

JUPEB

Biology

Past questions

Paper Type: **Objective (PT. 1-4)**

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JUPEB BIOLOGY PAST QUESTIONS (PT.4)

SECTION A:

MULTIPLE CHOICE QUESTIONS

Answer ALL Questions

Time Allowed: 3 Hours

1. The process of a white blood cell engulfing a bacterium is known as _____

- A. endocytosis.
- B. exocytosis.
- C. osmosis.
- D. diffusion.

2. Each of the following is a water plant EXCEPT _____

- A. Hyacinth.
- B. Lilly.
- C. Cactus.
- D. Letuce.

3. In plants cells, the chloroplast are located _____

- A. inside the cell wall.

- B. outside the protoplasm.
- C. within the vacuole.
- D. within the cytoplasm.

4. The ability of the cockroach to live in cracks and crevices is enhanced by the possession of _____

- A. wings and segmented body.
- B. compound eyes.
- C. claws on the legs.
- D. dorso-ventrally flattened body.

5. The function of the scrotum is to _____

- A. keep the temperature of the testes equal to that of the rest of the body.
- B. keep the temperature of the testes slightly lower than that of the rest of the body.
- C. keep the temperature of the testes slightly higher than that of the rest of the body.
- D. keep the temperature of the testes at a constant 45°C.

6. RNA viruses require their own supply of certain enzymes because _____

- A. the viruses are rapidly destroyed by host cell defences.
- B. the enzymes translate viral RNA into proteins.
- C. the enzymes cannot be made by host cells.
- D. those cells do not possess RNA-RNA or RNA-DNA enzymes.

7. An infectious agent containing only protein and without nucleic acid molecule is a _____

- A. prion.
- B. toxin producer.
- C. vivoid.
- D. bacterium.

8. A peptide bond is formed between _____

- A. an aldehyde group and an amino group.
- B. a carboxyl group and an amino group.

C. an aldehyde group and a carboxyl group.

D. an aldehyde group and an ester group.

9. Which one of the following molecules contains amino acids?

- A. Cellulose.
- B. Collagen.
- C. Galactose.
- D. Glycogen.

10. A researcher, who wants to study the composition of a plant's sap, inserts a capillary tube into the phloem. What causes the sap to flow out of the tube?

- A. Capillarity.
- B. Hydrostatic pressure.
- C. Root pressure.
- D. Transpiration stream.

11. In terms of the number of individuals, which of the following taxa is most inclusive?

- A. Order.

- B. Family.
- C. Class.
- D. Species.

12. Unsaturated fat is in the form of _____

- A. liquid.
- B. solid.
- C. gas.
- D. mixture of liquid and home.

13. On the basis of susceptibility of organisms to thermal conditions, microorganisms are classified into all the following EXCEPT _____

- A. Thermophiles.
- B. Mesophiles.
- C. Agarmophiles.
- D. Psychrophiles.

14. RNA means _____

- A. riboflavin nucleic acid.
- B. ribonucleic acid.
- C. ribosomal nucleic acid.
- D. ribonucleic activity.

15. One of these is **NOT** an element in the chain of infection?

- A. Infectious agent.
- B. Reservoir.
- C. Susceptible host.
- D. Mode of defence.

16. Which of the following is a prokaryote?

- A. Bacteria.
- B. Virus.
- C. Fungi.
- D. Helminthes.

17. Who is the father of taxonomy?

- A. Antonie Van Leeuwenhoek.
- B. Christian Gram.
- C. Robert Koch.
- D. Carl Linnaeus.

18. The second scientific name of a microorganism is the _____ name.

- A. scientific.
- B. specific.

C. generic.

D. general.

19. Which of these organelles synthesize, refines, sorts, stores and secretes chemical products in the cell?

A. Mitochondria.

B. Lysosomes.

C. Golgi apparatus.

D. Ribosomes.

20. Cocoyam is an example of a _____

A. rhizomes.

B. suckers.

C. corms.

D. tendril.

21. Which of these is the worst cause of animal extinction?

A. Hunting.

B. Species introduction.

C. Habitat destruction.

D. Pesticides application.

22. The movement of molecules or ions from a region of high concentration to a region of low concentration is known as _____

A. photosynthesis.

B. osmosis.

C. diffusion.

D. plasmolysis.

23. The antibiotic neomycin is obtained from the bacterium?

A. *Bacillus subtilis*.

B. *Penicillium notadum*.

C. *Streptomyces fradiae*.

D. *Streptomyces griseus*.

24. All EXCEPT one of the following is a characteristic of pathogenic bacterium.

A. Spread between hosts.

B. Become established in the host.

C. Repair the host immune system.

D. Obtain nutrients from the host.

25. One of these is NOT a classification of egg based on the yolk content.

- A. Isolecithal.
- B. Nanolecithal.
- C. Mesolecithal.
- D. Telolecithal.

26. Active transport is _____

- A. the movement of molecules in and out of a cell.
- B. an energy-requiring process in which ions and molecules are moved across membranes against a concentration gradient.
- C. active uptake of materials.
- D. use of heat to transport materials.

27. Which statement(s) are correct about glycolysis?

- i. Glucose molecule is phosphorylated*
- ii. The 6-carbon hexose phosphate is split into*

three molecules of triose phosphate

iii. Triose phosphate is converted to pyruvic acid

- A. i and ii
- B. i and iii
- C. i, ii and iii
- D. ii and iii

28. Which of the following biomes is characterized by short growing seasons?

- A. Deserts.
- B. Tropical wet forests.
- C. Arctic tundra.
- D. Savanna.

