

**Sample Questions**  
**T.Y.B.Sc. Zoology/Semester – VI**  
**Zoology Paper – II: Physiology & Cell Culture**  
**Unit I: Enzymology**

- 1) \_\_\_\_\_ the activation energy, faster will be the rate of reaction.
  - a) Lower
  - b) Moderate
  - c) Higher
  - d) Maximum
  
- 2) Class of Enzyme that catalyses the redox reaction
  - a) Transferase
  - b) Oxidoreductase
  - c) Isomerase
  - d) Ligases
  
- 3) Class of Enzyme transfer the functional groups between the donor & acceptor molecules.
  - a) Ligases
  - b) Oxidoreductase
  - c) Hydrolases
  - d) Transferase
  
- 4) Class of Enzymes catalyses structural rearrangement & intermolecular rearrangement of atoms.
  - a) Ligases
  - b) Isomerase
  - c) Hydrolases
  - d) Transferase
  
- 5) \_\_\_\_\_ specificity enzyme will catalyse reaction with only one substrate.
  - a) Linkage
  - b) Stereochemical
  - c) Absolute
  - d) Substrate
  
- 6) The activity of enzyme is measure in terms of units called
  - a) Katal
  - b) mg
  - c) mol/sec
  - d) mg/dl
  
- 7) The site at which substrate binds with the enzyme
  - a) Allosteric
  - b) Active
  - c) Inactive
  - d) Substrate

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- 8) The functional unit of enzyme is known as
- Holoenzyme
  - Coenzyme
  - Cofactors
  - Apoenzyme
- 9) Forms the protein part of the enzyme.
- Apoenzyme
  - Coenzyme
  - Cofactor
  - Inhibitors
- 10) A graph plotted of enzyme activity versus pH always shows a \_\_\_\_\_ shape curve.
- Hyperbolic
  - Bell
  - Sigmoid
  - Plateau
- 11) A \_\_\_\_\_ Km value indicates a strong affinity between substrate & enzyme.
- High
  - Low
  - Maximum
  - Moderate
- 12) A \_\_\_\_\_ curve is obtained when velocity/rate of reaction is plotted against the substrate concentration.
- Hyperbola
  - Bell
  - Sigmoid
  - Plateau
- 13) A substance which binds with the enzyme and brings about a decrease in catalytic activity of that enzyme.
- Activators
  - Inhibitor
  - Effectors
  - Modulators
- 14) Chemical compounds that block the metabolic reactions by inhibitory action on enzymes.
- Antivitamins
  - Antimetabolites
  - Antiseptics
  - Antimicrobial

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- 15) Multiple form of an enzyme catalysing the same reaction are called
- Abzymes
  - Ribozymes
  - Isozymes
  - Hybrid Enzymes
- 16) Enzyme obtained from the stomach of calves traditionally used for production of cheese.
- Amylase
  - Rennet
  - Glucoamylase
  - Protease
- 17) Enzyme used during food packaging to increase storage life of product by removing oxygen.
- $\beta$ -galactosidase
  - Chymotrypsin
  - Glucoseoxidase
  - Lipase
- 18) Equation which represents Michaelis – Menten equation:
- - 
  - 
  -
- 19) Equation which represents Lineweaver – Burk plot equation:
- - 
  - 
  -
- 20) Metal ions bound very tightly to an enzyme through covalent bonding.
- Activators

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- b) Prosthetic groups
  - c) Substrate Analogy
  - d) Antigens
- 21) A \_\_\_\_\_ is a biocatalyst that increases the rate of the reaction without being changed.
- a) Silicon dioxide
  - b) Hydrogen peroxide
  - c) Enzyme
  - d) Aluminium oxide
- 22) Which of the following statement is INCORRECT for the lock-and-key model?
- a) It is used to describe the binding process
  - b) The binding of the substrate produces a conformational change in enzyme
  - c) It demonstrates enzyme-substrate complex
  - d) The active site of the enzyme is complementary to the substrate
- 23) Lineweaver-Burk plot is also known as \_\_\_\_\_
- a) Steady-state equation
  - b) Double reciprocal plot
  - c) Hanes-Woolf plot
  - d) Eadie-Hofstede plot
- 24) What is an Isozyme?
- a) Same structure, the same function
  - b) Different structure, different function
  - c) Same structure, different function
  - d) Different structure, the same function

