many types of spinning machine are used in viscose manufacturing process?
a) 1
b) 2
c) 3
d) 4

38. What are spinnerts usually made of?
a) Light metals
b) Heavy metals
c) Noble metals
d) None of above

39. On using which spinning machine doesthe spinneret head dips horizontally into the spinning solution?
    a) Bucket
    b) Bobbin
    c) Both of above
    d) None of above
40. On using which spinning machine does the spinneret head dips vertically into the spinning solution?
    a) Bucket
    b) Bobbin
    c) Both of above
    d) None of above
41. What is the rpm of bucket spinning?
    a) 2500
    b) 5000
    c) 7500
    d) 10000
42. Do we use glycerine in viscose manufacture process?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
43. How is cuprammoium process represented?
    a) Furnace process
    b) Furness process
    c) Furlong process
    d) None of above
44. How much time does cuprammoium process take in spooling the yarn?
    a) 1 min
    b) 2 min
    c) 3 min
    d) 4 min
45. What is first intermediate formed during nylon manufacture process?
    a) Nylon sugar
    b) Nylon salt
    c) Nylon pepper

d) None of above

46. How many chemicals are initially involved to form first nylon intermediate?

a) 1
b) 2
c) 3
d) 4

47. The intermediates forming nylon salt are formed from how many raw materials?

a) 1
b) 2
c) 3
d) 4

48. The first commercial nylon was made from?

a) Phenol
b) Benzene
c) Sulphuric acid
d) None of above

49. Nylon is a _____ material.

a) Crystal
b) Powder
c) Bristle
d) None of above

50. Which fibre is used in parachutes?

a) Cotton
b) Wool
c) Nylon
d) Dacron

UNIT 6 PHARMACEUTICALS & PESTICIDE

1. Drugs are used to ____ disease.
   a) Cause
   b) Cure
   c) Create
   d) None of above
2. Drugs were usually in the form of _____.
   a) Plant products
   b) Minerals
   c) Both of above
   d) None of above
3. Primitive men used to ____ plant products to test their applicability.
   a) Swallow
   b) Chew
   c) Spit
   d) None of above
4. Which plant products are useful?
   a) Bark
   b) Roots
   c) Leaves
   d) All of above
5. What is drug usually used for?
   a) Reduce pain
   b) Reduce fever
   c) Reduce blood pressure
   d) All of above
6. Can drugs be used to diagnose diseases?
   a) Yes
   b) No
   c) Maybe
   d) Can’t predict
7. Can drugs be used to treat deficiency?
   a) Yes
   b) No
   c) Maybe
   d) Can’t predict
8. Can vitamin deficiency be treated by drugs?
   a) Yes

b) No
c) Maybe
d) Can't predict

9. Disease is caused by _____.
   a) Invasive pathogen
   b) Microorganisms
   c) Bacteria
   d) None of above
10. What does drug mean?
   a) Dry herb
   b) Wet herb
   c) Gel herb
   d) None of above
11. Can a drug act as poison if served in large quantity?
   a) Yes
   b) No
   c) Maybe
   d) Can't predict
12. Diabetes can be _____ with drugs.
   a) Created
   b) Cured
   c) Controlled
   d) None of above
13. Drugs show unique property due its _____.
   a) Physical structure
   b) Chemical structure
   c) Biological structure.
   d) None of above
14. Where does the drug target in our body?
   a) Physical system
   b) Chemical system
   c) Biological system
   d) None of above
15. Which of the following is an example of drug?
   a) Aspirin
   b) Ibuprofen
   c) Omeprazole
   d) All of above
16. What is molecular formula of aspirin?
   a) $C_5H_7O_3$

