BIO 101 POSSIBLE QUESTIONS

POLYMER CONCEPT

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BIO 101 POSSIBLE QUESTION AND ANSWER.

1. When first proposed, Darwin's theory of natural selection did not fully explain how evolution Could occur. This was due to:
A. Darwin's failure to recognize the tendency fo organisms to over-reproduce
B. Darwin's initial overemphasis of the significance of genetic drift
C. The fact that accurate mechanisms explaining genetic inheritance were not widely known
D. The absence of accurate descriptions of the embryological development of most plants and Animals
E. The absence of biochemical techniques to determine the genetic similarities between Species
2. Which of the following is ***not*** a part of Darwin's theory of natural selection?
A. Individuals of a population vary
B. Organisms tend to over-reproduce themselves
C. There are limited resources for which individuals compete
D. Modifications an organism acquires during its lifetime can be passed to its offspring
E. Variations possessed by individuals of a population are heritable
3. The evolutionary theory proposed by Charles Darwin was:
A. Change in populations through time as a result of mutations
B. The spontaneous generation of new organisms
C. The passing on of genes from one generation to the next
D. Change in populations through time as a response to environmental change
E. The development of characteristics by organisms in response to need
4. What is the only factor that can change allele frequencies in populations to produce *adaptive* evolutionary change?

a. mutation
b. gene flow
c. non-random mating
d. genetic drift
e. selection

5. A species is defined as

a. a population of organisms similar in size, shape, and color
b. a group of organisms that live in the same habitat
c. a population of organisms that are able to interbreed
d. a population of organisms that have the same number of chromosomes
e. a population of organisms with a common ancestor

6. The correct sequence from the most to the least comprehensive, of the taxonomic levels listed here is

a. Family, phylum, class, kingdom, order, species, and genus
b. Kingdom, phylum, class, order, family, genus, and species
c. Kingdom, phylum, order, class, family, genus, and species
d. Phylum, kingdom, order, class, species, family, and genus
e. Phylum, family, class, order, kingdom, genus, and species

1. Organisms having many organelles are called A. prokaryotes B. eukaryotes C. protist D. unicellular
2. Branch of biology 'paleontology' which deals with study of A. Insects' B. fossils C. parasites D. welfare of mankind.
3. Study of life in scientific manner is called A. biology B. geology C. anatomy D. entomology
4. Example of organism which shows colonial organization is A. amoeba B. euglena C. paramecium D. volvox
5. Branch of biology 'embryology' deals with study of A. study of tissues B. study of organelles C. study of genetics D. study of embryo development

1. The group of similar plants which breed freely among themselves constitute a a) Species b) Family c) Order d) Genus
2. The five kingdom arrangements of organisms was proposed by a) Whittakar b) John Ray c) Whitter
3. Which of the following definitions covers a greater number of organisms a) Class b) Genus c) Order d) Family
4. Basic taxonomy unit is a)Kingdom b) Genus c) Species d) Order
5. The replacement of two kingdom classification by five kingdom classification was proposed by the year a) 1853b) 1859c) 1969d) 18636.
6. An example for the artificial system of classification a) Bentham and Hooker b) Linnaeus system c) Engler and Prantl d) Hutichson
7. First step in taxonomy a) Naming b) Description c) Identification d)classification
8. Binomial nomenclature means writing the name of plant in two words which designate a) Order and family b) Family and genus c) Species and variety d)Genus and species
9. What is the correct descending sequence of taxonomic categories? a) Division-class-order-family-tribe-genus b) Class-order-division-family-species-tribe c) tribe-genus-class-division-family-order d) Family-order-genus-order-division-class Taxonomic Category
10. The term systematic was proposed by a) John Ray b) Adanson c) De-Vries d) Julian Huxley
11. Modern classification is based on a) Physiology b) Fossils c) Phylogeny d) Morphology
12. A small group of individuals or organisms which resemble closely in structure as well as function is called a) Phylum b) Family c) Species d) Genus
13. Taxon is a) a genus b) a species c) a taxonomic unit d) a taxonomic category of any rank
14. 'System naturae'was written by a) Linneaus b) Charles Darwin c) Aristole d) Wallace
15. A system of classification based on all important morphologically characters is termed as a) Artificial system b) Natural system c) Genetic system d) Both and b