**Unit II: Homeostasis**

- 1) The ability to maintain a constant internal environment by coordinated physiological process is called

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- a) Haemostasis
  - b) Homeostasis
  - c) Haemolysis
  - d) Haemophilia
- 2) A state of dormancy exhibited by the animals in summer season to escape from heat.
- a) Hibernation
  - b) Aestivation
  - c) Winter sleep
  - d) Torpid
- 3) A state of dormancy where the animal escapes from excessive cold.
- a) Aestivation
  - b) Hibernation
  - c) Summer sleep
  - d) Torpid
- 4) Form of adaptive hypothermia exhibited by animals to conserve metabolic energy when inactive or asleep.
- a) Summer sleep
  - b) Daily torpor
  - c) Aestivation
  - d) Piloerection
- 5) The hormone which initiate the contraction of smooth muscle of the uterus
- a) Insulin
  - b) Oxytocin
  - c) Thyroxine
  - d) GH
- 6) It is the process of gradual adjustment of animal body to the laboratory condition
- a) Acclimatization
  - b) Tolerance
  - c) Acclimation
  - d) Metabolism
- 7) Process of compensatory adjustment of animal body to the changes in natural environmental condition
- a) Acclimatization
  - b) Metabolism
  - c) Intolerance
  - d) Acclimation
- 8) Patterns of biological activity the occurs cyclically after the period of approximately 24 hours
- a) Ultradian rhythms
  - b) Circadian rhythms

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- c) Biological rhythms
  - d) Daily rhythms
- 9) The study of Circadian rhythm
- a) Physiology
  - b) Chronobiology
  - c) Entomology
  - d) Enzymology
- 10) Circadian Rhythm are endogenous but can be modulated by external factors called
- a) Zeitgebers
  - b) Supraoptic nuclei
  - c) Neurons
  - d) Retina
- 11) A circadian rhythm that is synchronised with the day and night cycle is called
- a) Diurnal rhythm
  - b) Light cycle
  - c) Dark cycle
  - d) Extrinsic cycle
- 12) A process by which body temperature of organism is regulated for the efficient functioning of the body
- a) Thermoregulation
  - b) Endothermy
  - c) Ectothermy
  - d) Zeitgebers
- 13) The animals which depend on internal sources of heat are termed as
- a) Endothermic
  - b) Poikilothermic
  - c) Ectothermic
  - d) Cold blooded
- 14) The animal whose body temperature changes according to the fluctuations of environmental temperature
- a) Ectothermic
  - b) Endothermic
  - c) Homoeothermic
  - d) Warm blooded
- 15) Heat \_\_\_\_\_ centre situated in the anterior hypothalamus
- a) loss
  - b)  $\beta$ -adrenoceptor agonists

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- c) gain  
d) static and dynamic
- 16) Heat \_\_\_\_ centre situated in the posterior hypothalamus  
a) gain  
b) loss  
c) static and dynamic  
d) receptor and effector
- 17) A special thermogenic Tissue present in mammals  
a) Brown fat  
b) White fat  
c) Black fat  
d) Red fat
- 18) A pair of crescent shaped organ of extra renal salt excretion located in the head above the eyes  
a) Salt glands  
b) Renal gland  
c) Pituitary gland  
d) Sweat gland
- 19) \_\_\_\_\_ is the transfer of heat by physical contact between two bodies  
a) Conduction  
b) Evaporation.  
c) Convection  
d) Radiation
- 20) Brown fat is stimulated by \_\_\_\_\_ to produce heat.  
a) Epinephrine  
b) Nor-Adrenaline  
c) Aldosterone  
d) Prolactin
- 21) Which is not an example of negative feedback mechanism?  
a) Body temperature.  
b) Blood glucose level  
c) Clotting mechanism  
d) Hormone level
- 22) Which physiological adaptation is not seen in terrestrial animals?  
a) Reabsorption of water from urine

