



BRAINWARE UNIVERSITY

Term End Examination 2022

Programme – B.Physiotherapy-2022/B.Sc.(MLT)-2022/B.Sc.(PA)-2022/B.Sc.(FND)-
Hons-2022/B.Sc.(PSY)-Hons-2022

Course Name – General Biology

Course Code - GEBT102

(Semester I)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 30=30

1. Choose the correct alternative from the following :

(i) What is the correct pair of the four segments (R1, R2, R3, and R4)

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|-------------------------|-------------------------|
| a) R1 and R2, R3 and R4 | b) R2 and R3, R1 and R4 |
| c) R1 and R3, R2 and R4 | d) R2 and R1, R3 and R4 |

(ii) Which of the following is a character of ORF?

- | | |
|----------------------|--------------------------|
| a) Non – overlapping | b) 3 – nucleotide codons |
| c) Contiguous | d) Intron |

(iii) Which of the following does not contribute to the stability of tRNA?

- | | |
|--|-----------------------------|
| a) Hydrogen bonding | b) Hydrophobic interactions |
| c) Base and sugar-phosphate backbone interaction | d) Base pairing |

(iv) Select which of the following components is not involved during the formation of the replication fork.

- | | |
|-----------------------------------|-------------|
| a) single-strand binding proteins | b) helicase |
| c) origin of replication | d) ligase |

(v) The outer covering of the epiphytic root is

- | | |
|------------------|--------------|
| a) Rhizophore | b) Osmophore |
| c) Pneumatophore | d) Velamen |

(vi) Write the reason of the formation of "Cactus"

- | | |
|----------------------------|--------------------------|
| a) modifications of leaves | b) modifications of stem |
| c) modifications of flower | d) modifications of bud |

(vii) Which histone molecule produces novel binding sites for protein components of the kinetochore?

- | | |
|-------|-------|
| a) H3 | b) H4 |
|-------|-------|

- c) H2A
d) CENP A
- (viii) Select which of the following is not secreted by pancreas
a) Amylase
b) Trypsin
c) HCl
d) Lipase
- (ix) Select which of the following is the aggregation of the flowers on the plants
a) Inflorescence
b) Fruitrescence
c) Rootrescence
d) Leafrescence
- (x) Choose which type of blood is flowed through pulmonary veins
a) Deoxygenated blood
b) Oxygenated blood
c) both
d) None of the above
- (xi) Which one of the following is not the function of cytokinin
a) Cell division
b) differentiation
c) delay in leaf senescence
d) Cell death
- (xii) Process of breaking down of glucose and producing ATP is known as
a) Glyconeogenesis
b) Gluconeogenesis
c) Glycolysis
d) Glucogenolysis
- (xiii) Select which of following was the conclusion of Griffith's work with Streptococcus pneumoniae
a) DNA is the genetic material in viruses
b) The structure of DNA is a double helix
c) Bacteria exposed to DNA can incorporate the DNA and change phenotype
d) The amount of thymine equals to the amount of adenine in DNA
- (xiv) This provides muscles with oxygen to fight or run
a) Ethylene
b) Auxin
c) Insulin
d) Adrenaline
- (xv) Seed dormancy is maintained by
a) Cytokinin
b) Auxin
c) Abscisic acid
d) GA
- (xvi) Which of these statements are INCORRECT according to Chargaff's rules?
a) The molar ratio of A to T or C to G = 1
b) The sum of purine = sum of pyrimidine
c) The % C+G = % A+T
d) The composition of DNA remains the same in all the species
- (xvii) protobionts is related to :
a) Large colloidal drop like structures
b) Formed from micro molecules
c) Do not absorb molecules from the atmosphere
d) Does not contain proteins, nucleic acids, etc.
- (xviii) _____ is the evolution from coacervates to simple cell structure.
a) Chemical evolution
b) Biological evolution
c) Organic evolution
d) Inorganic evolution
- (xix) The theory of spontaneous generation was rejected by which scientist?
a) Pasteur
b) Lavoisier
c) Kuhn
d) Lamarck
- (xx) Most abundant protein found in nature is _____
a) Ribosome biphosphate Carboxylase-Oxidase
b) Ribulose biphosphate Carboxylase-Oxidase
c) Ribosome biphosphate Carboxy-Oxygenase
d) Ribulose biphosphate Carboxylase-Oxygenase
- (xxi) Which protein is most abundant in the animal world?
a) Actin
b) Keratin
c) Collagen
d) Histone
- (xxii) How are essential amino acids obtained?