Answers: 1-a 2-a 3-d 4-c 5-c 6-b 7-c 8-d 9-a 10-a 11-c 12-c 13-d 14-a 15-b

1. Extra nuclear DNA is found in a)Chloroplast b) Endoplasmic reticulum c) Ribosomes d) Nucleus
2. Cell theory states that a) All cell have nuclei b) All cells are living c) Cell reproduce by mitosis and meiosis d) Cells are fundamental structural units of plants and animals

3. Mitochondria have first seen by a) Robert Hooke b) Robert Brown c) Lipmann d) Altmann
4. Prokaryotic cell does not possess a) Cell wall b) Nuclear membrane c) Cytoplasm d) Plasma membrane
5. Plasma membrane is composed of a) Protein b) Lipids c) Cellulose d) Protein and Lipids
6. Cellular organelles containing hydrolytic enzymes are called a) Peroxisomes b) Lysosomes c) Ribosomes d) Mesosomes
7. The sedimentation constant of ribosome is generally70S. Its breaks up into two subunits whose sedimentation constants are a) 50 S and 20S b) 40 S and 30 S c) 60 S and 10 S d) 50 S and 30 S9.
8. Ribosomes help in a) Photosynthesis b) Protein synthesis c) Lipid Synthesis d) Respiration
9. Food is converted to energy in a) Nucleus b) Nucleolus c) Chloroplast d) Mitochondria

   Answer part 1 1 .a) 2 .d) 3 .d) 4.b) 5 .d) 6 .b) 7 .d) 8.b) 9.d).
10. To enter or leave a cell, substances must pass through?.a. Microtubule. B. the Golgi apparatus. C. a ribosome. D. the nucleus E. the plasma membrane
11. Bacterial cell are prokaryotic; in comparison to a typical eukaryotic cell they would
    a. Be smaller .b. have a smaller nucleus c. lack a plasma membrane d. have fewer internal membranous compartments .e. have a greater variety of organelles.
12. You would expect a cell with an extensive Golgi apparatus to
    a. Make a lot of ATP. B. secrete a lot of material. C. move actively. D. perform photosynthesis e. store large quantities of food
13. Which of the following correctly matches an organelle with its function?
    .a. mitochondrion photosynthesis .b. nucleus cellular respiration c. ribosome manufacture of lipids d. lysosome movement e. central vacuole storage
14. Of the following organelles, which group is involved in manufacturing substances needed by the cell?
    a. lysosome, vacuole, ribosome .b. ribosome, rough ER, smooth ER c. vacuole, rough ER, smooth ER .d. smooth ER, ribosome, vacuole .e. rough ER, lysosome, vacuole
15. A cell has mitochondria, ribosomes, smooth and rough ER, and other parts. Based on this information, it could not be A. a cell from a pine tree b. a grasshopper cell c. a yeast (fungus) cell d. a bacterium e. actually, it could be any of the above.
16. The electron microscope has been particularly useful in studying bacteria, because
    a. Electrons can penetrate tough bacterial cell walls. b. bacteria are so small. c. bacteria move so quickly they are hard to photograph.*.d. with few organelles present, bacteria are distinguished by differences in individual macromolecules.*.e. their organelles are small and tightly packed together
17. Cell fractionation is the most appropriate procedure for preparing _____for study.
    a. .a. isolated cells which are normally found tightly attached to neighboring cells *.b. cells without a functional cytoskeleton *.c. isolated organelles *.d. the basic macromolecules *.e. bone and other similar cells which are situated within a mineral framework
18. Which of the following clues would tell you whether a cell is prokaryotic or eukaryotic?
    .a. the presence or absence of a rigid cell wall.b. whether or not the cell is partitioned by internal membranes*.c. the presence or absence of ribosomes*.d. whether or not the cell carries out cellular metabolism*.e. whether or not the cell contains DNA
19. Sara would like to film the movement of chromosomes during cell division. Her best choice for a microscope would be a*.a. light microscope, because of its resolving power.*.b.

transmission electron microscope, because of its magnifying power.*.c. scanning electron microscope, because the specimen is alive.*.d. transmission electron microscope, because of its great resolving power.*.e. light microscope, because the specimen is alive.

