SAMPEL PERCUMA

Trial STPM 2021 Biologi Semester 1 Terengganu

Set penuh: Kertas Percubaan STPM

Sem 1 · Biologi

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- 3 fail PDF
- Semester 1: kertas percubaan (trial) negeri, subjek yang dipilih + skema
- Blueprint 30 hari Semester 1 (setiap subjek)
- Semester 3: percubaan 2024, 10 subjek, banyak negeri, soalan + skema dalam satu fail

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JABATAN PENDIDIKAN NEGERI TERENGGANU

STPM 2021

PEPERIKSAAN PERCUBAAN SEMESTER 1

BIOLOGY

964/1

Nama :.....

Kelas :.....

DISEDIAKAN OLEH PANEL AKRAM NEGERI TERENGGANU

Tidak dibenarkan menyunting atau mencetak mana-mana bahagian dalam modul ini tanpa kebenaran Pengarah Pendidikan Negeri Terengganu

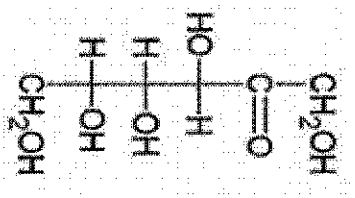
Section A [15 marks]

Answer **all** questions in this section.

1 Which property of water enables water strider @ water skipper bug to wail on its surface ?

A Bipolar
B Low viscosity
C High cohesion
D High adhesion

2



Structure A



Structure B

Which statement explains why structure A is soluble in water while structure B is insoluble in water ?

	Structure A	Structure B
A	Exists in ring form	Exists in linear form
B	Contains polar group	Does not contain polar group
C	Does not have double bonds	Has double bonds
D	Has higher carbon to hydrogen ratio	Has lower carbon to hydrogen ratio

3 What would happen to a protein during electrophoresis when the pH of the buffer solution used is below its isoelectric point?

A The protein does not move
B The protein moves towards the anode
C The protein moves towards the cathode
D The protein moves towards the anode and then to the cathode

4 Chromatins in a nucleus are a type of conjugated protein. Chromatin consists of long DNA strands coiled around at some protein.
What is the name of protein bound to DNA in chromatins?

A Histone
B Nucleolus
C Chromosome
D heterochromatin

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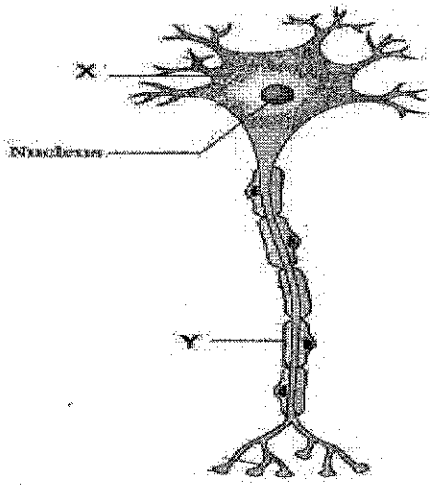


Diagram 1

What the function of X and Y in the diagram above?

	X	Y
A	Synthesise lipid	Generate impulse
B	Synthesise protein	Electrical insulator
C	Store calcium ions	Speeds up the transmission of impulses
D	Generate energy	Conducts impulses away from the cell body

6

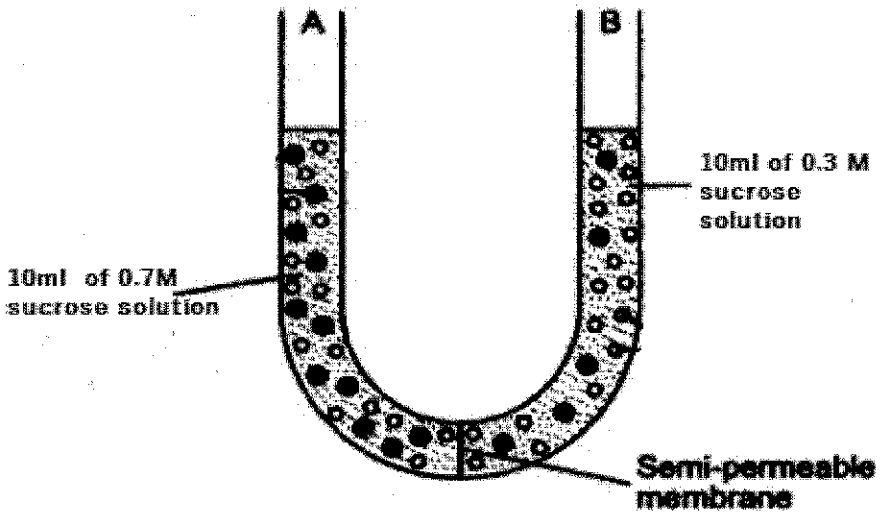


Diagram 2

The initial level of sucrose solutions which are separated by a semi-permeable membrane in a U-tube is shown in the diagram 2.

