



யாழ். வலயக் கல்வித் திணைக்களத்தின் அனுசரணையுடன்
தொண்டமானாறு வெளிக்கள நிலையம் நடாத்தும்

FWC

தவணைப் பரீட்சை, மார்ச் - 2015
Term Examination, March - 2015

மூன்று மணித்தியாலங்கள்
Three Hours

உயிரியல்
Biology

T 09

தரம் : 12 (2016)

Part - I

Attention:

- * Answer all questions.
- * Write your index no in your answer sheet.
- * Select the most suitable answer and tick(x) in your answer sheet provided.

01. Which of the following molecule is abundant in living matters?

- 1) Cellulose
- 2) Chlorophyl
- 3) DNA
- 4) Lipid
- 5) Water

02. Enzymes,

- 1) contain proteins and non proteins parts
- 2) denature at low temperatures
- 3) are named regarding to their end products of the reactions.
- 4) move independently in the cytosol
- 5) synthesis in the Golgi complex.

03. Which of the following statement regarding ATP is **incorrect**?

- 1) Ribose sugar is found in ATP
- 2) It is produced during photo synthesis.
- 3) It has three higher energy phosphate bonds.
- 4) More energy is produced at the oxidation of sucrose than glucose.
- 5) ATP is not a polymer.

04. Correct regarding the comparison between Dicotyledonae and Monocotyledonae ?

- | Dicotyledonae | Monocotyledonae |
|----------------------------|---------------------------|
| 1) Parallel venation | Reticulate venation |
| 2) Leaves are cut shaped | Leaves are non cut shaped |
| 3) Distinct calyx present | No distinct calyx |
| 4) Flowers tetramerous | Flowers are Trimerous |
| 5) Example - <i>Tridax</i> | example - <i>Rosa</i> . |

05. Which of the following regarding cellular organelle - function is **incorrect**?

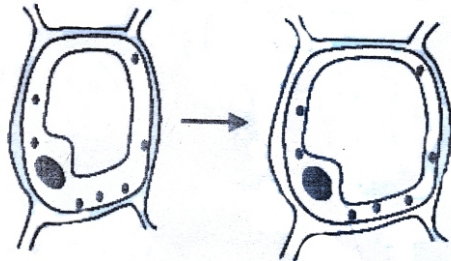
- 1) Nucleus - Synthesis of RNA
- 2) Peroxysome - Photo respiration
- 3) Cytoskeleton - Strength to the cytoplasm
- 4) Rough ER - Storage Ca^{2+}
- 5) Golgi complex - anthesis of glyco proteins.

06. The followings are some events take place in the self replication of DNA.
- Cleavage of bonds between the complementary bases..
 - Formations of bonds between the complementary bases.
 - Unwinding of DNA molecule
 - Separation of opposite strands.
 - Formation of sugar- phosphate bonds.
 - Adding free nucleotides to the complementary strands.
- Correct order is
- 1) A,C,F,D,B,E 2) C,A,D,F,B,E 3) C,F,A,D,E,B
 - 4) D,C,A,F,E,B 5) D,F,C,A,B,E
07. Which of the following regarding classification name combination is **incorrect**?
- 1) Theophrastus - Classification of trees herbs and shrubs
 - 2) Linnaeus - Binomial nomenclature
 - 3) Haeckel - Introduced Protista
 - 4) Carl Woese - Mentioned Domain
 - 5) R.H. Whittaker - Introduced the hierarchy - phylum
08. Which of the following characters regarding Bryophyta and chlorophyta is **incorrect**?
- 1) Major cell wall component is cellulose
 - 2) Chlorophyll b present
 - 3) Motile reproductive cells present.
 - 4) Motile vegetative cells present.
 - 5) Major storage is starch.
09. Which of the following show the fragmentation first among the animal groups?
- 1) Cartilaginous fishes 2) Prawns 3) Dinosaurs
 - 4) Scorpions 5) Leech
10. A group of students observed an aquatic and a terrestrial eco system and grouped the observed organisms.
- Which of the following taxa can be the observed organisms
- Hirudinea B. Insecta C. Hydrozoa
 - D. Arachnida E. Bryophyta
- 1) A,B 2) B,C 3) C,D 4) D,E 5) A,B,D
11. Chordata are distinguished from annelids because of having
- 1) Ventral heart 2) Closed circulatory system
 - 3) Hemoglobin 4) Complete alimentary tract
 - 5) Nerve cord.
12. Which of the following is **not** a respiratory structure of arthropods?
- 1) Gills 2) Respiratory trees; 3) Trachea
 - 4) Body surface 5) Book lung
13. Which of the following contain reduced circulatory system with out a heart?
- 1) Sea urchin 2) *Fasciola* 3) *Chiton* 4) Millipede 5) Earth worm

