



BRAINWARE UNIVERSITY

Term End Examination 2021 - 22

Programme – Master of Science in Biotechnology

Course Name – Microbiology and Industrial Applications

Course Code - MBT202

(Semester II)

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) Name the scientist who proposed the phylogenetic tree for living things.

a) Carlo Urbani	b) Louis Pasteur
c) Robert Koch	d) Carl Woese
- (2) The Five Kingdom arrangement of organisms was proposed by

a) Whittaker	b) John Ray
c) Whitter	d) Carl Woese
- (3) Name the yeast that carries out alcoholic fermentation

a) E coli	b) Saccharomyces cerevisiae
c) Aspergillus niger	d) Bacillus
- (4) Bioreactors can be used for

a) fermetation	b) cell growth
c) both fermentation and cell growth	d) neither fermentation nor cell growth
- (5) The taxa having the ending -mycetes is _____

a) Division	b) Subdivision
c) Class	d) Order
- (6) Aerobic fermentation takes place within the

a) mitochondria	b) ribosomes
c) lysosomes	d) nucleus
- (7) In this type of culture system(s), feed/nutrients are added constantly, at certain intervals, to maintain cell growth

a) fed batch	b) continuous
c) Both fed batch and continuous	d) batch
- (8) In order to avoid contamination in a closed system, the preferable fermentation type will be

- a) submerged
c) batch
- b) fed batch
d) continuous
- (9) What do you mean by sterilization?
- a) Elimination of microorganisms
c) Preparation of medium
- b) Recovery of byproducts
d) Preparation of inoculum
- (10) Which of the following is not a technique for the extraction of enzymes by chemical methods?
- a) detergent treatment
c) alkali treatment
- b) osmotic shock
d) homogenization
- (11) The degradation of complex molecules in soil by fungi for utilization by bacteria is an example of which type of association?
- a) Commensalism
c) Mutualism
- b) Neutralism
d) Antagonism
- (12) Which of the following comes under the category of positive association?
- a) neutralism
c) commensalism
- b) parasitism
d) ammensalism
- (13) Which of the following group of pathogens always reside intracellularly in the host?
- a) virus
c) fungi
- b) bacteria
d) mould
- (14) Component of biosphere related with soil is
- a) Lithosphere
c) Atmosphere
- b) Hydrosphere
d) Stratosphere
- (15) The correct order of taxonomic groups from higher to lower rank is?
- a) Kingdom—Order—Class—Family
c) Kingdom—Order—Division—Family—Class—Genus—Species
- b) Order—Class—Division—Family—Genus—Species
d) Kingdom—Division—Class—Order—Family—Genus—Species
- (16) % Similarity (%S) of each strain to every other strain is calculated by which method?
- a) Intuitive Method
c) Genetic Relatedness
- b) Numerical Taxonomy
d) DNA homology experiments
- (17) According to Bergey's Manual of Systematic Bacteriology, prokaryotes that lack a cell wall belong to the group?
- a) Gracilicutes
c) Tenericutes
- b) Firmicutes
d) Mendosicutes
- (18) Which of the following is a biodegradable waste?
- a) Plastics
c) Glass
- b) Polythene
d) None of these
- (19) The portion of the growth curve where rapid growth of bacteria is observed is known as _____
- a) Lag phase
c) Stationary phase
- b) Logarithmic phase
d) Decline phase
- (20) During exponential phase, growth rate is _____
- a) same as generation time
c) time required for population to double
- b) reciprocal of generation time
d) rate of doubling population
- (21) In which of the following phase secondary metabolites are produced during growth?
- a) Lag phase
- b) Log/Exponential phase

- c) Stationary phase
d) Death phase
- (22) Which of the following is used to grow bacterial culture continuously?
a) Chemostat
b) Hemostat
c) Coulter-Counter
d) Turbidostat
- (23) Nitrogen is absorbed by the plants in the form of
a) Ammonium
b) Nitrites
c) Nitrates
d) All of these
- (24) Symbiotic nitrogen-fixing cyanobacteria are not present in
a) Azolla
b) Gnetum
c) Anthoceros
d) Cycas
- (25) Single cell protein (SCP) is the production of ?
a) Extracellular proteins
b) Fermentation of waste products
c) Intracellular proteins extraction
d) Metabolites
- (26) Conversion of nitrites to nitrates is called
a) Nitrosococcus
b) Clostridium
c) Nitrobacter
d) Nitrosomonas
- (27) Conversion of ammonia to nitrite and then to nitrates is called
a) Ammonification
b) Denitrification
c) Assimilation
d) Nitrification
- (28) Which of the following does not have the property of production of secondary metabolites?
a) Filamentous fungi
b) Filamentous bacteria
c) Sporing bacteria
d) Enterobacteria
- (29) Which of the following cannot be used for the separation of nucleic acids?
a) SDS – PAGE
b) PAGE
c) Northern blotting
d) Southern blotting
- (30) Electrophoresis cannot be used to separate _____
a) Proteins
b) DNA
c) RNA
d) Amino acids
- (31) Name the coenzyme of riboflavin (B2)
a) NAD or NADP
b) FAD and FMN
c) Coenzyme A
d) Thiamine pyrophosphate
- (32) Blocking of enzyme action by blocking its active sites is
a) feedback inhibition
b) competitive inhibition
c) non-competitive inhibition
d) allosteric inhibition
- (33) Which technique separates charged particles using electric field?
a) Electrophoresis
b) Hydrolysis
c) Protein synthesis
d) Protein denaturing
- (34) The cooling jacket covering the bioreactor maintains the
a) temperature
b) pressure
c) pH
d) nutrient content
- (35) What does the electrophoresis apparatus consist of?
a) Gel, buffer chamber and fire pack
b) Buffer chamber and electrophoresis unit
c) Electrophoresis unit and gel separator
d) Power pack and electrophoresis unit
- (36) This enzyme was first isolated and purified in the form of crystals