What happens to the sucrose solutions after they are left for 60 minutes ?

I Water moves from A to B
II The solution level at B decreases
III The molarities of both sucrose solutions are equal
IV The high osmotic pressure causes the sucrose to move from A to B

Which one of the following sequences is correct for the formation of molecules in payoff phase in glycolysis?

A III, IV, I, II
B IV, III, II, I
C I, III, IV, II
D IV, III, I, II

10 Which is the metabolic intermediate in aerobic metabolism of glucose and fatty acids ?

A Citrate
B Pyruvate
C Acetyl CoA
D Glyceraldehyde-3-phosphate

11 Why animal cells are unable to carry out alcohol fermentation ?

A Do not have enzymes to convert pyruvate into acetyldehyde
B Are unable to withstand the accumulation of alcohol in the cells
C Do not have vacuoles to accommodate the acetyldehyde produced
D Are active cells thus, the cells require energy from lactate fermentation

12 The diagram 3 shows an overview of cellular respiration

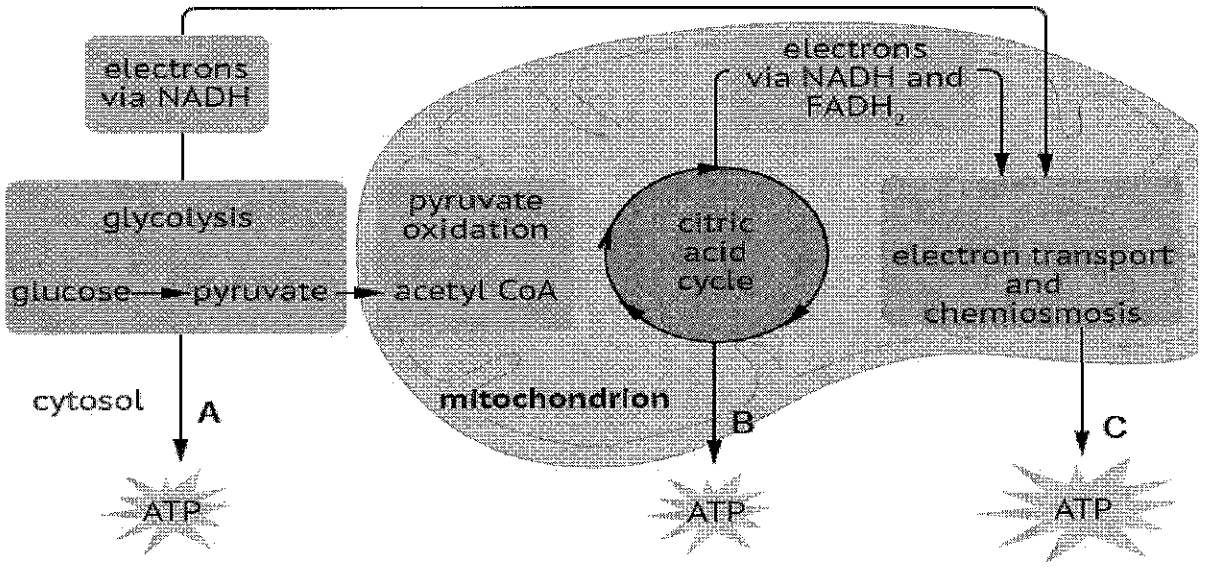


Diagram 3

* This question paper is CONFIDENTIAL until the examination is over. CONFIDENTIAL*

Which of the following modes of ATP synthesis at A, B and C are true ?