29. In which of the following organisms would glycogen be stored?

- A. *Spirogyra*.
- B. *Chlamydomonas*.
- C. *Rattus rattus*.
- D. *Mangifera*.

30. The phenotype ratio resulting from Mendel's law of independent assortment is _____

- A. 9:3:3:1
- B. 3:1
- C. 3:1:1
- D. 6:3:3:4

31. The function of ribosome in cell is _____

- A. protein synthesis.
- B. starch synthesis.
- C. transport materials.
- D. lipid storage.

32. The joint between the atlas and the vertebrae allows for _____

- A. rotary movement only
- B. up and down and nodding movement only
- C. rotatory and nodding movements only
- D. no movement at all

33. In anaerobic respiration, glucose is converted to _____

- A. carbon dioxide and water.
- B. carbon dioxide only.
- C. carbon dioxide and alcohol.
- D. alcohol and water.

34. During the excretion of urea, there is also a corresponding re-absorption of water into the blood stream. This re-absorption take place in the _____

- A. uriniferous tubules.
- B. Bowman's capsule.
- C. glomerulus.
- D. Malpighian capsule.

35. Which of the following statement(s) is/are true of adult butterfly?

- I. It is a specialist reproductive stage*
- II. Needs vast amounts of energy which are supplied by nectar.*
- III. Aids the dispersal of the species*

- A. II and III only
- B. I and III only

C. II and III only

D. I, II and III

36. Organisms which take in complex organic molecules are called _____

A. Autotrophs.

B. Heterotrophs.

C. Symbionts.

D. Parasites.

37. The genotype ratio of a monohybrid cross in the F₂ generation is _____

A. 3:1

B. 1:2:1

C. 1:1:2

D. 1:2

38. Chiasmata formation leads to _____

A. formation of gametes

B. creation of variability

C. formation of genes

D. formation of the different sexes

39. Techniques of sterilization were introduced by _____

A. Louis Pasteur

B. Robert Koch

C. Ferdinand Cohn

D. John Needham

40. Lipopolysaccharide is a major constituent in cell wall.

A. Gram-positive bacteria

B. Gram-negative bacteria

C. Fungi

D. Protozoa

41. Acquisition of naked DNA by a bacterium from its environment and incorporation in its genome is known as _____

A. Transformation

B. Transduction

C. Conjugation

D. Lysogenic conversion

42. HIV belongs to the family Retroviridae and subfamily _____

- A. Lentivirinae.
- B. Oncovirinae.
- C. Retrovirinae.
- D. None of the options.

43. Two useful substances produced by the light-dependent stage of photosynthesis are _____

- A. ATP and ribulose
- B. Ribulose and NADP_2
- C. ATP and ethanol
- D. ATP and NADPH_2

44. In animals cleavage produces a mass of cells called _____

- A. Organs
- B. Blastula
- C. System
- D. Cellular

45. Which of the following mode of nutrition is not among fungi?

- A. Autotrophism.
- B. Symbiosis.
- C. Parasitism.
- D. Saprotrophism.

46. Which one of the following provided the least supportive evidence to theory of evolution?

- A. Embryology.
- B. Paleontology.
- C. Natural selection.
- D. Geography.

47. Staining techniques are useful in microbiology because _____

- A. stains deflect electrons propagated towards the slide
- B. most microscopes are of poor quality
- C. the cytoplasm of microorganisms is transparent
- D. stains make the condenser and diaphragm of the microscope unnecessary

48. Microorganisms selected for probiotic use should exhibit all the following characteristics EXCEPT _____

- A. Adhere to the intestinal mucosa of the host.

- B. Be toxic and pathogenic to the host's microflora.
- C. Remain viable for a long time.
- D. Withstand HCl in the host's stomach.

49. Which of these statements do you consider to be CORRECT?

- I. Rickettsia cause several human diseases including epidemic typhus.
- II. Viruses lack the ability to grow and reproduce.
- III. Viruses use the energy and protein producing machinery of cells to make new viral particles.

- A. I only.
- B. I & II only.
- C. II & III only.
- D. I, II & III.

50. Which of the following can be used in the classification of the monerans?

- I. *Physical appearance.*

- II. *Nutritional requirements.*
- III. *Cell chemistry.*

- A. I only.
- B. I & II only.
- C. II & III only.
- D. I, II & III.

CHECK YOUR ANSWERS

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JUPEB BIOLOGY PAST QUESTIONS (PT.3)

SECTION A:

MULTIPLE CHOICE QUESTIONS

Answer ALL Questions

Time Allowed: 3 Hours

1. Antonie van Leuwenhoek first observed microorganisms in 1674 and called them _____

- A. microbes
- B. cells
- C. bacteria
- D. animalcules

2. The name "Enterobacteriaceae" denotes a bacterial _____

- A. Class
- B. Division
- C. Order
- D. Family

3. Choose the option that is not correct about fungal group?

- A. Deuteromycetes are fungal groups that form asexual spores.
- B. Oomycetes are fungal groups that form asexual spores.
- C. Basidiomycetes are fungal groups that form asexual spores.
- D. Zygomycetes are fungal groups that form asexual spores.