- a) Produced in the body
b) Through diet
c) Its levels remain constant
d) From plants
- (xxiii) Which of the following is a non-reducing sugar?
a) Galactose
b) Glucose
c) Fructose
d) Sucrose
- (xxiv) Which of the following is the general formula of Carbohydrates?
a) (C_4H_2O)
b) (C_6H_2O)
c) $(CH_2O)_n$
d) $(C_2H_2O)_n COOH$
- (xxv) Which of the following is a reducing sugar?
a) Dihydroxyacetone
b) Erythrulose
c) Glucose
d) All of the above
- (xxvi) Miller in his experiment, synthesized simple amino- acid from _____
a) Methane, ammonia, oxygen, nitrogen
b) Hydrogen, methane, ammonia, water
c) Ammonia, methane, carbon dioxide, oxygen
d) Hydrogen, water, oxygen, helium
- (xxvii) The theory of hot dilute soup was given by
a) Oparin
b) Haldane
c) Urey
d) None of the above
- (xxviii) Process of transfer of pollen grains with the help of animals is called
a) Zoophily
b) Anemophily
c) Entomophily
d) Hydrophily
- (xxix) Which of the following is a type of RNA involved in protein synthesis?
a) snRNA
b) rRNA
c) yRNA
d) dsRNA
- (xxx) How many unusual bases are observed in a tRNA molecule?
a) 1
b) 3
c) 5
d) 0

Group-B

(Multiple Choice Type Question)

3 x 10=30

2. Choose the correct alternative from the following :

- (i) A plant of genotype AABbCC is selfed. Predict the phenotypic ratio of F₂ generation.
a) 9:3:4
b) 3:1
c) 9:3:3:1
d) 27:9:9:3:9:3:3:1
- (ii) Which of the following statements is not applicable to viruses?
a) The virus replicates in a bacterial host
b) The protein coat of a virus does not enter the host cell
c) The genetic material is DNA or RNA
d) Virus replicate autonomously in the absence of host
- (iii) Mode of DNA replication is defined as:
a) Conservative and bidirectional
b) Conservative and bidirectional
c) Semiconservative and bidirectional
d) Conservative and unidirectional
- (iv) The response of an organism to seasonal changes in day length is
a) Photoism
b) Photojournalism
c) Photoperiodism
d) All of the above
- (v) Which of the following base-pairing rule is correct?
a) Adenine with guanine and thymine with cytosine
b) DNA base pairing is non-specific
c) DNA base pairing is non-specific
d) DNA base pairing is non-specific
- (vi) State among the following statements which is incorrect about plasma membrane?

- a) Plasma membrane is a selectively permeable membrane and allows only those particles that protect the cell
- b) Movement of air and water takes place through diffusion and osmosis respectively
- c) Osmosis and diffusion are examples of active transport
- d) Active transport takes place through use of energy
- (vii) A lysosome is a membrane-bound organelle found in many animal cells. Lysosomes are known as "suicidal bags" because:
- a) Parasitic activity
- b) Presence of food vacuole
- c) Hydrolytic activity
- d) Catalytic activity
- (viii) Assume a pericentric inversion occurred in one of two homologs prior to meiosis. The other homolog remains normal. During meiosis, what structure "if any" would these homologs assume in order to pair accurately along their lengths?
- a) V formation
- b) cruciform
- c) loop
- d) pairing would not be possible
- (ix) Imagine you are performing a cross involving seed colour in garden pea plants. What F₁ offspring would you expect to develop if you cross true-breeding parents with green seeds and yellow seeds? Yellow seed color is dominant over green.
- a) 100 percent yellow-green seeds
- b) 100 percent yellow seeds
- c) 50 percent yellow, 50 percent green seeds
- d) 25 percent green, 75 percent yellow seeds
- (x) Estimate which recombination frequency corresponds to independent assortment and the absence of linkage.
- a) 0
- b) 0.25
- c) 0.5
- d) 0.75