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- b) Development of nasal glands
  - c) Excretion of semi-solid urine with uric acid crystals
  - d) Excretion of very dilute urine
- 23) Which physiological adaptation is not seen in Marine animals?
- a) Retention of salts in body
  - b) Presence of cranial salt glands
  - c) Presence of Hypertonic body fluids.
  - d) Presence of Covering on body
- 24) Which is not the characteristic of hibernating animals?
- a) Metabolic rate is reduced.
  - b) Oxygen consumption is reduced.
  - c) Animals do not move and become lethargic
  - d) Animals feed continuously all the time
- 25) Mechanism of \_\_\_\_\_ involves piloerection, reduced blood flow to skin, panting, non-shivering thermogenesis
- a) Heat production
  - b) Heat loss
  - c) Evaporation
  - d) Hormone secretion
- 26) Which is not the adaptation seen in fresh water organism for osmoregulation?
- a) Presence of contractile vacuole
  - b) Production of highly concentrated urine.
  - c) Ability to regulate blood hypertonic
  - d) Presence of protective and impermeable covering on body
- 27) Animals that permit internal and external conditions to be equal is called as
- a) Conformer
  - b) Regulator
  - c) Effector
  - d) Detector
- 28) Animal that maintains its internal constancy in the face of external variabilities is called
- a) Conformer
  - b) Regulator
  - c) Effector
  - d) Detector
- 29) Under “normal” conditions, \_\_\_\_\_.
- a) set points are generally found within a set range. This allows for minor oscillations around the set point; these minor oscillations are usually ignored



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- b) set points are generally found within a set range. Nevertheless, minor oscillations can raise havoc within the system
  - c) set points are highly variable and internal reactions to set points cannot be predicted with any accuracy at all
  - d) set points are rigidly adhered to, and when slight deviations occur, the body launches an “all-out effort” to bring the system back to the norm
- 30) After you eat a sugary donut and drinking a soft drink, your blood glucose levels rise above a normal range. How would negative feedback affect this variable?
- a) Blood glucose levels would rise even further.
  - b) Blood glucose levels would return to a normal range (homeostasis).
  - c) Blood glucose levels would fall to below what is considered a normal range.
  - d) None of the listed responses is correct.
- 31) Homeostatic regulation of body temperature is an example of \_\_\_\_\_.
- a) disease
  - b) Chaotic information loop
  - c) negative feedback
  - d) positive feedback
- 32) Which of the following statements about positive feedback is NOT true?
- a) It is important in processes that must be completed quickly.
  - b) It leads to a response that exaggerates the stimulus.
  - c) It is the primary mechanism of homeostatic regulation.
  - d) Loop can be broken only by external processes.
- 33) When does disease or illness form?
- a) when positive feedback is occurring
  - b) when a receptor receives a stimulus
  - c) when there is too much negative feedback
  - d) when the body cannot maintain homeostasis for a particular variable or set of variables
- 34) In a positive feedback system, what effect does the response to the stimulus have on the stimulus itself?
- a) exaggerates the stimulus
  - b) decreases the stimulus
  - c) may increase or decrease the stimulus, depending on the circumstances
  - d) does not affect the stimulus
- 35) Which of the following statements about homeostasis is NOT correct?

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- a) Hormones function in extrinsic regulation of homeostasis.
  - b) The actions of the nervous system are not part of the autoregulatory processes of homeostasis.
  - c) Maintaining long-term homeostatic effects such as growth in children is mediated mainly by autoregulation.
  - d) Autoregulation refers to the automatic changes in a cell, tissue, organ, or system that occur with environmental variation.
- 36) Which part of the homeostatic regulatory system detects changes in the environment?
- a) stimulus
  - b) effector
  - c) control centre
  - d) receptor
- 37) A set point is usually:
- a) the top of a normal range
  - b) the bottom of a normal range
  - c) in the middle of a normal range
  - d) the point at which changes can no longer occur
- 38) The \_\_\_\_\_ is an organ, gland, muscle, or other structure that acts on the signal from the control center to move the variable back toward the set point.
- a) reference point
  - b) receptor
  - c) effector
  - d) detector

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**Unit III: Endocrinology**

- 1) Refers to study of various endocrine tissues which secretes hormones either excitatory or inhibitory in function.
  - a) Endocrinology
  - b) Oncology
  - c) Ornithology
  - d) Serology
  