14. Which of the following statement is **incorrect**?
- 1) Lipase is secreted by gastric glands.
 - 2) Ribonuclease is secreted by pancreas
 - 3) Sucrase is found in small intestine
 - 4) Enterogastrone is secreted by duodenum
 - 5) Enterokinase is secreted by pancreas
15. Which of the following statement regarding human alimentary canal is correct?
- 1) More than one enzymes present in saliva
 - 2) Premolar teeth has three roots
 - 3) Pyloric sphincter is located between the oesophagus and the stomach
 - 4) Rennin is always present in gastric juice and curl the milk
 - 5) Vit B₁₂ synthesized in the large intestine
16. Which of the following **can not** be the cause for the gastritis?
- 1) Over consumption of alcohol
 - 2) Starvation for long period.
 - 3) Inadequate amount of cellulose in diet
 - 4) Prolonged usage of some drugs (Asprin)
 - 5) Infection of disease such as tuberculosis
17. Which of the following statements regarding plant nutrition is **incorrect**?
- 1) Phosphorous is absorbed in the form of H_2PO_4^-
 - 2) Sulphurous is important because it is the component of coenzyme-A.
 - 3) Mo is important for nitrogen fixation
 - 4) K is important for stomatal operation
 - 5) Plants do not have elements such as Mn and Zn
18. Which of the following statements regarding nutrition is correct?
- 1) *Nepenthes* is a heterotrophic plant
 - 2) *Anabaena* gets its carbon from inorganic carbon source
 - 3) *Nitrobacter* get its carbon from inorganic carbon source
 - 4) Epiphyte get their inorganic carbon from their attached plants;
 - 5) Sea anemone and hermit crab show the typical form of mutualism
19. Which of the following statement regarding gross structure of trachea in insects is correct?
- 1) Trachea contain circular like wax rings
 - 2) There are no valves in the spiracles
 - 3) Tracheoles is generally filled with a fluid.
 - 4) Tracheoles contain circular like chitin deposits
 - 5) Trachea is not directly connected with cells.
20. Which of the following is **not** an appoplast pathway in a plant?
- 1) Cell wall of parenchyma
 - 2) Pit of xylem vessel
 - 3) Pit of a sieve tube
 - 4) Cell wall of guard cells
 - 5) Cell wall of transferring cells.

21. Which of the following is less affect the rate of transpiration in plants?
- 1) Amount of soil water 2) Light 3) Temperature
4) Humidity 5) Concentration of CO₂

22. Morphology of a plant cell after immersing in a solution named "A" is shown below. Select the correct statement regarding the cell and the solution.



- 1) Water potential of solution A is lower than that of the cell.
2) Solution can not be water.
3) Pressure potential of solution A is lower than that of the cell.
4) Pressure potential of the cell has decreased after immersion in the solution
5) Water potential of the cell is equal to solute potential.

