BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Bachelor of Science (Honours) in Biotechnology
Course Name – Industrial Fermentations
Course Code - BBTS401B
(Semester IV)

Time allotted : 1 Hrs.15 Min.   Full Marks : 60

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question)   1 x 60=60

Choose the correct alternative from the following :

(1) The microorganisms used in biotechnology shall not

a) grow rapidly in cheap culture medium   b) shall be readily manipulated

c) shall not be pathogenic   d) all of the above

(2) Considering fermentation at industrial level, microorganism Saccharomyces is used to form

a) glycerol   b) ethanol

c) formic acid   d) both a and b

(3) Genetic engineering developed in mid

a) 1960   b) 1950

c) 1970   d) 1980

(4) The procedure in which oxidation-reduction of glucose ($C_6H_{12}O_6$) is incomplete is called

a) fertilization   b) reduction

c) oxidation   d) fermentation

(5) The scientist who proposed that microbial activity is cause of all fermentations is

a) Ibn al Haithem   b) Gregor Mendel

c) Ian Wilmot   d) Louis Pasteur

(6) Interferons are anti-viral

a) Starch   b) Carbohydrates

c) Lipids   d) Proteins

(7) Gluconic acid is produced by which of the following molds?

a) Aspergillus niger

b) Rhizopus nigricans

c) Aspergillus terreus

d) Rhizopus oryzae

(8) By using single-cell protein, amount of protein produced by 50 kg of yeast is

a) 180 tons

b) 100 tons

c) 300 tons

d) 250 tons

(9) Cheese is formed when milk protein is

a) produced

b) released

c) formed

d) coagulated

(10) Wine is produced by fermentation of

a) Sugar

b) Milk

c) Powder

d) Grapes

(11) The fourth step of genetic engineering is

a) growth of GMO

b) expression of gene

c) isolation of gene interest

d) insertion of gene into vector

(12) insertion of gene into vector

a) batch operation systems

b) continuous operation systems

c) discontinuous operation system

d) unique operation system

(13) Prion is not

a) living cell

b) heat resistant

c) found in man

d) single cell protein

(14) Penicillin production is optimum in:

a) batch operation systems

b) continuous operation systems

c) discontinuous operation system

d) unique operation system

(15) Mycoproteins has a texture of

a) cheese

b) Proteins

c) starch

d) fat

(16) Temperature of fermenter to produce Fusarium sp. is maintained at

a) 20°C

b) 30°C

c) 40°C

d) 50°C

(17) In fungi, starch $(C_6H_{10}O_5)_n$ is converted to maltose $(C_{12}H_{22}O_{11})$ through

a) protease

b) deamination process

c) maltase

d) amylase

(18) The name of first genetically modified organism was

a) glow virus

b) agrobacteria

c) glomice

d) glofish

(19) Extracellular digestion is not witnessed in

a) saprophytic bacteria

b) virus

c) parasitic bacteria

d) fungi

(20) To form cheese, a mixture of bacteria and fungi act upon

a) fermented milk sugar   b) lactic acid

c) fats   d) all three

(21) Fermenters are designed for

a) aerobic processes   b) anaerobic processes

c) both aerobic and anaerobic respiration   d) antirobic processes

(22) Which of the following is NOT an importance of separation process?

a) Reduces the operating cost   b) Reduces the risk of explosion

c) Reduces the probability of side reactions   d) Increases the speed of the reaction

(23) Which of the following is NOT used to represent a chemical process?

a) Block flow diagram   b) Process-flow diagram

c) Flow chart   d) Line diagram

(24) Probability of the event that might occur X Severity of the event if it occurs

a) Accident   b) Hazard

c) Risk   d) None of the above

(25) Industrial safety management if that branch of management which is concerned with _____
___ hazards from the industries.

a) Reducing   b) Controlling

c) Eliminating   d) All of the above

(26) The following is indirect cost of accident

a) Money paid for treatment of worker   b) Compensation paid to worker

c) Cost of lost time of injured worker   d) All of the above

(27) Check list for Job Safety Analysis (JSA) consists of

a) Work area, material, machine, tools   b) Men, machine, material, tools

c) Men, machine, work area, tools   d) Men, work area. Material, tools

(28) Which of the following colour is used for radiation hazard?

a) Red   b) Orange

c) Purple   d) Green

(29) Decibel (db) is a unit used to measure

a) Light   b) Sound

c) Frequency   d) None of the above

(30) The following is (are) are generally provided with limit switch to prevent motion beyond preset limit

a) Hoists   b) Conveyors

c) Machine tables   d) All of the above

(31) Water is used to extinguish

a) Class-A fires   b) Class-B fires

c) Class-C fires   d) All of the above

(32) The following class of fire occur in electrical equipment

a) Class-A fires   b) Class-B fires

c) Class-C fires   d) All of the above

(33) Which is best suited to extinguishing oil or flammable liquid fire?