- 2) What are hormones?
  - a) Electrical signals
  - b) Chemical messengers
  - c) Hydrological signals
  - d) Etheric messengers
  
- 3) Chemical messengers secreted by ductless glands are called\_\_\_\_\_.
  - a) Plasma
  - b) Lymph
  - c) Hormones
  - d) Platelets
  
- 4) Hyperactivity of adrenal cortex causes \_\_\_\_\_.
  - a. Addison's disease
  - b. Cushing's Syndrome
  - c. Grave's disease
  - d. Gull's disease
  
- 5) Hypoactivity of adrenal cortex causes\_\_\_\_\_.
  - a. Cushing's Syndrome
  - b. Cretinism
  - c. Addison's disease
  - d. Goitre
  
- 6) \_\_\_\_\_ called as emergency hormone produce in time of stress, danger, etc.
  - a. Mineralocorticoids
  - b. Norepinephrine
  - c. FSH
  - d. LH
  
- 7) Hormone promotes absorption of sodium & excretion of potassium
  - a. Mineralocorticoids
  - b. Epinephrine
  - c. Adrenaline
  - d. Glucocorticoids

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- 8) Steroid hormone secreted by adrenal cortex helps in \_\_\_\_ metabolism of regulating glucose & protect body against stress.
- Mineralocorticoids
  - Epinephrine
  - Adrenaline
  - Glucagon
- 9) Widest part situated in the middle of cortex.
- Zona Reticularis
  - Zona Glomerulosa
  - Zona Fasciculata
  - Zona Medulla
- 10) Zona glomerulosa helps in \_\_\_\_
- maintaining electrolyte
  - blood pressure
  - carbohydrate metabolism
  - helps in metabolism of lipid
- 11) \_\_\_\_ part of adrenal cortex secretes sex hormones & glucocorticoid.
- Zona reticularis
  - Zona fasciculata
  - Zona glomerulosa
  - Zona Medulla
- 12) One of the following hormones is an amino acid derivation.
- Epinephrine
  - Norepinephrine
  - Thyroxine
  - Testosterone
- 13) The hormone predominantly produced in response to flight, fight & fright.
- Thyroxine
  - Aldosterone
  - Epinephrine
  - ADH
- 14) A gland situated above each kidney
- Thymus
  - Pancreas
  - Adrenal
  - Spleen

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- 15) Deficiency of insulin causes
- Diabetes mellitus
  - Diabetes insipidus
  - Water imbalance
  - Hyperglycaemia
- 16) Cells accelerates the conversion of glucose into glycogen in liver
- $\alpha$ -cell
  - $\beta$ -cell
  - $\delta$ -cell
  - G-cell
- 17) Glycogen is broken down to glucose by process called
- Glycogenolysis
  - Glycolysis
  - Gluconeogenesis
  - None of the above
- 18) A blood sugar decreasing hormone
- Glycogen
  - Gastrin
  - Insulin
  - CCK
- 19) Alpha-cells of islets of Langerhans secrete
- Insulin
  - Glucagon
  - Cholecystokinin
  - Somatostatin
- 20) Which of the following statement is INCORRECT for hyposecretion of PTH?
- Causes Osteoporosis
  - Locking of jaws
  - Tetany
  - Muscle twitch
- 21) Parathyroid gland consists of \_\_\_\_\_
- Chief cells & oxyphil cells
  - Chief & parafollicular cells
  - Clear cells
  - F-cells

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- 22) Autoimmune disease caused by over production of thyroid gland
- a. Grave's disease
  - b. Addison disease
  - c. Cushing disease
  - d. Diabetes mellitus
- 23) Which is not the symptom of Myxoedema
- a. Mental dullness
  - b. Mongoloid appearance
  - c. Loss of appetite
  - d. Protruded eye ball
- 24) Hypothyroidism in children causes
- a. Acromegaly
  - b. Cretinism
  - c. Goitre
  - d. Gull's disease
- 25) Functional unit of thyroid gland
- a. Acini / follicle
  - b. Lobe
  - c. Colloid
  - d. Septa
- 26) Which of the following is a protein hormone?
- a. Prolactin
  - b. Prostaglandins
  - c. Aldosterone
  - d. Luteinizing hormone
- 27) The neuron of supraoptic nucleus secrete
- a. ADH
  - b. Oxytocin
  - c. Testosterone
  - d. Oestrogen
- 28) In Neurohypophysis, the secretory granules collected at end of axonal process of neuron are called
- a. Axonal body
  - b. Colloid cyst
  - c. Herrings body
  - d. Pituicytes