From 23 - 30 follow the instructions given below

ABD Correct	ACD Correct	AB Correct	CD Correct	Any other response/ s
1 st Answer	2 nd Answer	3rd Answer	4 th Answer	5 th Answer

23. Which of the following/s is/are polymer/s with glycosidic bonds?

- A. Chitin B. Pectin C. Sucrose
D. Cellulose E. Lactose

24. Which of the following/s is /are membrane bounded organelles?

- A. Glyoxisome B. Lysosome C. Ribosome
D. Plasmid E. Peroxysome

25. Which of the following/s contain/s motile reproductive cells?

- A. *Allomyces* B. *Agaricus* C. *Chlamydomonas*
D. *Sargassum* E. *Gelidium*

26. Which of the following vitamin/s is /are soluble in water?

- A. Pyridoxine B. Calciferol C. Pantothenic acid
D. Ascorbic acid E. Retinol

27.	Respiratory pigment	Element	Animal group
a.	Haemoerythrin	1. Fe	i. Mollusca
b.	Haemocyanin	2. Fe	ii. Crustacea
c.	Haemoglobin	3. Cu	iii. Polychaeta
d.	Chlorocruorin	4. Fe	iv. Mammalia

Which of the following/s is/ are correct regarding above respiratory pigment-element-Animal group combination?

- A) a,2,i B) c,2,iv C) b,3,ii D) d,3,ii E) a,3,i

28. Which of the following comparison/s is are correct regarding transpiration and guttation?

Transpiration	Guttation
A. Water loss as vapour	Water loss as liquid
B. Physiologically non important	Physiologically important.
C. Increase with the increase of root pressure.	Decrease with increase of root pressures
D. No need of ATP	Need ATP
E. Occur prominently by stomata	Occur by hydathods

29. Which of the following/s is /are **incorrect** regarding phloem transport?

- A. Synthesised food is transported in the form of sucrose
 B. ATP is not need for the transport through the sieve tubes.
 C. Phloem conduction is unidirectional
 D. If there is respiratory inhibitors, phloem transport will be affected
 E. There are active and passive proccers involved in the phloem transport

30. Fungi differ from bacteria be came of,

- A) They are heterotrophic organisms
 B) They produce extracellular enzymes.
 C) They do not contain chitin cell wall
 D) They are not motile organisms
 E) They are infectious

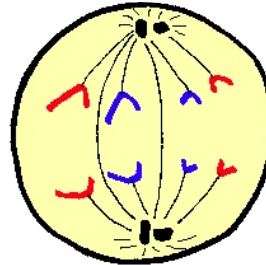
Part - II
A - Structured Essay

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01. A. i) The diagrams given below show the two phases of mitosis.



1



2

Name the phases and indicate two events take place in that phase.

Phase

Events

1.

2.

i) Indicate four events that take place in inter phase.

.....

ii) The followings are some events of meiosis. Indicate the phase responsible for the event.

1. Crossing over -
2. Leaving of homologous chromosomes from each other

3. Cleavage of centromeres of chromosomes

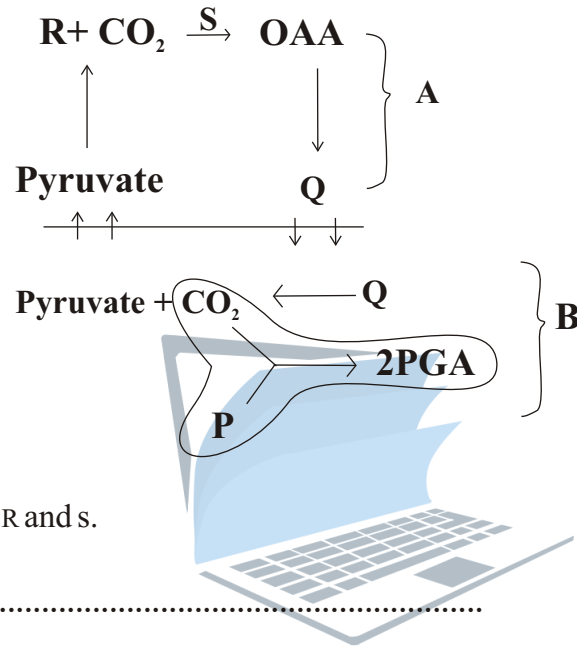
4. Formation of chiasma -

5. Diploid changed in to haploid -

iv) Indicate the significances of meiosis.

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B. The following diagram shows the photo synthetic event of C₄ plants.



i) Name P, Q, R and s.

P.
 Q.
 R.
 S.

ii) Name the two cell types A and B

A.
 B.

iii) How the structure containing A and B is named?