	A	B	C
A	Oxidative phosphorylation	Substrate-level phosphorylation	Oxidative phosphorylation
B	Oxidative phosphorylation	Oxidative phosphorylation	Substrate-level phosphorylation
C	Substrate-level phosphorylation	Oxidative phosphorylation	Substrate-level phosphorylation
D	Substrate-level phosphorylation	Substrate-level phosphorylation	Oxidative phosphorylation

13 Diagram 4 shows non-cyclic photophosphorylation during the light reaction of photosynthesis.

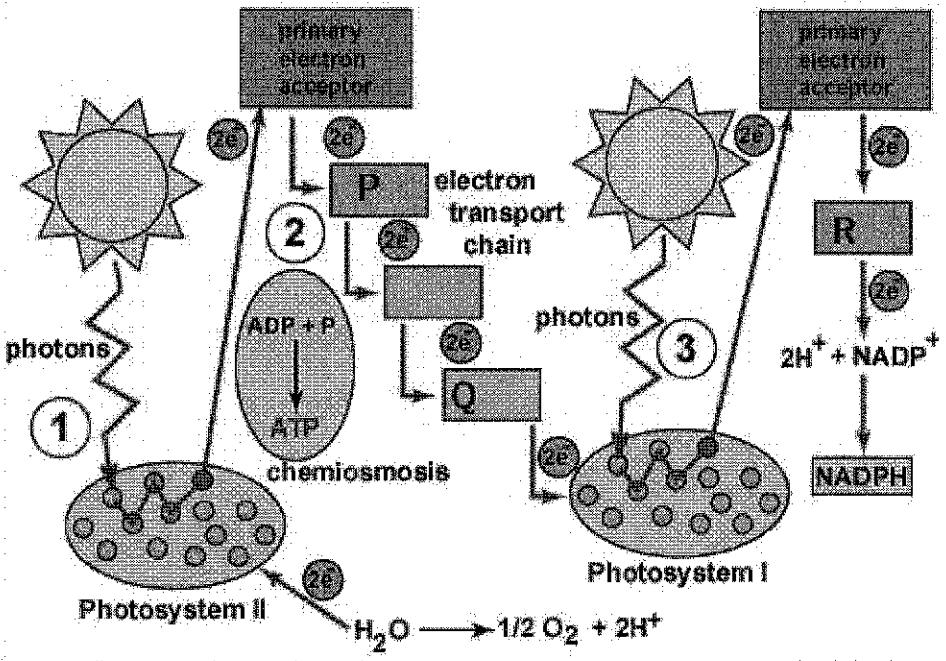


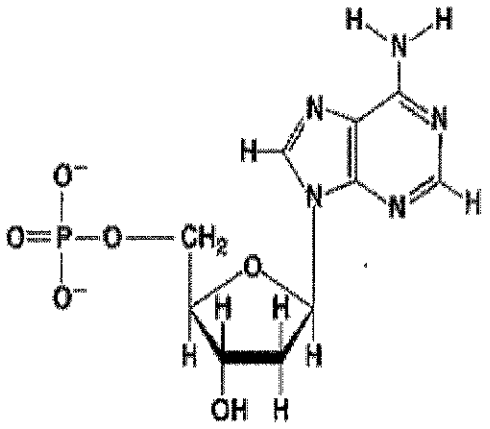
Diagram 4

Which of the following P, Q and R represent ?

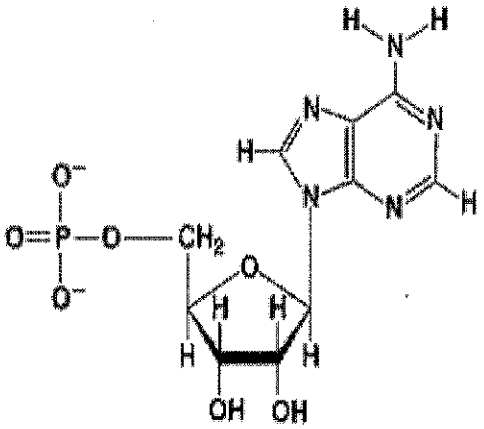
	P	Q	R
A	Ferredoxin	Plastoquinone	Plastocyanin
B	Ferredoxin	Plastocyanin	Plastoquinone
C	Plastocyanin	Plastoquinone	Ferredoxin
D	Plastoquinone	Plastocyanin	Ferredoxin

Section B [15 marks]
*Answer **all** questions in this section*

16 Diagram below shows the basic units of nucleic acids.



A



B

(a) (i) Name molecule A and B

[2 marks]

A: .....