- a) urease
c) pepsin
- b) endonuclease
d) ribonuclease
- (37) Degree of pathogenicity is referred to as _____
a) attenuation
c) pathogenicity
- b) virulence
d) capability
- (38) When the infection occurs suddenly and with severe intensity it is known as _____
a) chronic
c) acute
- b) fulminating
d) localized
- (39) Which of the following microbe is used in the production of blue cheese?
a) *Streptococcus thermophilus*
c) *Penicillium roqueforti*
- b) *Lactobacillus bulgaricus*
d) *Rhizopus stolonifer*
- (40) Bacterial cell grown on hydrocarbon wastes from the petroleum industry are a source of _____
a) carbohydrates
c) fats
- b) proteins
d) lipids
- (41) What is the range of protein content in yeast cells?
a) 69 %
c) 100 %
- b) 40-50 %
d) 20-30 %
- (42) Animals that are routinely infected with a protozoan or parasite are termed as _____
a) definitive host
c) reservoir host
- b) intermediate host
d) parasitic host
- (43) African sleeping sickness is caused by which of the following protozoa?
a) *Entamoeba histolytica*
c) *Leishmania donovani*
- b) *Trypanosoma gambiense*
d) *Plasmodium vivax*
- (44) Solvents and enzymes are found in which of the following categories of microbial products?
a) Pharmaceutical chemicals
c) Food supplements
- b) Commercially valuable chemicals
d) Alcoholic beverages
- (45) Which of the following product is used for the treatment of blood clots?
a) insulin
c) urokinase
- b) interferon
d) somatostatin
- (46) A food web consists of
a) A portion of food chain
c) Interlocking of food chains
- b) A set of similar consumers
d) Producers, consumers and decomposers
- (47) What does high value of BOD(Biochemical Oxygen Demand) indicate
a) That water is pure
c) that water is highly polluted
- b) that water is less polluted
d) that consumption of organic matter by microbes is higher in the water
- (48) Bioremediation involves the
a) usage of microbes to create new organisms
c) usage of microbes to destroy environmental pollutants
- b) usage of anaerobic bacteria to create new antibiotics
d) usage of aerobic bacteria to create new vaccines
- (49) At this stage of wastewater treatment, methanogenic microbes are the most significant

- a) Sludge digestion
c) Secondary treatment
- b) Primary treatment
d) Biological oxidation
- (50) _____ bacterium can withstand doses of radiation which are several times higher than what human cells can tolerate
- a) Escherichia coli
c) Deinococcus radiodurans
- b) Conus magus
d) Staphylococcus aureus
- (51) Steps of Nitrogen cycle are
- a) Ammonification
c) both ammonification and denitrification
- b) Denitrification
d) None of these
- (52) Which of the following is not a Gram-positive bacilli?
- a) Bacteroides
c) Lactobacillus
- b) Eubacterium
d) Bifidobacterium
- (53) Enterococci is found in which part of the intestine?
- a) duodenum
c) ileum
- b) jejunum
d) large intestine
- (54) Which bacteria has an unusual capsule among the following?
- a) Haemophilus influenzae
c) Streptococcus pneumoniae
- b) Klebsiella pneumoniae
d) Bacillus anthracis
- (55) The association which involves the exchange of nutrients between two species is referred to as
- a) mutualism
c) commensalism
- b) syntrophism
d) antagonism
- (56) Fungi produce which of the following inhibitory toxic product?
- a) cyanide
c) methane
- b) fatty acids
d) sulphides
- (57) Lipopolysaccharide in cell walls is characteristic of?
- a) Gram-positive bacteria
c) Fungi
- b) Gram-negative bacteria
d) Algae
- (58) In the classification of bacteria according to shape, which among the following refer to cuboidal arrangement of bacterial cells?
- a) Tetrads
c) Sarcinae
- b) Staphylococci
d) Streptococci
- (59) Which of the following is not a modern method of differentiation?
- a) RFLP
c) Karyotyping
- b) Plate tests
d) PCR
- (60) Which of the following is not a restriction enzyme?
- a) Hind III
c) Bam HI
- b) Eco RI
d) AmpR