

Part one: Multiple choice **Answer All 20 Marks**

b- glucose d-urea

7-plasmolysis takes place when a cell is kept in
a- isotonic environment hypotonic environment
b- hypertonic environment d-distilled water

8-Which of the following requires tsetse fly as vector
a- malaria c-leishmaniasis
b- elephantiasis d-sleeping sickness

9- Immune response in which antibodies come from another person who have encountered the antigen is called
a- active immunity c-passive immunity
b- Natural active immunity d-artificial passive immunity

10-Sweating keeps the body cool because
a- it is a cold liquid c- it reflects heat
b- its evaporation takes d- it prevents body heat
 heat from the body from coming to the
surface

Part two structured questions

Question one (1)

This table below gives descriptions of organelles found in eukaryotic cells. Study and complete the table by writing the name of organelle in spaces provided (on left side) ...

5 marks

Descriptions	Name of organelles
1- usually rod-shaped have double membrane. The inner layer form cristae	A-
2- Disc-shaped structure contains a system of thylakoids	B-
3- Hollow, cylindrical structure consist of nine triplets of microtubules	C-
4-rounded organelle found in cytoplasm .assemble the amino acids transferred by tRNA	D-
5-genetic material contain in it and surrounded by double membrane	E-

Question Two

A-

1- A key which can be used to identify five different types of carbohydrates is shown bellow

5 mark

Carbohydrate

Insoluble
soluble

Contains 1, 6
component
Glycosidic bonds
of DNA
together

does not contain
1, 6 glycosidic bonds

consist
two glucose
Molecules joined
By condensation

Found in
E
animals

contains hydrogen
Bonds

doesn't contain
hydrogen bond

D

A

B

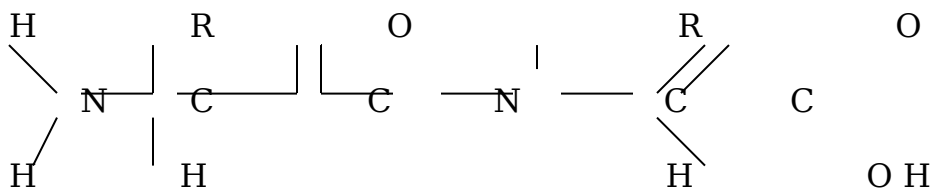
C

2- Work out the structural formula of ribose? Show your work bellow.
2marks

Total 5 amrks

B

Study the diagram bellow, which shows a dipeptide ,then answer the
question



asparagine polypeptide Arganine glycine tyrosine

- a- what three bases make up the anti-codon on the molecule of tRNA that is responsible for carrying the tyrosine amino into place during translation?

2 mark

- b- explain why mutation that substitutes the base found in position X will have no effect on polypeptide that is produced by the gene?

2 mark

.....
.....
.....
.....total 4 mark

Question 4

The graph shows the changes in the blood pressure that occur in the left side of the heart during a single cardiac cycle blood leaving the left ventricle passes through oarta

- 1-During the period labeled A on the graph, the ventricle valve is open
a- Explain by using the information in the graph what happen during period A

2 mark

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

- b- What is the scientific name given to the period labeled A on the graph 1mark

.....

- 2- during the period labeled B on the graph, there is a rise in ventricle pressure

- a- What causes this pressure rise

2 mark

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

- b- Is blood entering or leaving the ventricle during period B? explain your reason

2 mark

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

- c- Use the information in the graph to work out when the second heart sound, or “dup” occurs. Explain your reason
3mark

.....

.....

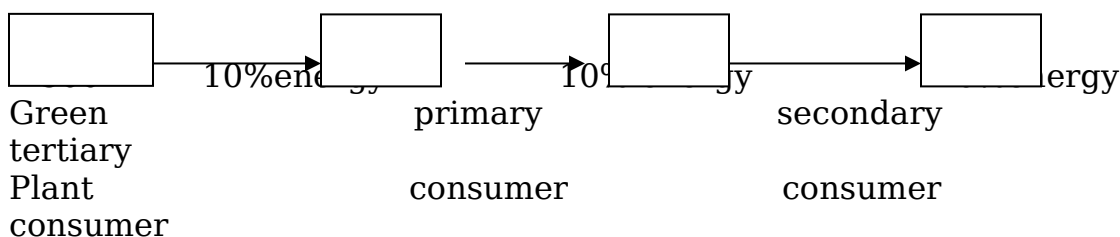
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.....

Total 10 mark

Question 5

Figure bellow show an example of the energy losses in a food chain which starts 500 KJ of plant materials



- a- How many kj of energy will there be at the primary and secondary consumers level
4 mark

.....

.....

.....

.....

.....

.....

