



Answer the following questions

total marks (35)

- I. **Put the equivalent scientific term** (5 mark)
- 1) A siphonostele with phloem external as well as internal to the xylem.
 - 2) Dead cells arranged in compact radial rows, impermeable to water and gases and has protection mechanism.
 - 3) Type of cambial cells divided periclinally to form all cells of the vertical system.
 - 4) The blocking of xylem vessel to become non functional
 - 5) The outer portion of xylem, light in color and functional
- II. **Complete the following** (5 mark)
- 1) are formed shizogenously by separation of cells.
 - 2) Two types of wood vessels according to their arrangement are,
 - 3), and are collectively known as periderm.
 - 4) A dictyostele has many scattered vascular bundles, each of these known as.....
 - 5) In roots the primary xylem located With secondary xylem and the protoxylem is.....
- III. **Mention by drawing only the types of Paratracheal wood parenchyma** (5 mark)
- IV. **Mention by drawing only the mechanism of secondary growth formation in dicot root** (5 mark)
- V. **Mention with drawing three only of the anatomical adaptation features of hydrophytes** (5mark)
- VI. **Mention by drawing the development of inter-xylary phloem (Included phloem).** (5mark)
- VII. **Put (✓) or (X) & correct the wrong : (5 mark)**
- 1) Albuminous cells are product of vertical system of secondary phloem in gymnosperm
 - 2) A tylosis is associated with heartwood.
 - 3) The eustele is considered to be the most primitive type.
 - 4) The secondary vascular tissues show a complete cylinder through uniseriate interfascicular rays is vine type .
 - 5) The dark brown patches formed in stems after secondary growth called stomata

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Plant Physiology section (35 points)

Answer the following

First Question

A- Complete the missing parts:

(8 points)

- 1) Field capacity is the
- 2) The availability of soil water to plants depends on and
- 3) are integral membrane proteins that form water-..... channels across the membrane.
- 4) The diffusion coefficient is a characteristic of the substance and depends on the and
- 5) The rate of volume flow in tubes depends on the of the tube, of the liquid, and the that drives the flow that can be summarized in the Poiseuille's equation as follow:
- 6) Root hairs provide a greater capacity for absorption of water and ions because and
- 7) means the leaf water exude through special structure called in a liquid form during early morning.

B- Compare between each pair of the following:

(17 points)

1. Leaf stomatal resistance (r_s) and leaf boundary layer resistance
2. The negative pressure developed due to water evaporation from soil and plant leaf.
3. Symplast and apoplast pathways of water transport in root.

Second Question

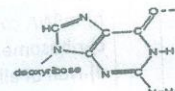
(10 points)

- A. Explain how cell wall properties and structure of guard cells regulate opening and closing of stomata?
- B. If you know that diffusion coefficient of sucrose molecules is $10^{-12} \text{ m}^2 \cdot \text{s}^{-1}$, what time is required to sucrose molecule to cross a distance of 0.59 mm? Explain the idea of equation used in determination.



Choose, complete or answer the proper scientific term for each of the following statements (2 marks each) = 70

1-	Based on gene balance mechanism the ratio X/A of 0.67 it will be a) male b) intersex c) superfemale d) supermale
2-	if (+) is sign of red eye and (v) is sign of vermilion eye what is the phenotypes of following chromosome structure insect. 1- $AA\dot{X}^+X^vX^v$ 2- $AA\dot{X}^vX^vY$ 3- $AA\dot{X}^+O$ 4- $AA\dot{X}^vY$
3-	a recessive trait of Red - green color blindness, known as a) Daltonism b) Thalissimia c) Albinism d) Hemophilia
4-	Duplicate genes with cumulative effect modify Mendel ratio to a) 9:3:4 b) 9:6:1 c) 9:7 d) 12:3:1
5-	Sex determination system in fishes and reptiles follow system of a) ZZ ZW b) XX XY c) ZO ZZ d) non of above
6-	The autosomal chromosomes control the type of the following genes a) sex limited genes b) sex linked genes c) sex influenced genes d) holandric genes
7-	Mendel Ratio of 1:1:1:1 is type of a) dihybrid test cross b) dominant epistasis c) law of segregation d) lethal genes
8-	If genes of two traits sorted into gametes independently its phenotypic ratio is a) 9:3:3:1 b) 15:1 c) 1:2:1 d) 3:1
9-	what is the base of DNA structure in the figure what is the base which pair with it (draw it)