Part 2

1. Which among the following is not a model organism in genetic analysis?
A) The Zebra fish b) The plant Arabidopsis thaliana c) The mouse deer d) The nematode Caenor habditis elegans
2. Down syndrome is usually the result of an extra chromosome ---, so that each body cell has a total of 47 chromosomes. a) 18 b) 19 c) 20 d) 213.
3. A gene showing co-dominance a) Has one allele dominant to the other b) Has both alleles independently expressed in the heterozygote c) Has alleles tightly linked on the same chromosome d) Has alleles expressed at the same time in development
4. X chromosome inactivation a) Normally takes place in males but not females b) Is the causes of the y chromosome being genetically inactive c) Takes place in humans so that the same X chromosome is inactive in all of the cells of a female d) Results in genetically turning off one of the two X chromosomes in female mammals
5. Positional cloning refers to a) Using a selection procedure to clone a cDNA b) Cloning a portion of a gene using PCR c) Isolating a gene by PCR using primers from another species d) Mapping a gene to a chromosomal region and then identifying and cloning a genomic copy of the gene from the region
6. Which of the following is not a property of the genetic code? a) Non overlapping b) Almost universal c) Four stop codons d) Redundant
7. Which of the following conditions is caused by tri nucleotide (triplet) repeat expansion?
a) Cystic fibrosis b) Duchenne muscular Dystrophy c) Huntington disease d) Osteogenesis imperfeca
8. In DNA, adenine normally pairs with
a) Cytosine b) Guanine c) Thymine d) Uracil
9. The Nobel prize in Physiology or Medicine 1962 was awarded jointly to Francis Harry Compton Crick, James Dewey Watson and ----" for their discoveries concerning the molecular structure of nucleic acids and its significance for information transfer in living material"a) Rosalind Franklin b) Maurice High Frederick Wilkins c) Erwin Chargaffd) Frederick Sanger
10. Which of the following pairs of base sequence could form a short stretch of a normal double helix of DNA? a) 5'-AGCT-3' With 5'TCGA-3'b) 5'-AATT-3' With 5'TUAA-3'c) 5'-GCGC-3' With 5'TATA-3'd) 5'-ATGC-3' With 5'GCAT-3'

Answer: 1.c) The mouse deer2.d) 213.b) Has both alleles independently expressed in the heterozygote4.d) Results in genetically turning off one of the two X chromosomes in female mammals5.d) Mapping a gene to a chromosomal region and then identifying and cloning a genomic copy of the gene from the region6.c) Four stop codons7.c) Huntington disease8.c) Thymine9.b) Maurice High Frederick Wilkins10.d) 5'-ATGC-3' With 5'GCAT-3'

Part 3

1. The crossing of F1 to homozygous recessive parent is called a) back cross b) test cross c) F1 cross d) all of these
2. The test cross is used to determine the a) genotype of the plant b) phenotype of the plant c) both a and b d)none of these