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- 29) Neurohypophysis only releases and stores two hormones
- ADH & Thyroxine
  - GH & Oxytocin
  - Oxytocin & ADH
  - Aldosterone & Epinephrine
- 30) Chromophils & Chromophobes secretory granule are present in
- Pars intermedia
  - Pars distalis
  - Neurohypophysis
  - Pars tuberalis
- 31) It is derived from outgrowth of oral ectoderm known as Rathke's pouch
- Adenohypophysis
  - Neurohypophysis
  - Hypothalamus
  - Pineal gland
- 32) Act as a secondary messenger
- G-protein
  - ATP
  - Cyclic AMP
  - Kinase
- 33) Steroids are synthesis from
- Glycoproteins
  - Amino acids
  - Cholesterol
  - Calatacolamines
- 34) Two lobes in thyroid glands are connected with each other by a narrow tissue called
- Trachea
  - Isthmus
  - Stalk
  - Band
- 35) Pineal gland secretes
- Thyroxine
  - Melatonin
  - Parathormone
  - LH
- 36) What hormone triggers sleepiness within humans?
- Thyroxine
  - Insulin
  - glycogen
  - melatonin

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- 37) A hormone is
- a) a chemical substance produced by a gland and carried by the lymph.
  - b) an enzyme produced by a gland and carried by the blood.
  - c) a chemical substance produced by an organ and carried by the blood.
  - d) a chemical substance produced by a gland and carried by the blood.
- 38) Which one here is a hormone to control blood glucose levels?
- a) Glycogen
  - b) Glycerol
  - c) Glucagon
  - d) Glucose
- 39) Which one here reduces the amount of glucose in the blood?
- a) Glucagon
  - b) Insulin
  - c) Glycogen
  - d) ADH
- 40) Cortisol
- a) increases heart rate, blood pressure, and breathing rate
  - b) raises blood calcium levels by breaking down bone (osteoclasts)
  - c) reduces inflammation; makes glucose available during stress
  - d) regulates circadian rhythms
- 41) Growth hormone
- a) stimulates growth in muscles and cartilage
  - b) stimulates metabolism
  - c) reduces inflammation
  - d) controls the release of thyroxine from the thyroid gland
- 42) Thyroid stimulating hormone
- a) reduces inflammation; makes glucose available during stress
  - b) affects production and differentiation of certain white blood cells
  - c) stimulates metabolism
  - d) controls the release of thyroxine from the thyroid gland
- 43) Thyroxine
- a) lowers blood calcium by depositing calcium in bones (osteoblasts)
  - b) stimulates metabolism
  - c) regulates circadian rhythms
  - d) reduces inflammation; makes glucose available during stress



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45) Glucagon functions as to:

- a) stimulates the liver to break down glycogen into glucose; raises blood glucose levels
- b) stimulates the liver to form glycogen from glucose; lowers blood glucose levels
- c) raises blood calcium levels by breaking down bone (osteoclasts)
- d) lowers blood calcium levels by depositing calcium in bones (osteoblasts)

46) Adrenocorticotropic functions as to:

- a) reduces inflammation; makes glucose available during stress
- b) promotes the retention of water by the kidneys
- c) stimulates metabolism
- d) controls the release of cortisol by the adrenal glands

47) Epinephrine and Norepinephrine functions as to:

- a) reduces inflammation; makes glucose available during stress
- b) promotes retention of water by the kidneys
- c) increases heart rate, blood pressure, and breathing rate
- d) regulates circadian rhythms

48) Calcitonin functions as to:

- a) Lowers blood calcium levels by depositing calcium in bones (osteoblasts)
- b) stimulates liver to break down glycogen into glucose; raising blood glucose levels
- c) affects the production and differentiation of certain white blood cells
- d) stimulates growth

49) Calcitonin is a hormone that lowers blood calcium levels by causing calcium uptake in bones. Parathyroid hormone raises blood calcium levels by causing bones to release calcium into the bloodstream. Based on your understanding of hormones, homeostasis, and feedback loops, which hormone will be released if blood calcium levels are low?