a) Soda acid
b) Vaporizing liquid
c) Foam
d) Dry chemical

(34) The boiling point of diesel is

a) 270°C to 340°C
b) 350°C to 500°C
c) 500°C to 600°C
d) More than 500°C

(35) The number of carbon atoms per molecule in lubricating oil are

a) 14 to 20
b) 20 to 50
c) 50 to 70
d) More than 70

(36) The percentage of nitrogen (N) in urea (CH4N2O) is:

a) 0.5
b) 0.466
c) 0.4
d) 0.2

(37) The metallic compounds that occur naturally are called

a) Mineral oxides
b) Minerals
c) Ores
d) None of these

(38) Compounds which are added in soil to provide essential elements to plants are called

a) carbonates
b) salts
c) fertilizers
d) metals

(39) The process of separating metal from ore is called

a) magnetic separation
b) floatation process
c) metallurgy
d) cyclone separation

(40) The number of carbon atoms per molecule in LPG are:

a) 1 to 4
b) 5 to 10
c) 8 to 12
d) 10 to 16

(41) The raw materials for production of urea are

a) ammonia and carbon dioxide
b) oxygen and carbon dioxide
c) ammonia and oxygen
d) ammonia and phosphate

(42) The mathematical system for explaining signaling, metabolic and genetic pathways is called

a) Metabolic control analysis
b) genetic pathways
c) Control system
d) Check and balance

(43) Glycogen phosphorylase is activated by

a) phosphorylation
b) dephosphorylation
c) hydrogenation
d) hydrogenation

(44) In ion-exchange chromatography

a) proteins are separated on the basis of their net charge
b) Seperated on the basis of mass
c) proteins are separated on the basis of their shape
d) either (b) or (c)

(45) Which of the following may be added to stabilize the protein after yeast cells disruption?

a) NaCl | b) Protease inhibitor
c) All of these | d) AMP

(46) Gel-filtration chromatography separates on the basis of

a) size and shape using porous beads packed in a column
b) size using porous beads packed in a column
c) shape using porous beads packed in a column
d) none of these

(47) The Affinity chromatography deals with the

a) specific binding of a protein constituents for a nother molecule
b) protein - protein interaction
c) protein - carbohydrate interaction
d) None of these

(48) A purified protein sample contains 10 μg of protein and has an enzyme activity of 1 m mo le of ATP synthesized/sec (1 unit). What is the specific activity of the final purified sampl e?

a) 1,000 units/mg | b) 10,000 units/mg.
c) 100,000 units/mg | d) 1,000,000 units/mg

(49) The best way to determine the location of protein in the purification scheme is to measure the

a) rate of ATP synthesis | b) UV absorption
c) changes in the refractive index | d) mass spectroscopy of the protein

(50) In antibiotic manufacturing processes, the fermentation time ranges from

a) 2-3 weeks | b) 1-2 weeks
c) 4-5 weeks | d) 2-4 weeks

(51) The conventional filtration involves the separation of large particles generally

a) dp > 5μm | b) dp > 10μm
c) dp > 15μm | d) dp > 20μm

(52) Which of the operation does not come under upstream processing?

a) Media preparation | b) Inoculum development
c) Effluent treatment | d) Storage of raw material

(53) The disk centrifuge is the type of centrifuge used most often for bio separations due to its

a) continuous operation | b) lesser cost
c) higher speed | d) ease in operation

(54) The effectiveness of a solvent can be measured by the

a) distribution coefficients | b) selectivity
c) both (a) and (b) | d) diffusivity

(55) The stage wise operation of adsorption is called

a) contact filtration | b) conventional adsorption
c) affinity adsorption | d) ion exchange

(56) Which of the following is not the physical method for the cells rupturing?

a) Milling | b) Homogenization
c) Ultrasonication | d) Enzymatic digestion

(57) Conventional adsorption is

a) reversible process　　　　　　　　　　b) irreversible process

c) either reversible or irreversible　　　　d) none of these

(58) The optimum wet solid content for the cell suspension for a bead mill is typically somewhere between

a) 5-15% by volume　　　　　　　　　　b) 15-30% by volume

c) 30-60% by volume　　　　　　　　　　d) 60-90% by volume

(59) Concentration polarization can be reduced further by

a) pre-filtering the solution

b) reducing the flow rate per unit membrane surface area

c) back washing periodically　　　　　　d) All of these

(60) A system which require less solvent and produces a more concentrated extract phase, is desired with a

a) large distribution coefficients　　　　b) small distribution coefficients

c) very small distribution coefficients　　d) constant distribution coefficients