4. The process of photosynthesis takes place in the _____ of the leaves.

- A. stomata
- B. chloroplast
- C. mesophyll
- D. vascular bundle

5. The by-product of light-dependent reaction of photosynthesis is _____

- A. H₂O
- B. CO₂
- C. O₂
- D. ATP

6. The internal changes that seeds pass through before they start germinating is known as _____

- A. after-ripening
- B. dormancy
- C. sprouting
- D. fertilization

7. One of the following statements is correct about Bryophytes and Pteridophytes.

- A. The organs of anchorage are rhizoids and roots respectively.
- B. Bryophytes are terrestrial while Pteridophytes are amphibious.
- C. Bryophytes have complex body structures while Pteridophytes have simpler body structures.
- D. Bryophytes and Pteridophytes possess rhizoids

8. One of the importance of mosses is that _____

- A. they initiate soil erosion
- B. they reduce soil quantity
- C. they initiate soil formation

D. they serve as source of income

9. A cell that has thin cell wall, dense cytoplasm, small sized vacuoles and capable of dividing is likely to be a _____

- A. meristematic cell
- B. secondary cell
- C. lateral cell
- D. differentiated cell

10. The floral leaves of a typical flower are divided into four parts where the sepals form the _____

- A. corolla
- B. calyx
- C. androecium
- D. gynoecium

11. When the sepals of a flowering plant are separated from each other, such plant is referred to as a _____

- A. gamosepalous plant
- B. monosepalous plant
- C. heterosepalous plant

D. polysepalous plant

12. The mass flow of sap through sieve elements is described as an active process because _____

A. sucrose moves out of the phloem into area of cell multiplication

B. phloem sap is capable of moving in the sieve elements against the force of gravity

C. sucrose is loaded into a sieve element against the concentration gradient

D. water moves along with the sucrose down the concentration gradient

13. The rate of diffusion is inversely proportional to the _____

A. size of diffusing molecules and concentration gradient

B. size of diffusing molecules and surface area of the cell involved

C. size of diffusing molecules and density of the diffusing molecules

D. size of diffusing molecules and temperature in the cell involved

14. When the filaments of stamens are attached to the petal, the flower is referred to as _____

A. epipetalous

B. gamopetalous

C. polypetalous

D. monopetalous

15. In seed vascular plants, the first fertilization occurs _____

A. when two nuclei fuse together to form a zygote

B. when one nucleus fuses with the ovum to form a diploid cell

C. when one nucleus fuses with ovum to form a zygote

D. when two nuclei fuses together to form a diploid cell

16. Body segmentation is pronounced in the following groups of animals except _____

A. Arthropoda

- B. Chordata
- C. Annelida
- D. Coelentrata

17. The Sarcodinea are very unique with the presence of _____

- A. ciliated body
- B. long flagella
- C. amorphous body structure
- D. binucleated cytoplasm

18. Which of the listed phyla is referred to as a "dead-end phylum"?

- A. Coelentrata
- B. Annelida
- C. Porifera
- D. Arthropoda

19. Sexual maturity of animal parasite is attained in the _____

- A. reservoir host
- B. definitive host
- C. primary host
- D. intermediate host

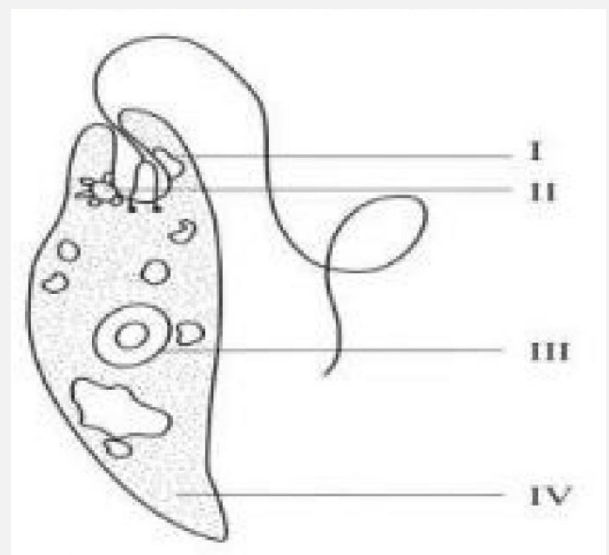
20. A mantle and mantle cavity are present in the class _____

- A. Oligochaete
- B. Bivalvia
- C. Polychaeta
- D. Hirudinea

21. The belief that certain living things arose from vital forces present in non-living things or decomposing matter is known as _____

- A. initial generation
- B. biogenesis
- C. spontaneous generation
- D. induced generation

Use the diagram below to answer question 22



22. The part labelled II is called the

- A. nucleus
- B. eye spot
- C. basal granules
- D. contractile vacuole

23. Which of these cell structures can be seen only with an electron microscope?

- A. Cell surface membrane
- B. Chromosome
- C. Nucleolus
- D. Vacuole

24. Which of the following are found both in eukaryotic and prokaryotic cells?

- i. Cellulose*
- ii. Deoxyribose*
- iii. Lipids*
- iv. Ribose*

- A. I, II, and III
- B. I, II, and IV
- C. I, III, and IV

D. II, III, and IV

25. Which of the following listed organism is a multicellular organism?

- A. Rhizopus
- B. Euglena
- C. Paramecium
- D. Chlorella

26. Birds and mammals have certain shared characteristics. Which of these is not their shared characteristics?

- A. Ossified endoskeleton
- B. Breathing using lungs
- C. Viviparity
- D. Warm-blooded