- a) Calcitonin
- b) Parathyroid hormone
- c) Glucagon
- d) Insulin

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**Unit IV: Introduction to animal and cell culture**

- 1) A process by which instruments, surface, culture media are made free from all living microorganisms.
  - a) Autoclave
  - b) Ultraviolet light
  - c) Swabbing
  - d) Sterilization
  
- 2) The laboratory apparatus designed to use steam under regulated pressure is called
  - a) Dry heat oven
  - b) Filtration
  - c) Autoclave
  - d) Ultraviolet light
  
- 3) Autoclave is operated at a pressure of
  - a) 15 psi / 121
  - b) 20 psi / 120
  - c) 17 psi / 121
  - d) 16 psi / 120
  
- 4) An absorbent material made of cotton or paper used in tissue culture laboratory for cleaning surface at work place.
  - a) Burner
  - b) Flask
  - c) Bottles
  - d) Swab
  
- 5) A rubbing alcohol used for swabbing instead of ethanol or methanol
  - a) Butyl alcohol
  - b) Hexyl alcohol
  - c) Isopropyl alcohol
  - d) n-Propyl alcohol
  
- 6) A media used for growth of microorganisms or cells in vitro.
  - a) Culture media
  - b) Liquid media
  - c) Solid media
  - d) Tissue culture

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- 7) A process of transfer of culture from one container to another under aseptic condition.
- Flaming
  - Pouring
  - Swabbing
  - Capping
- 8) HEPA stands for:
- High Efficiency Protein Aerosol
  - High Efficiency Particulate Air
  - High Efficiency Particulate Aggregation
  - High Efficiency Protein Air
- 9) A process done to remove any dust particles or lint so that it do not drop into a sterile area.
- Pouring
  - Flaming
  - Capping
  - Swabbing
- 10) Soft, close – fitting head covering used for test tubes, flasks, bottles for maintaining sterility.
- Flaming
  - Pouring
  - Swabbing
  - Capping
- 11) Media contains natural sources of nutrients sufficient for growth and proliferation of animal cells.
- Synthetic media
  - Natural media
  - Artificial media
  - Complete media
- 12) Media prepared artificially by adding several organic and inorganic nutrients for growth and proliferation of animal cells.
- Natural media
  - Complete media
  - Synthetic media
  - Artificial media

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- 13) The group of vitamins essential for cell growth and multiplication.
- a) Vit. A
  - b) Vit. B
  - c) Vit. C
  - d) Vit. D
- 14) The frequency of contamination in culture media is reduced by addition of
- a) Antiseptics
  - b) Antimicrobial
  - c) Antibacterial
  - d) Antibiotics
- 15) Factors which does not influence cell culture
- a) Viscosity
  - b) Temperature
  - c) pH
  - d) Substrate
- 16) Trypsinization is enzymatic disaggregation with the enzyme
- a) Pectin
  - b) Collagenase
  - c) Trypsin
  - d) Pepsin
- 17) Cell lines derived directly from an intact tissue like animal's embryo or kidney.
- a) Secondary cell line
  - b) Primary cell line
  - c) Continuous cell line
  - d) Established cell line
- 18) Cells are derived from primary cultures.
- a) Primary cell line
  - b) Secondary cell line
  - c) Continuous cell line
  - d) Immortal cell line
- 19) Cell lines are usually derived from malignant tissue.
- a) Primary cell line
  - b) Continuous cell line
  - c) Secondary cell line
  - d) Cell strain