10-	More than one codon specify for same amino acid called a)polarity of codon c)degeneracy of codon	b)ambiguous of codon d)commaless of codon
11-	Nuclear organizer region in chromosome function is a)code for 28s ribosome b)code for 5s ribosome c)formation of nucleoli d)all above correct	
12-	Masking the effect of gene at another locus called a)Dominance b)Coodominance c)Epistasis d) Recessive	
13-	mRNA is strand of DNA carry and synthesized byenzyme	
14-	The highly repetitive DNA regions in chromosomes is a) Euchromatin b)Heterochromatin c)nuclear organizer d)Satellite	
15-	- Each nucleosome is separated from the next by a region of a) Linker DNA b) Linker RNA c)Non histone protein d)H2A histone protein	
16-	Thalassemia is type of In human a)dominant lethal genes c)dominant duplicate genes	b)recessive lethal gene d) all above incorrect
17-	Core histones of nucleosome have types and ratio of a)1 H2A ,1 H2B , 1 H3, 1 H4 b)2 H2A,2 H2B ,2H3,2 H4 c)2 H2A, 2 H2B, 2 H3, 2 H4, 2 H1 d)2 H2A, 2 H2B, 2 H3, 2 H4 , H1	
18-	What is the role of RNA in DNA replication? a)-Primer b)-mRNA codon c)-ribosome in protein synthesis d)-Non of all above	

19-	DNA replication occurred in units called a) nucleotides b) replicon c) primer d) replication eye
20-	DNA polymerase 1 and 11 are responsible a) DNA replication b) DNA repair c) DNA hydrolyze d) DNA synthesis
21-	Each nucleotide of RNA consists of a) Nitrogenous base + deoxyribose sugar + phosphate b) Nitrogenous base + Deoxyribose sugar c) Nitrogenous base + ribose sugar d) Nitrogenous base + ribose sugar + phosphate
22-	In cattle, roan coat color occurs in heterozygous (Rr) in F1 offspring due to a) Codominance b) Epistasis c) Complete dominance d) Incomplete dominance
23-	Termination of protein synthesis needs and codons types of,
24-	The eukaryotic ribosome RNA is composed of subunits a) 50S and 30S b) 40S and 60S c) 70S + proteins d) All the above
25-	Gene expression differ from male and female in a) Sex influenced genes in heterozygous b) Sex influenced genes in homozygous c) Sex limited genes d) Sex linked genes
26-	Type of unidirectional replication in DNA found in a) eukaryotes b) prokaryotes c) mt DNA d) all above correct
27-	Poly C chain of genetic code usually code for a) polylysine b) polyproline c) polyarginine d) leucine
28-	Complete Start codon of Always code for amino acid In prokaryotes and In eukaryotes.

29-	Human chromosomes are of two types a) With no. of b) With type of
30-	In man hair on ear lobe is type of a) sex limited genes b) sex linked genes c) sex influenced genes d) holandric genes
31-	In eukaryots the large ribosome subunit includesrRNA molecules of a) 28S rRNA, 5.8 S and 5S rRNA b) 23S rRNA, 16S, rRNA and 5S rRNA c) 18S rRNA d) 16S rRNA, 5.8S rRNA
32-	Messenger RNA is a) complementary strand of chromosomal DNA b) single strand RNA c) genetic informational strand d) all above correct
33-	The amino acid attach site in tRNA is a) C-C-A end b) C-G-U end c) C-G-T loop d) all above incorrect
34-	In prokaryotes cell contain three kinds of rRNA molecules
35-	complete. The code always read in fixed direction of → direction that mean that codon has

END OF EXAM

BEST OF LUCK

PROF. SOLIMAN HAROUN



Answer the following questions

(70 mark)

I. Define the following:

(10 marks)

Litter, ecosystem, ephemerals, food chain and food web, species, eluviation, climax vegetation, phytoplanktons, phytoedaphons, Phanerophytes.

II. What is the difference between (10 marks)

1. lianas, epiphytes and parasite
2. guttation and bleeding
3. Grazing and Browsing
4. Endozoochors and Epizoochors
5. Hydrophites, halophytes and helophytes

III. Sketch a cross section of earth planet showing its layer with short notes about each layer (5 marks)

IV. Discuss briefly different layers of soil profile with sketch to it (10 marks)

V. Write about stages of evolution of vegetation (10 marks)

VI. Complete the following

(10 marks)

1. The vegetation is either,or.....
2. Ephemerals and annuals are drought escaping while succulent are.....and desert perennial herbs
3. Succession beginning in a dry situation is called.....of it begin on rook called.....andbegin on sand
4. Theand.....are the components of ecosystem
5. The various stages of hydroxere succession are.....and.....
6. Xerism is defined as.....
7. Deficient absorption of water may be due to an actual shortage of water in the soil when the soil is said to be
8. The is concerned with the study of individual or species and its environmental factors, while phytosociology
9. The ecosystem according to its nature isand.....and called incomplete when
10. Beneath the fresh litter, often occurs the material derived from the preceding season's litter called.....

VII. Soil is formed mainly by weathering process. Write about type of weathering

(5 marks)

VIII. Write short notes about different layers of earth atmosphere

(10 marks)

End of exam

best of luck