27. Choose the option that is associated with an open vascular system.

- A. Man
- B. Fish
- C. Prawn
- D. Snakes

28. Choose the option that is associated with the measuring of the pulse beat.

- A. Artery
- B. Vein
- C. Capillary
- D. Nerves

29. Study the options carefully and identify the organism that excretes uric acid as its main nitrogenous waste.

- A. Frog
- B. Birds
- C. Fishes
- D. Man

30. Study the options A to D carefully and identify the cells which secrete the male sex hormone, testosterone.

- A. Isthmus
- B. Cryptic cells
- C. Lieberkiihn
- D. Leydig's cells

31. Which of the options below best describes an electron microscope in comparison with a light microscope?

OPTION	MAGNIFICATION	RESOLUTION
A.	Higher	Higher
B.	Higher	Lower
C.	Lower	Higher
D.	Lower	Lower

32. Study the table below and choose the option which does not tally.

OPTION	ANIMAL	EXCRETORY STRUCTURES
A.	Hydra	Diffusion
B.	Planaria	Flame cells
C.	Earthworm	Nephridia
D.	Cockroach	Spiracles

33. Which of these is the intermediate host of *Fasciola*?

- A. *Lymnaea truncatula*
- B. *Pila globosa*
- C. *Lamellidens marginalis*
- D. *Achatina achatina*

34. Which of the following is contrary to the rules of nomenclature?

- A. Biological names can be written in any language.
- B. The first word in a biological name represents the generic name, and the second is the specific name.
- C. The names are written in Latin and are italicized.
- D. When written by hand, the names are to be underlined.

35. Identify the animal from option A to D that is not viviparous.

- A. Elephant
- B. Platypus
- C. Whale
- D. Flying fox

36. Students in a Biology class were asked to use the following information to draw a bar chart showing numbers of babies born in twelve villages on a certain day.

No. of babies	4	5	6	7	8
No. of villages	1	4	2	3	2

Choose the option that could be a suitable title for the graph.

- A. Graph of number of babies against number of villages
- B. Graph of number of villages against number of babies
- C. Bar chart showing number of babies against number of villages.
- D. Bar chart showing number of villages against number of babies.

37. What is the ecological definition of the term community?

- A. All the food web in an ecosystem.
- B. All the individual of one specie in an area.
- C. All the organism in an area.
- D. All the biotic and abiotic component in an ecosystem.

38. The difference between the smooth endoplasmic reticulum and

the rough endoplasmic reticulum is that _____

- A. the smooth synthesizes steroids, while the rough assembles protein.
- B. the smooth assembles protein, while the rough synthesizes steroids.
- C. the smooth distributes steroids, while the rough distributes protein.
- D. the smooth distributes protein, while the rough distributes steroids.

39. Identify the option that is not an anti-sera used in blood grouping.

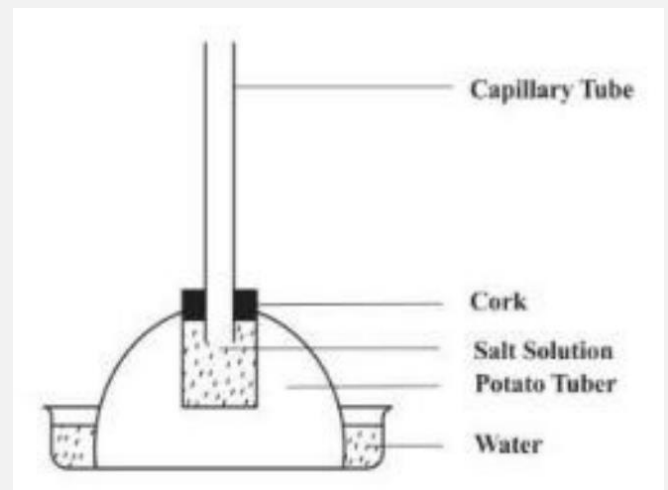
- A. Anti-sera A
- B. Anti-sera B
- C. Anti-sera C
- D. Anti-sera D

40. Identify the odd ecological instrument from the options given below.

- A. Barometer

- B. Ecological meter
- C. Meter rule
- D. Anemometer

41. The diagram below shows the description of an experiment to demonstrate osmosis. Choose the option that best describes the direction of flow of water.



- A. Water will move from the capillary tube to the beaker.
- B. Water will move from the beaker to the capillary tube.
- C. Water will move from the potato tuber to the beaker.
- D. Water will move from the beaker to the potato tuber.

42. In mushroom, the function of the gills is to produce spores. Choose the option below that best

describes the function of the hyphae.

- A. It assimilates the nutrients in the substrate.
- B. It absorbs nutrients from the substrate.
- C. It digests the nutrients in the substrate.
- D. It is the storage organ for carbohydrates produced by the mushroom.

43. Which of these is a Xerophyte?

- A. Cactus
- B. Moss
- C. Fern
- D. Bryophylum

44. Which of the following is not true of Bryophytes?

- A. Possession of rhizoids
- B. Production of spores
- C. Alternation of generation
- D. Xerophytic life cycle

45. One of the following is not a causative organism of human malaria?

- A. *Plasmodium falciparum*
- B. *Plasmodium ovale*
- C. *Plasmodium vivax*
- D. *Plasmodium berghei*

46. Choose the option that best describes the Lag phase.

- A. Lag phase is the period when the bacteria are adjusting to the environment.
- B. Lag phase is the period when the environment is adjusting to the bacteria.
- C. Lag phase is the period when the bacteria records the highest growth rate.
- D. Lag phase is the period when the environment slows down the bacteria growth.