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- 20) Cells that require attachment for growth are called:
- Adherent cells & Suspension cells
  - Adherent cells & Anchorage Independent cells
  - Anchorage Dependent cell & Adherent cells
  - Suspension cells & Anchorage Dependent cell
- 21) Monoclonal antibodies are:
- Specific towards a paratope
  - Specific towards an epitope
  - Specific towards an antigen
  - Specific towards a cell
- 22) The technology used for the production of monoclonal antibodies is:
- Mass culture technology
  - Hybridoma technology Monoclonal and Polyclonal Antibodies
  - Suspension culture
  - Established cell culture
- 23) The Hybridomas are made by:
- Fusing T cells with myeloma cells
  - Fusing B cells with myeloma cells
  - Fusing T helper cells with myeloma cells
  - Fusing B memory cells with myeloma cells
- 24) Which is not the property of a Balanced Salt Solution?
- buffers the medium at physiological pH
  - maintains osmotic pressure
  - disrupts the membrane potential
  - act as cofactor in enzyme reaction
- 25) Calcium concentration is reduced in suspension culture to:
- maximizes cell aggregation & attachment
  - minimizes aggregation & attachment
  - maximizes cell disaggregation & detachment
  - minimizes cell disaggregation & detachment
- 26) \_\_\_\_\_ allows the quantification of cell-cell cohesion & is powerful; indicator for cellular rearrangement.
- viscosity
  - tissue surface tension

**Sample Questions**  
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- c) osmolality  
d) pH
- 27) Common indicator used for cell line growth:
- Phenol blue
  - Phenol red
  - Methyl orange
  - Phenolphthalein
- 28) Techniques involves disaggregation of cells with some form of maceration
- isolation of cells
  - mechanical disaggregation
  - enzymatic disaggregation
  - hydrolytic disaggregation
- 29) Sometimes cell lines can be cultured for such a long time that they apparently develop the potential to be sub cultured indefinitely in vitro. Such cells lines are called
- established cell lines
  - primary cell lines
  - secondary cell lines
  - propagated cell lines
- 30) How does CO<sub>2</sub> help in the cell metabolism during cell culture?
- It participates in the de novo synthesis of purines and pyrimidines
  - Helps in the cells respiration
  - For monitoring pH of the culture
  - Provides O<sub>2</sub> tension
- 31) Range of osmolarity tolerated/accepted in mOsm/Kg of H<sub>2</sub>O by mammalian cells is
- 150-300
  - 260-320
  - 300-325
  - 360-400
- 32) The growth of animal cells in vitro in a suitable culture medium is called \_\_\_\_\_
- Gene expression
  - Transgenesis
  - Plant tissue culture
  - Animal cell culture
- 33) Name the type of culture which is prepared by inoculating directly from the tissue of an organism to culture media?
- Primary cell culture
  - Secondary cell culture

**Sample Questions**  
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- c) Cell lines  
d) Transformed cell culture
- 34) Which of the following is NOT the part of growth medium for animal culture?  
a) Starch  
b) Serum  
c) Carbon source  
d) Inorganic salts
- 35) When working with animal cells in a biological safety cabinet  
a) never stop until all you work is completed, then exit the biological safety cabinet  
b) never open any item outside the biological safety cabinet otherwise it will not be sterile  
c) you don't have to worry about sterile technique  
d) use quick movements to enter and exit the biological safety cabinet
- 36) Antibiotics should  
a) always be used  
b) used, only when necessary  
c) never be used  
d) only during a cross-contamination event
- 37) Example of a serum free media is:  
a) Knockout Serum Replacement  
b) Eagle's minimal essential medium  
c) Roswell Park Memorial Institute medium- RPMI1640  
d) Connaught Medical Research Lab 1066
- 38) What is INCORRECT about using serum free media:  
a) Easier purification and downstream processing  
b) Precise evaluations of cellular function  
c) More consistent performance  
d) Decreased growth and/or productivity
- 39) What is the first stage of producing monoclonal antibodies?  
a) Stimulating mouse lymphocytes to make an antibody  
b) collect spleen cells from a mouse  
c) Form hybridoma cells  
d) produce myeloma cells

**Sample Questions**  
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40) What is a hybridoma cell?

- a) A particular antibody
- b) A B-lymphocyte fused with a cancer cell
- c) An antibody fused with a lymphocyte
- d) An antigen

41) What are Monoclonal antibodies?

- a) An antibody produced by the body.
- b) An antibody produced by a single clone of cells or cell line and consisting of identical antibody molecules.
- c) An antibody produced by a single clone of cells or cell line and consisting of many different antibody molecules.
- d) An antibody produced in a lab