

BOARD OF SECONDARY EDUCATION (TELANGANA)
SUMMATIVE ASSESSMENT – II
TENTH CLASS BIOLOGICAL SCIENCE MODEL PAPER
PAPER – II (ENGLISH VERSION)

Time: 2 hours 45 minutes

PART A & B

Max. Marks: 40

INSTRUCTIONS:

- i) In the time duration of 2 hours 45 minutes, 15 minutes of time is allotted to read and understand the question paper.
- ii) Answer the questions under PART – A on a separate answer book.
- iii) Write the answers to the questions under PART – B on the question paper itself and attach it to the answer book of PART – A.

Time: 2 hrs.

PART – A

Marks: 35

INSTRUCTIONS:

- i) PART – A comprises of three Sections I, II and III.
- ii) All the questions are compulsory.
- iii) There is no overall choice. However there is Internal Choice to the questions under Section – III.

SECTION – I

Note: i) Answer ALL the questions.

ii) Each question carries ONE mark.

iii) Write answers in 1 – 2 sentences for each question.

7 × 1 = 7

1. What do you mean by hunger pangs?
2. What happened if adrenaline more released in blood?
3. Define the Photosynthesis with equation.
4. Name the structures which are present in veins and lymph ducts and absent in arteries.
5. What happens if diaphragm is not there in the body?
6. Think why the diameter of the efferent arteriole is less than that of afferent arteriole?

7.  This diagram shows

SECTION – II

Note: i) Answer ALL the questions.

ii) Each question carries TWO marks.

ii) Answer the questions in 4 – 5 sentences.

6 × 2 = 12

8. What is a Synapse? How is it useful in transfer of information?
9. What will happen if we remove predators from food web?

10. Draw the block diagram showing sensation of taste from food material to brain.
11. Why do you think that carbohydrates are not digested in the stomach ?
12. List out the things that makes you amazing in excretory system of human being.
13. Suggest any three programmes on prevention of soil pollution in view of avoiding pesticides.

SECTION – III

Note: i) Answer ALL the questions.

ii) Each question carries FOUR marks.

iii) There is Internal Choice for each question. Only one option from each question is to be attempted.

iv) Answer each question in 8 – 10 sentences.

4 × 4 = 16

14. Drawing a block diagram showing events in respiration.

(OR)

Draw a checker board, show the law of independent assortment with a flow chart and explain the ratio.

15. What is malnutrition? Explain some nutrition deficiency diseases?

(OR)

Write differences between:

- a) Veins – Arteries
- b) Xylem – Phloem

16. What process do you follow in your laboratory to study the presence of starch in leaves?

(OR)

Observe a plant in your garden and write a note on producer – consumers relationship.

17. Observe the table and answer the questions given below.

S.No	Enzyme	Gland	Digestive	Acts on	Products
1	Ptyalin	Salivary gland	Saliva	Carbohydrates	Maltose
2	Pepsin	Gastric gland	Gastric Juice	Proteins	Peptones
3	Bile (No – enzyme)	Liver	Bile juice	Fats	Emulsification of fats
4	Lipase	Pancreas	Pancreatic Juice	Fats	Fatty acids & glycerol
5	Sucrase	intestinal gland	intestinal juice	Sucrose	Glucose

i) Which Enzyme acts on Carbohydrates?

ii) Enzyme less digestive juice is....?

iii) Which Enzyme acts on fats?

iv) Sucrase acts on.....? and Product is.....?

(OR)

Observe the table and answer the questions given below.

$\begin{array}{c} \text{♂} \\ \text{♀} \end{array}$	Y	y
Y	YY	Yy
y	Yy	yy

- i) ♀ , ♂ the symbols indicates are?
- ii) Mention the Genotype and Phenotypes?
- iii) Mention the Homozygous and heterozygous?
- iv) "Yy" is it homozygous? What is this Dominant trait?