- b- List two ways in which the energy is lost between the different consumers levels

2 marks

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

c- Construct a food chain which humans are secondary consumers
2 mark

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

d- I- in countries where food is in short supply, humans are more frequently primary consumers. Explain why you think people in these countries benefit by being primary consumers
2 marks

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

Total 10 marks

Question 6

Experiment

This experiment is to investigate one factor affecting photosynthesis.

A leaf of potted plant which had been kept in the dark overnight was covered partially with an aluminum foil onto which a + sign is marked and left uncovered the other part. The leaf had been cut as shown bellow

Before carrying experiment, it was placed in sunlight for 3 hours

a- which factor was being investigated in the experiment
1 mark

.....

b- which food was tested from the leaf
1 mark

.....

c- i-With the aid of diagram, state the results of the food tested by
writing the changes observed on the leaf
2 marks

.....
.....

ii- Account for and discuss the results in C (i) above
4 marks

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

d- Why was it necessary to keep the plant in darkness before the
experiment 2 mark

.....

Total

10 mark

Question 7

Read the following information and work out the questions after
wards.

Two tall plants marked with plant A and plant B are grown in same
field, they have same phenotype for tallness, but their genotype is
different , one is homozygous dominant and the other is heterozygous.
You are asked to determine which one is homozygous dominant and
which one is heterozygous by answering these question

a- Name the process that involves such cross 1 mark

b- State the genotype of the other organism used to cross these unknown plants 1mark

.....

d- i- Find out by using two different grids the genotype of unknown parents

4

marks for work

ii- Reason why one of the parents is homozygous and the other is heterozygous

2 marks

.....

Question 8

Here below is shown a table of blood glucose control, put (/) in boxes if hormones shown at the right hand side can carry the function shown at the left hand side

4 marks

When blood glucose level rises above normal	Insulin	Glycogen
1- increases glucose uptake of cells		
2-converts stored glycogen to glucose		
3-Conversts glucose		

to glycogen		
4- reduces metabolic breakdown of glucose		

B- Where in the pancreas do these hormones are produced
1 mark

c- i- Are these hormones endocrine o exocrine glands
1mark

ii- Support reason to your answer
2mark

D- Give the name of a disease of a person having abnormal level of glucose in blood

1 mark

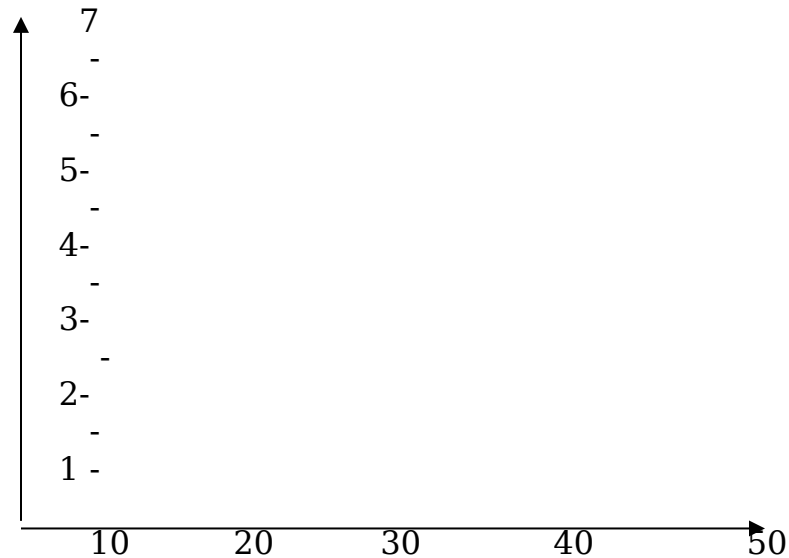
Question 9

Here bellow is data obtained from an experiment carried out investigating the effect of temperature on a rate of reaction of enzyme sucrase on substrate sucrose

Rate of reaction /mg product per minute	Temperature oC
1	10C
2	20
3.5	30
4.5	35
5.5	40
5.6	41
4.1	45
1	50

A-Using this information complete the graph bellow to show how the rate of reaction varies with the temperature the first two is done for you