b) $C_6H_9O_2$
c) $C_8H_7O_5$
d) $C_9H_8O_4$

17. What is the chemical name of aspirin?
    a) Butyl salicylic acid
    b) Acetyl salicylic acid
    c) Propyl salicylic acid
    d) None of above
18. What is the chemical name of ibuprofen?
    a) Isobutyl phenyl propionic acid
    b) Isopropyl phenyl propionic acid
    c) Isomethyl phenyl propionic acid
    d) None of above
19. What is penicillin?
    a) Antacid
    b) Antibiotic
    c) Ointment
    d) None of above
20. What is gelusil?
    a) Antacid
    b) Antibiotic
    c) Ointment
    d) None of above
21. What is burnol?
    a) Antacid
    b) Antibiotic
    c) Ointment
    d) None of above
22. An ideal drug should have the capability to cure disease in _____ dosage.
    a) Minimum
    b) Maximum
    c) No
    d) None of above
23. Ideal drug should have _____.
    a) Side effect
    b) No side effect
    c) Both of above
    d) None of above
24. Ideal drug should be _____.
    a) Toxic

b) Non toxic
c) Lethal
d) None of above

25. Should a drug be manufactured without government approval?
    a) Yes
    b) No
    c) Maybe
    d) Can't predict
26. Most of the organisms obtain energy from _____ molecules.
    a) Organic
    b) Inorganic
    c) Artificial
    d) None of above
27. What is the branch of science that use chemicals for its treatment called?
    a) Physiotherapy
    b) Chemotherapy
    c) Surgery
    d) None of above
28. What does antacid do in the body?
    a) Increase the excess acid
    b) Decrease the excess acid
    c) Neutralize the excess acid
    d) None of above
29. What are commonly used antacids?
    a) Weak acid
    b) Weak base
    c) Strong acid
    d) Strong base
30. Which component is used in antacids?
    a) Sodium carbonate
    b) Sodium bicarbonate
    c) Potassium carbonate
    d) Potassium bicarbonate
31. Which antacids are more effective?
    a) Tablets
    b) Liquids
    c) Gas
    d) None of above
32. Milk is ___ antacid.
    a) Weak

b) Strong
c) Medium
d) None of above

33. Tranquilizers are used in the treatment of?
    a) Stress
    b) Anxiety
    c) Mental disease
    d) All of above
34. Where do tranquilizers affect the body?
    a) Biological system
    b) Respiratory system
    c) Central nervous system
    d) None of above
35. How many types of analgesics are there?
    a) 1
    b) 2
    c) 3
    d) 4
36. When do we use antipyretics?
    a) To reduce normal fever
    b) To increase body temperature in winter
    c) To reduce high fever
    d) None of above
37. Which drugs have anti microbial property?
    a) Aniline
    b) Carbon
    c) Sodium
    d) Sulpha
38. Which body system gets affected by tuberculosis?
    a) Eyes
    b) Heart
    c) Lungs
    d) None of above
39. How many types of antibiotics are there?
    a) 1
    b) 2
    c) 3
    d) 4
40. Dettol is an example of?
    a) Antibiotic

b) Antipyretic
c) Antiseptic
d) None of above

41. What is added to soap to improve antiseptic property?
a) Unithional
b) Bithional
c) Trithional
d) None of above

42. What is chemical formula of iodoform?
a) CIH_3
b) $CI\ I_3$
c) CHI_3
d) None of above

43. How many main classes of foods are there?
a) 1
b) 2
c) 3
d) 4

44. Vitamins A, D, E and K are _____ soluble vitamins.
a) Water
b) Fat
c) Both of above
d) None of above

45. Vitamins B and C are _____ soluble vitamins.
a) Water
b) Fat
c) Both of above
d) None of above

46. Fish liver oil is the source of vitamin___.
a) A
b) B
c) C
d) D

47. Deficiency of which vitamin leads to improper functioning of reproductive system?
a) C
b) D
c) E
d) K

48. Which vitamin deficiency leads to scurvy?
a) A

b) B
c) C
d) D

49. Which vitamin is related to thiamine?
    a) A
    b) B1
    c) B2
    d) B12
50. What is the disease that is caused by unhealthy RBC in blood?
    a) Anaemia
    b) Leprosy
    c) Night blindness
    d) None of above