3. Monohybrid test cross ratio is a) 3:1 b) 2:1 c) 1:1 d) 9:3:3:1
4. The cross in which parents differ in two pairs of contrasting characters is called a) monohybrid cross b) dihybrid cross c) trihybrid cross d) tetrahybrid cross
5. The phenotypic dihybrid ratio is a) 9:3:2:1 b) 9:3:2:2 c) 1:1 d) 9:3:3:16
6. In Mendels Dihybrid cross, the phenotypic ratio of F2 for a single character is a) 9:3:2:1 b) 9:3:2:2 c) 3:1 d) 9:3:3:1
7. Which of the following statements is true regarding the 'law of independent assortment'a) factors assort independent of each other when more than one pair of characters are present together b) independent assortment leads to variation c) independent assortment leads to formation of new combinations of characters d) all of these
8. The Dihybrid test cross ratio is a) 9:3:2:1 b) 9:3:2:2 c) 1:1:1:1 d) 9:3:3:19.
9. Each gametes carry a) only recessive allele b) only dominant allele c)only one of the alleles d) all of these
10. Which of the following terms represent a pair of contrasting characters a) homozygous b) heterozygous c) allelomorphs d) codominant genes
11. The best method to determine the genotype of dominant parent is by crossing it with the hybrid. This cross is called a) Back cross b) test cross c) selfing d) cross fertilization
12. The best method to determine the homozygosity and heterozygosity of an individual is a) self- fertilization b) back cross c) test cross d) inbreeding
13. All of this obeys Mendel's laws except a) Linkage b) independent assortment c) dominance d) purity of gametes
14. The title of Mendel's paper while presenting at Brunn Natural History Society in 1865 was a) Laws of inheritance b) Laws of heredity c) Experiments on pea plants d) Experiments in plant hybridization

Answers: 1. b) Test cross2. a) Genotype of the plant3. c) 1:14.b) dihybrid cross5. d) 9:3:3:1 6. c) 3:1 7.d) all of these 8. c) 1:1:1:19. c) Only one of the alleles 10. c) Allelomorphs 11. a) Back cross12.b) back cross13. a) Linkage14. d) Experiments in plant hybridization.

Part 4 **Virus**

1. Viruses are a) obligate parasites b) free living c) both free living and parasitic d) none of these
2. A fully formed infectious viral particle is called as a) viroid b) virusoid c) virion d) capsid
3. The genetic material of viruses consists of either a) DNA b) RNA c) DNA or RNA d) ss DNA or ss RNA
4. The protein coat of virus is called as a) nucleid b) capsid c) capsomere d) outer envelope
5. Which of the following is the largest virus a) herpes virus b) arbovirus c) mumps virus d) pox virus
6. Tobacco mosaic virus is a) spherical shaped b) rod shaped c) cuboidal d) oval shaped
7. The virus with the smallest genome a) circovirus b) mimivirus c) herpes virus d) rabies virus
8. The functions of capsid include a) protect genetic material from nuclease attack b) attachment and injection of viral genome into the host c) determines the antigenic specificity of virus d) All of the above
9. The spike like projections seen on the outer surface of enveloped viruses are called a) capsomeres b) peplomers c) proteomeres d) viroid
10. Viruses that attacks bacteria are called a) Lysophage b) bacteriophage c) virophage d) none

of these

11. T2 phage is a a) ds DNA phage b) ss DNA phage c) ss RNA phage d) ds RNA phage
12. Viral genome attached to the bacterial genome is termed as a) prophage b) lysogeny c) lytic cycled) virulent phages
13. TMV is a a) DNA virus b) RNA virus c) ss DNA or ds DNA d) bacteriophage
14. Bacteriophages that induce bacterial cell lysis are called Bacteriophages a) temperate phages b) virulent phages c) lysogenic phages d) viroids
15. Infectious RNA particles without protein coat a) viroid b) virion c) virusoid d) prion