3marks



60

B-

1- Explain the results obtained between 10 and 30

2 marks

2- i- What happen to the enzyme activity between 40 and 60

1 mark

ii-Why does this happen

3- At what temperature does the exam work best

1mark

4- Give a name to that temperature in which enzymes works best 1 mark

Total 10marks

Scheme of work

Multiple choice questions

Answer for question one

1- c

2- c

3- b

4- a

5- d

6- b

7- b

8- d

9- d

10- b

marks

20

Structured question

Answer for question one

mark

5

A- Mitochondria

B- Chlorophyll

C- Centerioles

D- Ribosomes

E- Nucleus

Answer for question

1-

a- glycogen

b- cellulose

c- amylase

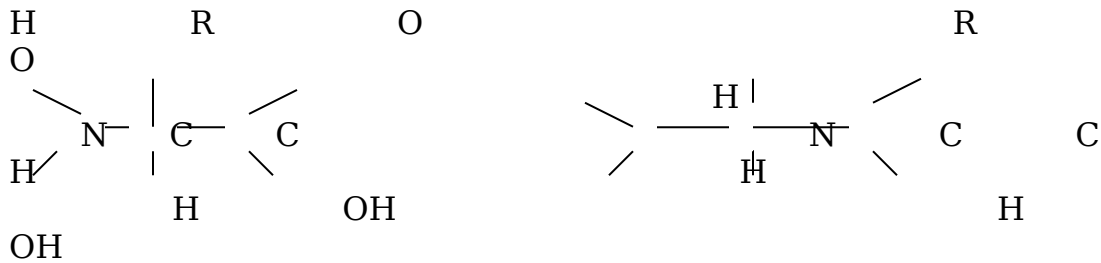
d- de-oxyribose

2-

Answer for question 3

4 marks

(each 2 mark)



b- Carboxylic acid group or carboxyl
mark

1

c- peptide bond
1mark

D- Amino acid differ from one another in their R-group or side chains
2 mark

Answer for Question 4

a- AUA 2 mark

b- Because we the genetic code is just substitute all the codons beginning GC code for the amino acid aragnine and therefore changing the base found in position X will have no effect on the polypeptide 2 mark

Answer for question five

- 1- a- During period A. the pressure in the atrium is higher than that in the ventricle. This meant that blood will be moving from the atrium to the ventricle and as a result, the ventricular valve will be open 2 mark
b- Atrial systole
1 mark
- 2- a-The contraction of the muscular walls of the ventricle
2 mark

b- Blood is not entering the ventricle, since ventricular pressure is higher than atrial pressure but it isn't leaving. The ventricle is lower than that in aorta
2 mark
- 3- The dup' sound occurs when the semi lunar valves close. This will happen when the pressure in the Aorta first becomes higher than that in the ventricle and blood tries to run back into the ventricle from aorta 3 mark
- 4-

Answer for question 6

- a- Each time the energy is passed on 90% of it is lost. This means 10% is passed on. So, of the 500 kj I green plants, only 10% o this is passed to the primary consumer.

This is

$$\frac{10}{100} \times 500 = 50 \text{ kj}$$

2 mark

100

At the primary consumer level there is 50 kj of energy available
10% of this 50 kj is then passed on to the secondary consumer.

This is

$$10 \times 50 = 500$$

2 mark

100

At the secondary consumer level there is 500 of energy available

b- Energy is lost in a form of

2mark

1-heat during respiration

2-waste products such as faeces and urine

c- the humans in your food chain should be eating an animal which has eaten a plant

2 mark

d- i-if the people eat plants, they can obtain more energy from a given area of land than if they first feed the plants to animals than eat animals.

2 mark

Answer for question 7

a- a- light 1 mark

b- tested for starch 1 mark

c- i- 2 mark

ii-

Starch was formed in the uncovered part of the leaf because of the presence of light while starch was not formed in the covered part of the leaf because of the absence of light

4 marks

d- to de-starch the leaf

2 marks

Answer for question 8

a- black cross or test 1 mark

b- homozygous recessive (tt) 1 mark

plant A X tt 3
 marks
 (2 for work and 1 for reason)

unknown t t

	t	t

If all off-springs are all tall and in phenotype and heterozygous in genotype then the unknown parent is homozygous dominant

Plant B X tt 3
 mark
 (2 for work and 1 for reason)

Unknown t t

	t	t

If two off-springs are tall (heterozygous) and the other two are short (homozygous recessive) then the unknown parent is heterozygous

Answer for question 8

When blood glucose level rises	Insulin	Glycogen
1	/	
2		/
3	/	
4		/

4 marks

B- Islet of langerhans

1 mark

C- i- Endocrine glands

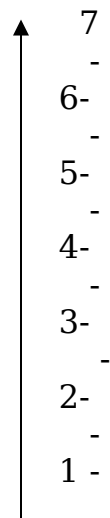
2 marks

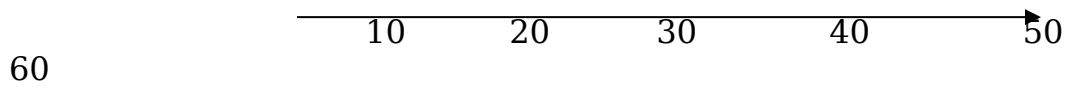
ii- Because thy secrete hormones directly to the blood stream

answer Question 9

A-

3marks





B-

1-As the temperature increases the enzyme activity is also increasing 2 mark

2-i-The enzyme activity decreases
1 mark

ii- Because enzyme has been denatured
2 marks

3- 40 oC
1 mark

4- Optimum temperature
1 mark