.....

iv) Name two examples for C₄ plants.

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v) Give three differences between a C₃ and C₄ Plant.

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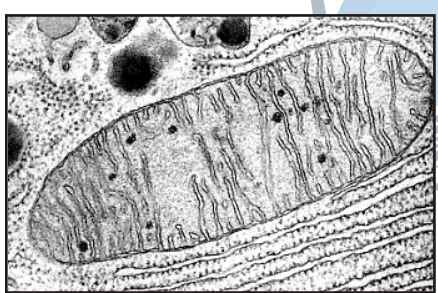
vi) a. Indicate the reaction of RUBP with CO₂ and O₂. With in these reactions indicate the reaction leads is photos respiration

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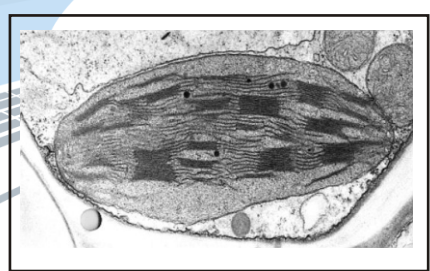
b. Give two impacts of photo respiration.

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C. I.



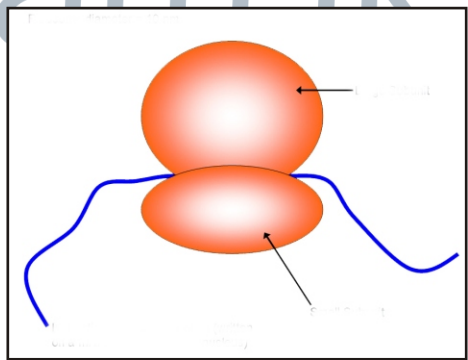
A



B



C



D

Name the above organelles and indicate one function for each.

Organelle	Function
A-
B-
C-
D-

ii) If the materials found in the particular organelle mark as (+) and not found mark as (-) in the following table.

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Organelle	DNA	RNA	Protein	Lipid
A				
B				
C				
D				

iii) Indicate the cell theories.

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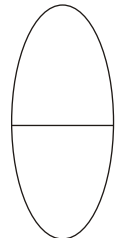
iv) What is meant by cytoskeleton?

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v) Indicate the functions of cytoskeleton.

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02. A i. What is Taxa ?

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ii. Name the important taxa regarding to the increase of number of individuals.

.....

iii: Complete the following table regarding domains. If the character present indicate as 'yes' and not present indicate as 'no'.

Character	Bacteria	Archae	Eucarya
1. Protein synthesis starts with Methionine			
2. Membrane bounded organelles.			
3. Peptidoglycan in cell wall			

B. i) Give the specific features of Chordata.

.....

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.....

ii) Indicate the classes found in the phylum Chordata

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.....

iii. The following structures / characters found in vertebrates.

- a. Oviparous
- b. Larval stages
- c. Nuchal membrane
- d. Pentadactyl limb
- e. Lateral line sense organ

Which of the above structure / character/s is/ are found in the following animal groups.

- a. Chondrichthyes: -.....
- b. Osteichthyes : -.....
- c. Mammalia: -.....

C. i) What is meant by vitamins?

.....

.....

.....

ii) Give the 'science related name' of the given vitamins and indicate one deficiency symptom of that vitamin in human beings.

Vitamin	Name	Deficiency symptom
B ₁		
C		
D		
A		

iii) Indicate the general tissues found in human alimentary tract from outward to inside.

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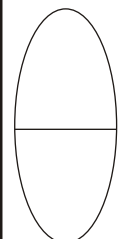
iv) What is the layer found in stomach which is specialized in the above tissues and what is the reason for that specialization?

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v) Indicate the site/ sites and function of the given enzymes.