INSTRUCTIONS:

i) Answer ALL the questions.

ii) Each question carries $\frac{1}{2}$ mark.

iii) Answers are to be written in question paper only.

iv) Marks will not be awarded in any case of overwriting, rewriting or erased answers.

v) Write the CAPITAL LETTER (A, B, C, D) showing the correct answer for the following questions in the brackets provided against them. $10 \times \frac{1}{2} = 5$

1. For the testing starch in leaf, instead of Iodine we can use...? ()
 A) Betadine B) Bromine C) Chlorin D) Benzene
2. The third layer of Chloroplast is... ()
 A) Stroma B) Chlorophy C) Grana D) Chloroplast
3. Each ATP molecule gives how many calories. ()
 A) 7400 Cal B) 7200 Cal C) 7600 Cal D) 7500 Cal
4. Which is the "Power house of the cell"? ()
 A) Chloroplast B) Rybosome
 C) Mitochondria D) Lysosome
5. The blood circulation controlled in blood vessels by ()
 A) Arotary B) Vein C) Valve D) Capillaries
6. The apparatus is used to B.P. ()
 A) Sphygmomanometer B) Manometer
 C) Hygrometer D) Barometer
7. Match the following. ()
 1) Bowmans Capsule a) Water reabsorption
 2) Proximal Convoluted tubule b) Glomerular filtration
 3) Loop of Henley c) Tubular reabsorption
 4) Distal convoluted tubule d) Tubular Secretion
 A) 1-a, 2-c, 3-d, 4-a B) 1-b, 2-a, 3-d, 4-c
 C) 1-b, 2-d, 3-c, 4-a D) 1-b, 2-c, 3-a, 4-d
8. Sense Organ → (1) → Spinal Cord → (2) → motor nerve → tissue ()
 Fill the above boxes.
 A) 1-Brain, 2-Sensory nerve
 B) 1-Sensory nerve, 2-Brain
 C) 1-Sensory nerve, 2-receptor
 D) 1-receptor, 2-Sensory nerve



9. This symbol belongs to the disease.... ()

A) Malaria

B) AIDS

C) Phylaria

D) T.B

10. Paleontologists deal with ()

A) Embriological evidences

B) Fossil Evidences

C) Vestigial Organ evidences

D) All the above

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ANSWERS

PART – A

SECTION – I

1. What do you mean by hunger pangs?

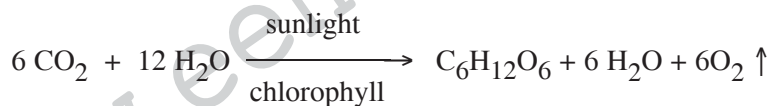
A: When glucose levels decrease in the blood, then the stomach wall cells secreted the "Ghrelin" hormone. It leads to sensation of hunger.

2. What happened if adrenaline more released in blood?

A: When adrenaline levels increased in the blood, the emotions, heart beat, blood pressure will be increased. As the result human has angry.

3. Define the photosynthesis with equation.

A: Photosynthesis is the process by which green plants containing chlorophyll, produce food (Glucose) from CO₂ and water by using sunlight as source of energy.



4. Name the structures which are present in veins and lymph ducts and absent in arteries.

A: 'Valves' are present in veins and lymph ducts and absent in arteries.

5. What happens if diaphragm is not there in the body?

A: If diaphragm is absent in the body, we would not be able to breathe, inspiration and expiration process may not properly. Breathing movement will stop.

6. Think why the diameter of the efferent arteriole is less than that of afferent arteriole?

A: To create the pressure in the glomerulus to filter the waste materials.



7. This diagram shows?

A: The diagram is 'Planaria' - Regeneration in a sexual reproduction.

SECTION – II

8. What is a synapse? How is it useful in transfer of information?

A: Dendrites of one neuron connect to another or to the axons of the other neuron through connections is called as a "Synapse".

- ◆ It can transmit the information one cell to another cell.
- ◆ Synapse do not have any protoplasmic connections between the nerve cells. Yet information passed, through the electrical signals or chemicals.