Answers: 1-a 2-c 3-c 4-b 5-d 6-b 7-a 8-d 9-b 10-b 11-a 12-a 13-b 14-b 15-a

Part 5 Kingdom Protozoa

1. Kingdom Protista includes organisms like a) Euglena, Spirogyra and Penicillium b) Amoeba, Spirogyra and Penicillium c) Amoeba, Euglena and Penicillium d) Amoeba, Euglena and Diatoms
2. Protista differs from monera in having a) cell wall b) Nuclear membrane c) Flagella d) autotrophic nutrition
3. Single celled eukaryotes are include in a) fungi b) archae c) monera d) protista
4. The slime moulds are characterized by the presence of a) Elaters b) pseudoelaters c) capillitium d) all of these
5. Which of the following is not a character of Protista? a) Protista are prokaryotic b) Body organization is cellular c) Some protists have cell walls d) Membrane bound organelles are present in cells
6. Which of the following combination of characters is true for slime moulds? a) Parasitic,Plasmodium with true walls, spores dispersed by air currents b) Saprophytic,Plasmodium without walls, spores dispersed by water .c) Parasitic,Plasmodium without walls, spores dispersed by water .d) Saprophytic,Plasmodium without walls, spores dispersed by air currents.
7. Kingdom Protista includes a) life cycle showing sporic meiosis b) life cycle showing gametic meiosiss c) life cycle showing zygotic meiosis d) both b and c
8. In diatoms, auxospores help in a) metabolism b) Spore formation c) Reproduction d) Growth

Answers: 1. d) Amoeba, Euglena and Diatoms 2. b) Nuclear membrane 3. d) protista 4. c) capillitium 5. a) Protista are prokaryotic 6.d) Saprophytic, Plasmodium without walls, spores dispersed by air currents.7. d) Both b and c 8. c) Reproduction.

Part 6

1. Plants which are not differentiated into roots, stem and leaves are grouped under a) Gymnosperms b) Pteridophytes c) Thallophytes d) Spermatophytes
2. Which are the most primitive group of algae a) Blue green algae b) Red algae c) Brown algae d) Green algae
3. Iodine is obtained from a)Ulothrix b)Ectocarpus c)Laminaria d)OedogoniumClue: Identify the Algae
4. Which of the following is the most advanced group of algae a) Cyanophyta b) Rhodophyta c) Phaeophyta d) Chlorophyta
5. Which of the algae is responsible for red colour of red sea a)Chlamydomonas brauii

b)Trichodesmium erythrium c)Ulothrix zonata d) None of the above

6. One of the following is present in blue green algae a) Starch b) Cyanophacean granule c) Any polysaccharide d) Floridian starch
7. Ability to fix atmospheric nitrogen is found in a) Leaves of some crop plants b) Chlorella c) Some marine red algae d) Some blue green algae
8. Origin and evolution of sex in algae is best seen in a) Blue green algae b) Green algae c) Red algae d) Brown algae
9. Kelps is obtained from a) Algae b) Marine algae c) Aquatic algae d) Lichens
10. Algae differ from Ricciaana Marchantiain having a) Multicellular body b) Multicellular sex organs c) Pyrenoids in the cell d) Thalloid body
11. Heterocysts are Heterocyst in Anaebaena a) Green and thin walled b) Green and thick walled c) Colourless and thin walled d) Colourless and thick walled
12. Zygotic meiosis is a characteristic feature of a) Algae b) Bryophytes c) Pteridophytes d) Gymnosperms.
13. Cephaleoures is a) An epiphytic green algae b) A parasitic green algae c) A fresh water green algae d) A colourless red algae
14. Sargasso sea is named after an algae Sargassum which is a a) Green algae b) Brown algae c) Red algae d) Blue green algae.