47. Identify the option which is not caused by a pathogen.

- A. Malaria

- B. Cancer
- C. Measles
- D. Tuberculosis

48. A pharmaceutical company involved in the production of penicillin would find one of these organisms useful.

- A. Bacteria
- B. Protozoa
- C. Fungi
- D. Virus

49. A person who consumes mouldy bread is most likely to consume of the following organisms?

- A. *Aspergillus sp.*
- B. *Plorotus sp.*
- C. *Mycelium sp.*
- D. *Mouldellum sp.*

50. A piece of yam fell into a solution of unknown concentration. After 5 days, the piece of yam was found to be of

the same size because the solution it fell into is _____

- A. hypotonic
- B. hypertonic
- C. isotonic
- D. hydrotonic

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JUPEB BIOLOGY PAST QUESTIONS (PT.2)

SECTION A:

MULTIPLE CHOICE QUESTIONS

Answer ALL Questions

Time Allowed: 3 Hours

1. Protozoa that move by pseudopodia belong to the Class _____

- A. Ciliophora
- B. Sarcodina
- C. Mastigophora
- D. Apicomplexa

2. The bonding between two complementary bases in a nucleotide is _____

- A. Van der Waal's force
- B. Covalent bond
- C. Hydrogen bond
- D. Bipolar force

3. _____ is the basic unit of inheritance.

- A. Allele
- B. Locus
- C. Gene
- D. Chromosome

4. Which statement describes events during interphase of mitosis?

- A. Chromosomes start to coil, becoming shorter and fatter.
- B. Chromosomes line up on the equator of the spindle.
- C. Chromosomes are pulled apart by spindle fibres.
- D. Chromosomes are replicated, ready for the next division.

5. Which process occur during prophase of the mitotic cell cycle in an animal cell?

- A. Division of centromeres
- B. Formation of chromosomes
- C. Replication of DNA
- D. Separation of centrioles

6. The intermediate host for *Taenia saginata* is _____

- A. pig
- B. dog
- C. cattle
- D. horse

7. The formal system for organizing, classifying, and naming living things is known as _____

- A. nomenclature
- B. classification
- C. taxonomy
- D. hierarchy

8. The group of insects that have mouth part adapted for both piercing and sucking is _____

- A. cockroaches, aphids, and mosquitoes
- B. aphids, houseflies, and moths
- C. mosquitoes, tse-tse flies, and aphids
- D. aphids, bees, and grasshoppers

9. Cells consist of a number of different components. Which row shows the components present in both a prokaryotic and eukaryotic cell?

OPTION	A.	B.	C.	D.
LYSOSOME	Absent	Present	Absent	Present
GOLGI APPARATUS	Present	Present	Absent	Absent
RIBOSOME	Absent	Absent	Present	Present
CELL SURFACE MEMBRANE	Present	Absent	Present	Nil

10. Four different juices A, B, C, and D were tested with Benedict solution. A second sample of each juice was hydrolysed and tested with Benedict solution. The table below shows the masses of the precipitate formed. Which juice contains the greatest mass of non-reducing sugar?

Option	Mass of precipitate before hydrolysis	Mass of precipitate after hydrolysis
A.	30	55
B.	55	55
C.	65	85
D.	70	80

11. The gas exchange of CO₂ and O₂ in plants occur through small regulated opening called _____

- A. mesophyll
- B. stomata
- C. chloroplast
- D. thylakoids

12. Moss is an example of _____ plant.

- A. vascular
- B. haplontic
- C. diplontic
- D. flowering

13. Which of these options is an example of a pair of thallus liverwort?

- A. *Pellia* and *Lophocolea*
- B. *Pellia* and *Marchantia*
- C. *Lophocolea* and *Marchantia*
- D. *Lophocolea* and *Funaria*

14. The base of ferns is protected against drought or frost by _____

- A. ramenta
- B. strobili
- C. sori
- D. rhizome

15. Which of these is true about protoplast at incipient plasmolysis?

- A. It ceased to exert pressure against the cell membrane.
- B. It ceased to exert pressure against the cell wall.
- C. It adhered to the cell wall under high pressure.
- D. It adhered to cell membrane under high pressure.

16. The main function of a companion cell in phloem tissue during translocation is _____

- A. to provide cytoplasmic contact with the sieve tube for loading
- B. to provide structural support for the sieve tube
- C. to provide nucleus during cell division in the phloem
- D. to provide assimilates for storage of the transported sucrose

17. The fastest and simplest pathway of water in the root and leaf is the _____

- A. cell wall
- B. cell membrane
- C. cytoplasm
- D. vacuole

18. The pollen grains in the pollen sacs of an anther consists of _____

- A. two coats, diploid generative nucleus and haploid nucleus
- B. two coats, haploid generative nucleus and haploid nucleus
- C. one coat, diploid generative nucleus and diploid nucleus
- D. one coat, haploid generative nucleus and haploid nucleus

19. The use of natural enemy to control a particular pest can be regarded as _____

- A. chemical control
- B. physical control
- C. biological control
- D. natural control

20. The female reproductive organ of a typical flower is known as _____

- A. gynoecium
- B. androecium
- C. calyx
- D. corolla

21. Ada wants to get her fruits ripened. Which plant hormone will you advise her to use for this purpose?

- A. Giberellin
- B. Indole Acetic Acid
- C. Cytokinin
- D. Ethylene

22. Which statement about thylakoids in eukaryotes is true?

- A. Thylakoids exist as a maze of folded membrane.
- B. The space surrounding thylakoids is called stroma.
- C. Chlorophyll contains the folded thylakoids.