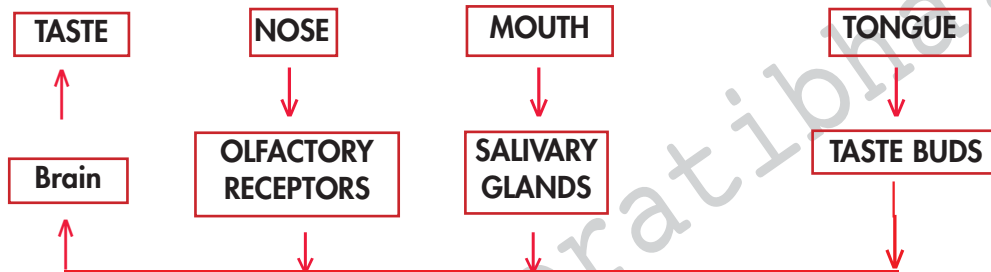
9. What will happen if we remove predators from food web?

A: Removal of predators from food web leads to ecological imbalance, and food chain disturbs.

◆ Eg: If we remove the predators, the herbivorous animal population will increase, it leads to more feed plants by them. Then plants will be decrease from surroundings.

10. Draw the block diagram showing sensation of taste from food material to brain.

A:



11. Why do you think that Carbohydrates are not digested in the stomach?

A: The gastric juice produced by stomach do not contain the enzyme ptyalin or amylase. It contains only renin, lipase, pepsin.

Hence, Carbohydrates are not digested in the stomach.

12. List out the things that moves you amazing in excretory system of human being.

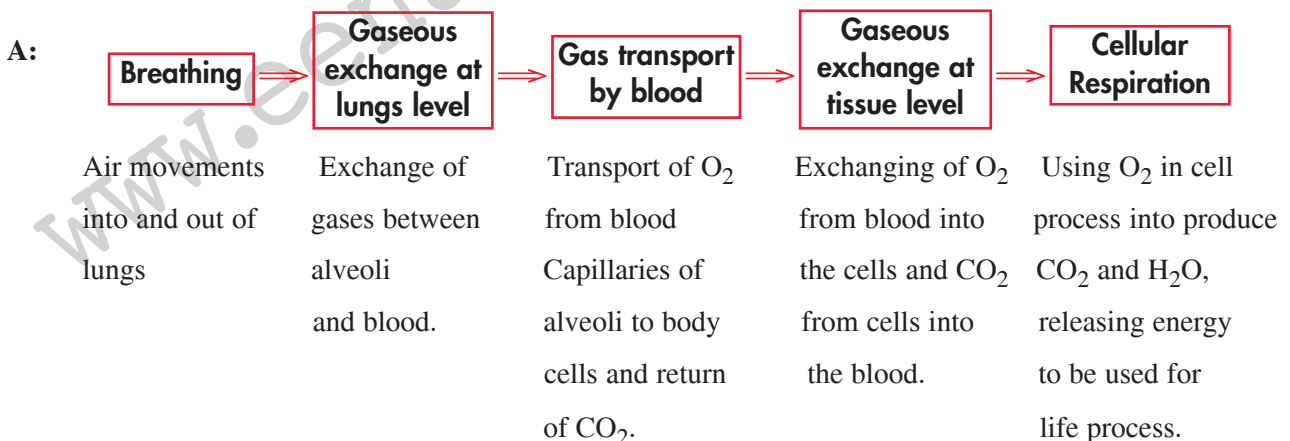
- A:
- ◆ The kidney made by millions of nephrons.
 - ◆ Nephrons reabsorbs the useful substances.
 - ◆ If failure one kidney, then it's function will done by another one.
 - ◆ Vasopressin hormone helps to kidney function are amazing things in excretory system.

13. Suggest any three programmes on prevention of soil pollution in view of avoiding pesticides.

- A:
1. **Biological pest control:** Due to pest control using the predators, and parasites.
 2. **Crop rotation method:** Same crop should not be grown in the same field in successive seasons.
 - ◆ As the pest which grows on one crop never grows on the other.
 3. Development of genetic resistant strains.

SECTION – III

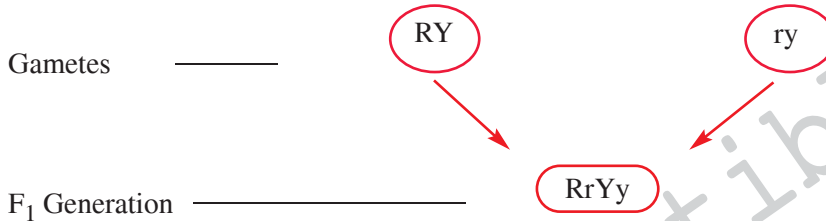
14. Drawing a block diagram showing events in respiration.