Enzyme	Site /s	Function
Amylase		
Rennin		
Trypsin		
Lipase		



3. A. i) What is respiratory surface?

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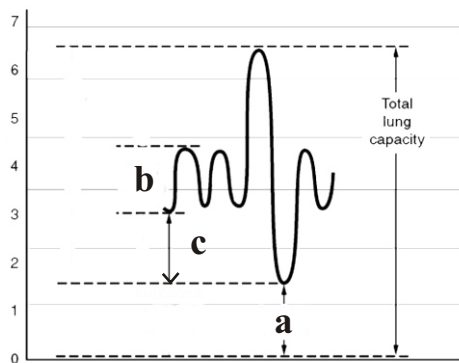
ii) Indicate the special features of a respiratory surface.

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iii) Indicate the respiratory organ/s of the following organisms.

- a. Centipede :-.....
- b. Scorpion: -.....
- c. Earthworm: -.....
- d. Elephant: -.....
- e. Frog: -.....

iv) A graph of lung volumes are given below.



1. Name a, b and c.

- a. b.
- c.

2. Describe the a and b and give the volumes.

a: -

Volume:-.....

b: -.....

Volume:-.....

v) Indicate the effects of nicotine and carbon mono oxide in the cigarette smoke.

Nicotine :-

.....

Carbon mono oxide:-

.....

B. i) a. What is the reason for the development of circulatory system in multi cellular organisms?

.....

.....

b. Which animal group first developed the circulatory system?

.....

ii) In which basic pattern of arches, human systemic arches arose?

Aortic arches

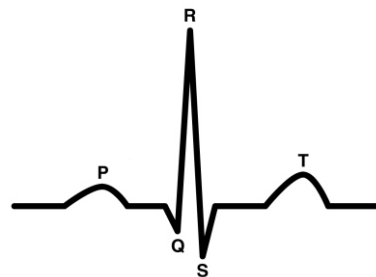
Systemic arches in human

1. -

2. -

3. -

iii) The following diagram is the ECG of human



Name the phases which alphabets denote.

P- QRS -

T-

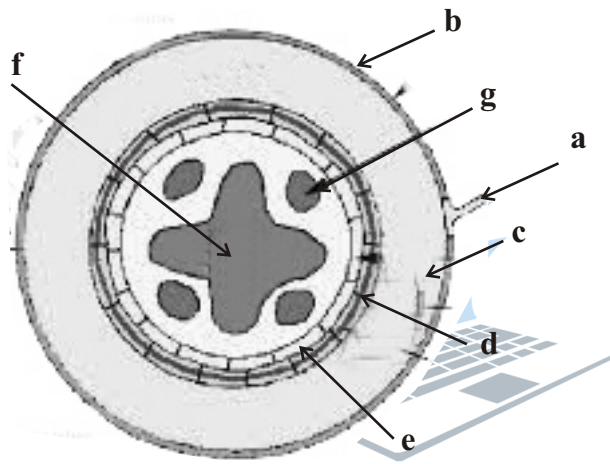
iv) Indicate the paths where a urea molecule produced and where it is eliminated.

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.....

v) What is meant by -pass surgery?

.....
.....

C. i) The following diagram is a histological structure of a root.



i) Name the parts a-g.

a:- b:-
c:- d:-
e:- f:-
g:-

ii) Explain the paths of water movements from a-f in young plants.

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.....
.....
.....
.....
.....

iii) How the tissue d regulates to the water movement?

.....
.....

iv) Indicate the water potential formula regarding the water movement from soil water to root hair cell.

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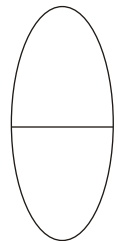
v) What is the function of tissue d in stems?

.....
.....



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தொண்டமாளாறு வெளிக்கள நிலையம்
Field Work Centre-Thondaimanaru

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General Certificate of Education (Adv.Level) Examination, March -2015

உயிரியல் - II
Biology - II

Gr 12(2016)

Part - II

B - Essay

Answer any Two Questions

01. Write an account on the diversity of proteins and their functions in organisms.
02. a) Describe the active and passive movements in the phloem transport.
b) Briefly describe the method of determining the water potential of potato tissues
03. Write short notes on the followings.
 - a) Respiratory Quotient
 - b) Terrestrial adaptations in Reptiles
 - c) Control of human ventilation process.

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