1. The unique feature of bryophytes compared to other green plant group is that a) They produce spores b) They lack vascular tissue c) They lack roots d) There sporophyte is attached to the gametophyte
2. Which group of plant constitute the lower bryophytes a) Liverworts b) Mosses c) Anthoceratles d) Jungermaniales
3. Liverworts are closely related to a) Algae b) fungi c) Lichen d) Mosses
4. The first land inhabitant plants are a) Pteridophytes b) Bryophytes c) Gymnosperms d) Angiosperms
5. The only positive evidence of aquatic ancestry of bryophyte is a) Thread like protonema b) Green colour c) Some forms are still aquatic d) Ciliated sperms
6. To which group would you assign a plant which produces spores and embryos, but lacks seed and vasculature a) Algae b) Fungi c) Pteridophyte d) Bryopyte
7. Which is wrong in respect to bryophytes? a) Water is essential for fertilization b) Presence of archegonia c) Presence of ciliated sperms d) Presence of autotrophic independent sporophyte
8. Conducting tissue in moss is made up of a) Xylem and phloem b) Xylem c) Collenchyma d) Parenchyma
9. Which of the following is diploid in moss plant a) Spore b) Leaves c) Spore mother cell d) Gametes
10. A specialized organ of the sporophyte for attachment to the gametophyte is called a) Stalk b) Foot c) Apophysis d) Root
11. If the chromosome number in the leaf of Funariais 20, what will be the chromosome number in the spores a) 20b) 40c) 10d) 5
12. The protonema is a stage in the life cycle of a)Riccia b)Funaria c) All bryophytes d)Cycas
13. If the leaf of Funariah as 5 chromosomes, the primary protonema will have a) 10 b) 5 c) 15

d) 20

14. Bryophyte differ from pteridophytes in being a) Non-vasculature b) Seeded c) Vasculature d) Sporophytic

Answers: 1-d 2-a 3-d 4-b 5-d 6-d 7-d 8-d 9-c 10-b 11-a 12-b 13-b 14-a

Questions on Gymnosperms

1. In which of the following group would you place a plant which produce seeds but lacks flower a) Fungi b) pteridophytes c) bryophytes d) gymnosperms
2. A gymnospermic plant a) bear flower b) exhibit no vascular tissue c) produce seeds in cones d) does not produce seeds in cones
3. Megasporophyll is the term used in gymnosperm to denote a) carpels b) stamens c) leaves d) female cone
4. The megasporium is also known as a) ovule b) nucellus c) fruit d) micropyle
5. Perisperm is a) outgrowth of the outer integument b) surviving nucellus in the seed c) outgrowth of funicles d) all of these
6. Gymnospermdiffer from angiosperm a) having seeds b) having fruits c) having naked ovules d) none of these
7. Alternation of generation is exhibited by a) bryophytes b) pteridophytes c) gymnosperms d) all plants
8. In which of the following feature angiosperm resemble gymnosperm a) presence of ovules b) presence of vessel c) nature of endosperm d) mode of fertilization
9. Endosperm in gymnosperm is formed a) at the time of fertilization b) before fertilization c) after fertilization d) along with the development of embryo.
10. In gymnosperm pollination is exclusively by a) animals b) wind c) insects d) water
11. Phloem of gymnosperm differ from angiosperm in a) having parenchyma b) having no companion cells c) having no sieve tubes d) having no sclerenchyma
12. Largest sperms are found in a) Pinus b) Cedrus c) Cycas d) Gnetum
13. Zooidogamy is seen in a) Cycas b) Gnetum c) Pinus d) angiosperm
14. Coralloid roots are found in a) Cycas b) Pinus c) Dryopteris d) Lycopodium
15. The most advanced order in gymnosperms a) Cycadales b) Coniferales c) Gnetales d) Taxales

Answers: 1-d 2-c 3-a 4-b 5-b 6-c 7-d 8-b 9-b 10-b 11-b 12-c 13-a 14-a 15-c.

1. Angiosperms differ from gymnosperms in having a) fruits b) cotyledon c) tracheid d) broad leaves
2. If seed is defined as an ovule modified as a result of fertilization, one may expect to find seed in a) all vascular plants b) angiosperm only c) gymnosperm only d) phanerogams

3. The branch of botany that deals with the form of the plant is known as a) physiology b) anatomy c) morphology d) cytology
4. The roots which develop from any portion of the plant except the radical are known as a) tap roots b) stilt roots c) fibrous roots d) adventitious roots
5. The arrangement of leaves on branches a) Phyllotaxy b) vernation c) venation d) phytotaxy
6. Bulb is a modification of a) root b) stem c) radicle d) plumule
7. Answers:1-a 2-d 3-c 4-d 5-a 6-b

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