(OR)

Q: Draw a check board, show the law of independent assortment with a flow chart and explain the ratio:

A: Parents: _____ RRYY × rryy
 (Round – Yellow) (Wrinkle – Green)



F₂ Generation:

♀ \ ♂	RY	Ry	rY	ry
RY	RRYY R/Y	RRYy R/Y	RrYY R/Y	RrYy R/Y
Ry	RRYy R/Y	RRyy R/G	RrYy R/Y	Rryy R/G
rY	RrYY R/Y	RrYy R/Y	rrYY W/Y	rrYy W/Y
ry	RrYy R/Y	Rryy R/G	rrYy W/Y	rryy (W/G)

∴ The ratio is - 9 : 3 : 3 : 1

∴ R/Y (Round - Yellow) = 9

⇒ R/G (Round - Green) = 3

⇒ W/Y (Wrinkled - Yellow) = 3

⇒ W/G (Wrinkled - Green) = 1

15. What is malnutrition? Explain Some nutrition deficiency diseases.

A: Eating of food that does not have one or more than one nutrients in required amount is known as malnutrition.

1) Kwashiorkor disease: This is due to protein deficiency in diet. Body parts become swollen due to accumulation of water in the inter cellular spaces. very poor muscle development, swollen legs, fluffy face difficult to eat, diarrhea, dry skin are the symptoms.

2) Marasmus: This is due to deficiency of both proteins and calories. Generally this disease occurs when there is an immediate second pregnancy or repeated child births.

symptoms:- Lean, weak, swelling limbs, less developed muscles, dry skin, diarrhea etc.

(OR)

Q: Write the differences between

a) Veins – Arteries b) Xylem – Phloem

A:	Veins	Arteries
	1) Collects blood from body Parts.	1) Distributes blood to the body.
	2) Blood pressure is low	2) Blood pressure is high.
	3) Valves are present	3) Valves are absent.
	4) It have large lumen	4) It have small lumen.
	5) Moves towards heart	5) Moves away from the heart.
	6) Carry deOxygenated blood, except pulmonary vein.	6) Carry Oxygenated blood except pulmonary artery.

b) Xylem – Phloem

A:	Xylem	Phloem
	1) It transport water and minerals from roots to the apical parts of the plant	1) It transport food material from the leaves to growing parts of the plant.
	2) Xylem consists of tracheids, vessels, Xylem fibers and Xylem parenchyma.	2) Phloem consists of Sieve tubes, Sieve Cells, Companion Cells, Phloem fibers and phloem Parenchyma.
	3) Only Xylem Parenchyma are living.	3) Sieve tubes, Sieve cells, Companion cells and phloem parenchyma are living.
	4) Tracheids, vessels, Xylem fibers are dead tissues.	4) Phloem fibers are dead tissues.
	5) Xylem gives mechanical strength to the plant.	5) Phloem does not give mechanical strength to the plant.

16. What Process do you follow in your laboratory to the study presence of starch in leaves?

A: Apparatus required: Tripod stand, beaker, test tube, water, Spiral lamp/ bunsen burner, petri dish, methylated spirit dropper, Iodine.

Procedure: 1) Take a leaf of a plant which has soft and thin leaves and well exposed to sunlight.

2) Boil the leaf in methylated spirit over a water bath till it becomes pale-white due to the removal of chlorophyll. observe the leaf.

3) Spread the leaf in a dish and add a few drops of tincture Iodine/ betadine solution on it.

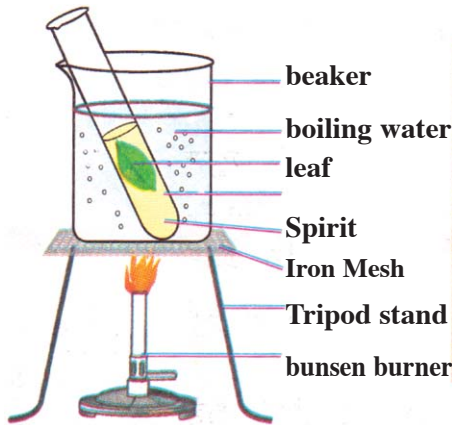
4) Observe the leaf.