D. Thylakoids bring about the separation of water.

Use the equation below to answer Questions 23 and 24 respectively.

Pyruvate-**A** $\rightarrow 2C_2H_5OH + 2CO_2 + 2ATP$

Pyruvate-**B** $\rightarrow Lactate + 2ATP$

23. What does **A** represent, and in what condition does the reaction occur in non-photosynthetic plants?

- A. Cytochrome oxidase, aerobic
- B. Pyruvate decarboxylase, anaerobic
- C. Pyruvate dehydrogenase, aerobic
- D. NAD, anaerobic

24. What does **B** represent, and in what condition does this reaction occur in animal cell?

- A. Lactate dehydrogenase, anaerobic
- B. Cytochrome oxidase, aerobic
- C. NAD, aerobic

D. Lactate decarboxylase, anaerobic

25. The transport of water from the root through the xylem vessels to the leaves is affected by environmental factors. A decrease in which of the following environmental factors would lead to increase in water transport?

- A. Wind direction
- B. Temperature
- C. Humidity
- D. Light intensity

26. Genetically Modified Crops (GMCs) are important in combating food insecurity among the world ever increasing population, however, their major challenge is _____

- A. pest resistance
- B. adaptation
- C. enabling law
- D. high cost of production

27. The scientist whose findings resolved the debate on spontaneous generation was _____

- A. Louis Pasteur
- B. Rudolf Virchow
- C. Lazzaro Spallanzani
- D. John Needham

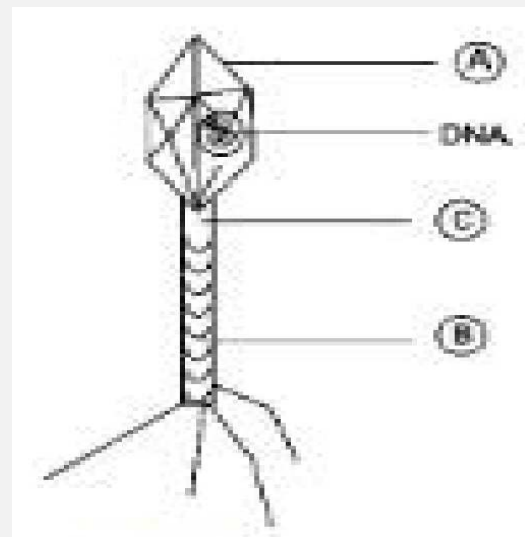
28. Bacteria that require oxygen for growth are called _____

- A. Aerobes
- B. Oxygenic bacteria
- C. Anoxygenic bacteria
- D. Anaerobes

29. Viruses have a core of either DNA or RNA surrounded by a _____

- A. lipid envelope
- B. protein coat
- C. cell wall
- D. cell membrane

Use the diagram below to answer Questions 30-32



A. The parts labelled A, B, and C are _____ respectively.

- A. Head, Collar, and Sheath
- B. Head, Neck, and Sheath
- C. Head, Sheath, and Neck
- D. Head, Sheath, and Collar

31. What is the name of the diagram represented above?

- A. Bacteriophage virus
- B. Sperm cell
- C. Stem cell
- D. Bacteria

32. Which of the following occurs at the part labelled DNA?

- A. Replication

- B. Death
- C. Growth
- D. Development

33. The undifferentiated body of Thallophyta is called _____

- A. thallus
- B. thallophytes
- C. false stems
- D. false roots

34. Mr Tari is reported to have a swollen region and localized pains around his leg injury. What best describes this situation?

- A. Infection leading to inflammation
- B. Immunity decline
- C. Reflex response
- D. Metabolic internal process

35. _____ are heterotrophic plants which depend on other organisms (plants and animals) for their nutritional requirements.

- A. Parasites

- B. Symbionts
- C. Saprophytes
- D. Weeds

36. The stored carbohydrate nutrients in animals is known as _____

- A. glycogen
- B. chitin
- C. starch
- D. glucose

37. How many embryonic layers are present in Phylum Mollusca?

- A. Two
- B. Three
- C. Four
- D. Five

38. The main function of epithelial tissue is _____

- A. movement
- B. protection and defence
- C. covering
- D. binding and support

39. Which of these is a connective tissue?

- A. Blood
- B. Epidermis
- C. Fallopian tube
- D. Nervous tissue

40. Which of the following is not a member of the Phylum Chordata?

- A. Lung fish
- B. Star fish
- C. Frog
- D. Parrot

41. Some unicellular animals have developed different organelles for locomotion. Which of the combinations indicated below provides a corresponding pair?