5) The presence of starch will be Indicated by a blue-black colour.

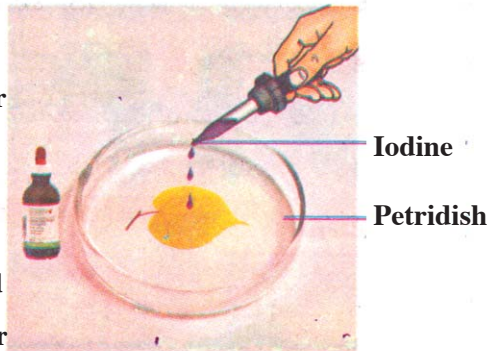
Precautions:

1) Do not boil the methylated Spirit test tube directly on flame.

2) Boil the water bath with low flame.



Leaf boiling in methylated Spirit



Iodine test

(OR)

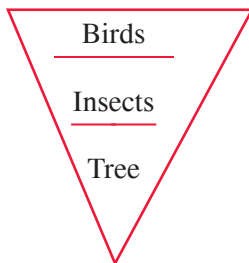
Q: Observe a plant in your garden and write a note on producers - consumers relationship.

A: In my garden when i observe a plant the following things showed i.e.- insects, butterflies, birds, spiders etc.

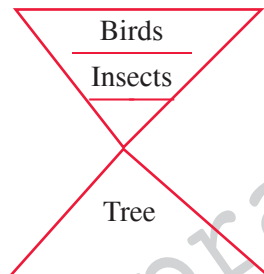
- ◆ The plants produces their own food from sunlight.
- ◆ Insects, butterflies are primary consumers feed on plants.
- ◆ Birds, Spiders are secondary consumers feed on primary consumers.
- ◆ The producer and consumers relationship can be shown in the following food chain.

Producers (plant) → Primary Consumers (Insects, Butterflies) → Secondary Consumers (Birds & Spiders)

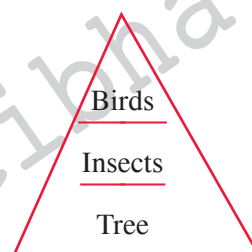
I The Pyramid of number



II The Pyramid of Biomass



III The Pyramid of energy



17: Observe the table, and answer the questions given below.

S.No.	Enzyme	Gland	Digestive juice	Acts on	Products
1.	Ptyalin	Salivary Gland	Saliva	Carbohydrates	Maltose
2.	Pepsin	Gastric gland	Gastric juice	Proteins	Peptons
3.	Bile(No enzyme)	Liver	Bile juice	Fats	Emulsification of Fats
4.	Lipase	Pancreas	Pancreatic juice	Fats	Fatty acids and glycerol
5.	Sucrase	Intestinal gland	Intestinal Juice	Sucrose	Glucose

i) Which enzyme acts on Carbohydrates?

A: Ptyalin

ii) Enzyme less digestive juice is..?

A: Bile

iii) Which enzyme acts on fats?

A: Bile and Lipase

iv) Sucrase acts on.....? and Product is.....?

A: Sucrose, Product-Glucose

(OR)

Q: Observe the table and answer the questions given below.

♀ ♂	Y	y
Y	YY	Yy
y	Yy	yy

i) ♀, ♂ the symbols indicates us..?

A: ♀ = Female, ♂ = male.

ii) Mention the Genotype and phenotype?

A: 1:2:1 Genotype; 3:1 is Phenotype

iii) Mention The Homozygous and Heterozygous?

A: Homozygous are - YY, yy; Heterozygous = "Yy" and "yY"

iv) "Yy" is it homozygous? State the Dominant trait?

A: No. Yy is Heterozygous. The Dominant trait is "Yellow"

PART-B (ANSWERS)

1-A; 2-C; 3-B; 4-C; 5-C; 6-A; 7-A; 8-B; 9-B; 10-D.

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