- A. Sarcodina and cilia
- B. Sarcodina and flagella
- C. Mastigophora and flagella
- D. Mastigophora and cilia

42. In embryology, three earliest membranes to be reckoned with are _____ membranes.

- A. plasma, chorion, and embryonic
- B. chorion, amnion, and yolk sac
- C. chorion, placenta, and umbilical
- D. plasma, amnion, and umbilical

43. Phycology is the study of _____

- A. algae
- B. nematodes
- C. viruses
- D. protozoa

44. The conversion of a nutrient into a molecule in the body of a consumer is referred to as _____

- A. digestion
- B. assimilation
- C. absorption
- D. inhibition

45. Which of these best explains why arthropods are successful?

A. They possess muscular appendages which may be adapted for crawling.

B. Their bodies are divided into segments called septa.

C. Their exoskeletons protect them from predators and water loss.

D. They produce silk from abdominal glands to spin webs for trapping its prey.

46. Determine the major difference between the skeletons of earthworm and arthropods.

A. Earthworm possess exoskeleton while arthropods possess hydrostatic skeleton

B. Earthworm possess skeleton made up of non-living materials while arthropods possess skeleton made of living materials.

C. Earthworm possess hydrostatic skeletons which uses fluid pressure for support while arthropods possess exoskeleton.

D. Earthworms possess skeletons made up of living materials while

arthropods possess skeletons of non-living materials.

47. The method of fertilization among vertebrates in which fertilized eggs are retained in the body of the female until when matured and then hatched out is _____

A. oviparity

B. ovoviparity

C. viviparity

D. birth

48. From the adaptive features below, choose the class of organisms it best describes.

i. It has a naked moist skin.

ii. It has a 3-chambered heart.

iii. It is cold-blooded.

iv. It has a pair of five hind limbs in adult stage.

v. It has sticky tongue which can be protruded and retracted quickly.

- A. Reptilia
- B. Pisces
- C. Amphibia
- D. Aves

49. The presence of endoskeleton, gill slits and well developed central nervous system are characteristics of which of these sets of options?

- A. Mammalia and Reptilia
- B. Pisces and Arachnida
- C. Myriapoda and Amphibia
- D. Insecta and Reptilia

50. *Paramecium* moves about by

- A. floating
- B. looping
- C. crawling
- D. beating of cilia

CHECK YOUR ANSWERS

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JUEB BIOLOGY PAST QUESTIONS (PT.1)

SECTION A:

MULTIPLE CHOICE QUESTIONS

Answer ALL Questions

Time Allowed: 3 Hours

1. Which of the following diseases could be exclusively associated with a river basin?

- A. Malaria
- B. Syphilis
- C. Onchocerciasis
- D. Cholera

2. In mammals, the function of the sebaceous gland is to _____

- A. produce sweat
- B. secrete sodium
- C. secrete water
- D. produce sebum

3. Osteoporosis is a disease of the _____

- A. lungs

- B. skin
- C. bones
- D. eyes

4. The type of reproduction that is common to both Hydra and yeast is _____

- A. grafting
- B. budding
- C. conjugation
- D. binary fission

5. The difference between the largest and the smallest data values is the _____

- A. variance
- B. interquartile range
- C. range
- D. coefficient of variation

6. The function of ribosomes in cells is _____

- A. protein synthesis
- B. starch synthesis
- C. transport of materials

D. lipid storage.

7. Which statement correctly describes homologous chromosomes?

- A. They are formed during meiosis
- B. They are held together by centromeres
- C. They are identical
- D. They carry the same gene loci

8. Which one of the following is a correct outline of the main events in photosynthesis?

- A. Oxygen reacts with a carbohydrate to produce water and carbon-dioxide in the presence of light.
- B. Light join carbon-dioxide to an acceptor compound which is then reduced by hydrogen obtained from water.
- C. Light splits water and the resulting hydroxyl group combines with a compound which has incorporated carbon-dioxide

D. Carbon-dioxide combines with an acceptor compound and this is reduced by hydrogen split from water by light.

9. Breathing movement in mammals is accompanied by regular movement of the diaphragm and the _____

- A. intercostal muscles
- B. vertebral column
- C. clavicle
- D. pleural cavity

10. Organisms that require oxygen to grow are called _____

- A. psychrophilic organisms
- B. thermophilic organisms
- C. aerobes
- D. hyperthermophiles.

11. Organisms that retain the blue/purple colour in their cell wall in gram staining technique are _____

- A. microaerophile

- B. viable cells
- C. gram positive organisms
- D. gram negative organisms.

12. Which of the following nitrogenous base is found in RNA but not in DNA?

- A. Adenine
- B. Thymine
- C. Uracil
- D. Guanine.

13. The study of groups of organisms is called _____

- A. Ecology
- B. Autecology
- C. Gynecology
- D. Synecology

14. Genetic rearrangement between non-sister chromatids is known as _____

- A. cross over
- B. synapsis
- C. random fertilization
- D. character

15. One of the following is not a type of dormancy.

- A. Induced
- B. Innate
- C. Enforced
- D. Applied

16. The terrestrial species of class Gastropoda prevent water loss by means of _____

- A. Apiphragm.
- B. Nephridia.
- C. Radula.
- D. Epiphragm.

17. The first forms of life on Earth were thought to be _____

- A. single-celled plants.
- B. prokaryotes
- C. insects
- D. large animals such as dinosaurs

18. Which polysaccharide is usually found in the cell walls of fungi?

- A. Starch
- B. Glycogen
- C. Chitin
- D. Cellulose

19. What adaptation do seed plants have in addition to the seed that is not found in seedless plants?

- A. Gametophytes
- B. Vascular tissue
- C. Pollen
- D. Chlorophyll

20. Prokaryotes stain as Gram-positive or Gram-negative because of differences in the _____

- A. Cell wall.
- B. Cytoplasm.
- C. Nucleus.
- D. Chromosome.

21. External fertilization occurs in _____ type of environment?

- A. Aquatic
- B. Forested

- C. Savanna
- D. Steppe

22. What kind of ecosystem are exotic species especially threatening to?

- A. Deserts
- B. Marine ecosystems
- C. Islands
- D. Tropical forests

23. Each neurone contains _____

- A. soma, dendrites and axon
- B. sensory, association and motor
- C. cerebrum, cerebellum and hypothalamus
- D. afferent, efferent and mixed

24. One of these statements is not true about Berry and Drupe.

- A. They both have thin epicarp
- B. They both have fleshy succulent mesocarp
- C. Their endocarp is edible
- D. They both have seed

25. Antibiotic discovery was done by the Scottish bacteriologist _____

- A. Alexander Penicillius
- B. Alexander Fleming
- C. Alexandes Fleming
- D. Alexandes Penicillius

26. The type of cell division which forms the basis of Mendel's law of segregation is _____

- A. Mitosis
- B. Meiosis
- C. Somatic
- D. Synoptic

27. Archaeobacteria is simply _____

- A. A prokaryotes without cell wall
- B. An eukaryotes without cell wall
- C. A prokaryote without a peptidoglycan cell wall
- D. An eukaryotes without a peptidoglycan cell wall

28. Leucosolenia belongs to class _____

- A. Calcispongiae
- B. Hexactinellida
- C. Demospongiae
- D. Porifera

29. A pseudopodia that is threadlike, branched and interconnected is known as _____

- A. Lobopodia
- B. Actinopodia
- C. Filopodia
- D. Reticulopodia

30. Photosynthetic microphylls are found in _____

- A. Division Psilophyta
- B. Division Lycopphyta
- C. Division Sphenophyta
- D. Division Pterophyta

31. Polio myelitis is an infectious disease caused by _____

- A. virus
- B. protozoan
- C. bacterium
- D. fungus

32. Which of these is a trace element?

- A. Iron
- B. Copper
- C. Calcium
- D. Sulphur

33. Which of these diseases cannot be prevented by immunization?

- A. Polio myelitis
- B. Tuberculosis
- C. Cholera
- D. Onchocerciasis

34. Hydra removes undigested food by _____

- A. passing it through the anus
- B. passing it through the mouth
- C. means of contractile vacuole
- D. digesting it through the body surface

35. Which of the following is INCORRECT? The prothallus of a fern _____

- A. is a flattened heart shaped structure.
- B. is green because its cells contain chloroplast.
- C. is the dominant plant.
- D. bears the sexual organs.

36. The science of taxonomy has two branches namely _____ and _____

- A. Biology naming and biochemistry
- B. Nomenclature and Classification
- C. Botany and systematic
- D. Microbiology and systematic

37. To complement biotic analysis in measuring environmental factors the following are studied except _____

- A. Soil
- B. Water
- C. Topography

D. Geography

38. The period between inoculation of bacteria in culture medium and the beginning of multiplication is known as _____

- A. log phase
- B. lag phase
- C. stationary phase
- D. decline phase

39. Small proteinaceous infectious particles that do not contain nucleic acid genome that codes for their progeny are _____

- A. bacteria
- B. viruses
- C. HIV
- D. prion

40. Example of all-purpose media used in cultivation of bacteria by a bacteriologist is _____

- A. selenic A agar
- B. blood agar
- C. nutrient agar

D. tryptone soy agar

41. Which of the following is not a characteristic feature of the phylum Cnidaria?

- A. Polymorphism
- B. Cephalisation
- C. Body of two-germ layers
- D. Nematocysts

42. Which of the following groups of plants are not considered as lower plants?

- A. Pteridophytes
- B. Bryophytes
- C. Cryptogams
- D. Spermatophytes

43. Non-living bodies in the cell includes one of these, _____

- A. Starch grains
- B. Chloroplast
- C. Ribosomes
- D. Cell wall

44. Alternation of generation in plants involves which of the following?

- A. Processes in two sexual pathways
- B. Processes in one single sexual pathway
- C. Spores dispersal alone
- D. Processes in homogamy alone

45. Which of these is not a form of respiration in Amphibians?

- A. Cutaneous
- B. Tubular
- C. Pulmonary
- D. Buccal-Pharyngeal

46. The factor that least affects food shortage in the sub-saharan Africa is _____

- A. flooding
- B. pests
- C. mixed cropping
- D. drought

47. Which one of the following factors may not directly affect population density of organisms?

- A. Edaphic
- B. Nutritional
- C. Mortality
- D. Emigration

48. One of the major causes of laboratory acquired infection is inhalation of _____

- A. air
- B. water
- C. particles
- D. infectious aerosol

49. The major cell of the specific immune system are _____

- A. bone marrow cells
- B. erythrocytes
- C. lymphocytes
- D. monocytes

50. The normal microbacter of the stomach include all of the following except _____

- A. Streptococcus
- B. Staphylococcus
- C. Lactobacillus
- D. Diphtheroids

~~DISCLAIMER~~

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