B: .....

(ii) State two differences between molecule A and B

[2 marks]

.....

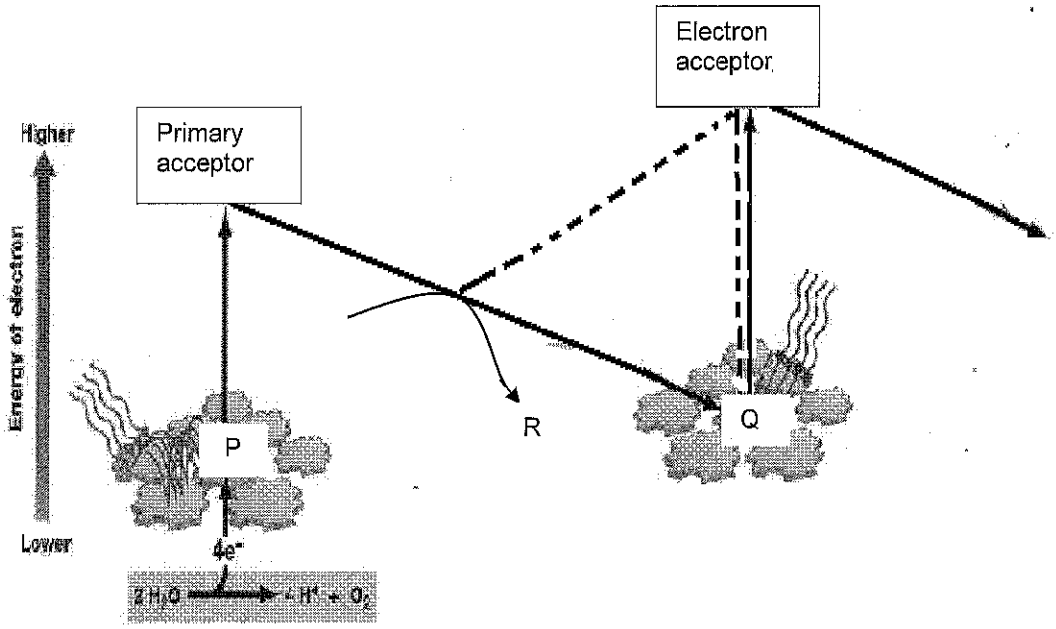
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17 The diagram below shows photophosphorylation in light reaction



(a) State the location of structure P and Q in chloroplast.

[1 mark]

.....

(b) Identify each pathway represent by the following lines

[2 marks]

(i) ⟶ .....

(ii) ⇢ .....

(c) State the products of the pathway named in b (i)

[1 mark]

.....

MARKING SCHEME TRIAL YEAR BIOLOGY PAPER 1 STPM 2021

SECTION : A		
No	**ANSWER**	**EXPLANTION**
1	**C**	The uneven charge distribution in water molecules causes the dipolar property of water, due to this hydrogen bonds which can form, they tend to stick together. This phenomenon is called cohesiveness of water molecules. These cohesive forces produce a high surface tension on the suface of water and enable insects to walk on water
2	**B**	Structure A is Fructose while Structure B is Oleic acid. Fructose is a monosaccharide and contains OH group which makes it a polar molecule
3	**C**	The isoelectric point is the pH at which the amino acid does not move in an electric field. This means it is the pH at which an amino acid is neutral. Above the isoelectric point, a protein molecule carries a net negative charge and moves to the anode. Below the isoelectric point, a protein molecule become positively charged and moves towards the cathode
4	**A**	
5	**B**	
6	**C**	
7	**C**	Y is equal to $1/V_{max}$. $Y = 0.5 \times 10^3$ mol^{-1} Therefore , $1/V_{max} = 0.5 \times 10^3$ mol^{-1} $\therefore V_{max} = 2 \times 10^{-3}$ mol.
8	**D**	
9	**D**	Sequences in formation of molecules in payoff phase in glycolysis is Glyceraldehyde 3- phosphate, 1,3-Bisphosphoglycerate, 3-Phosphoglycerate, Phosphoenolpyruvate
10	**C**	
11	**A**	Alcoholic fermentation is an anaerobic respiratory pathway that occurs in yeast cells.
12	**D**	A and B are substrate-level phosphorylation while C is oxidative phosphorylation
13	**D**	The electron flow through photosystem II is, therefore as follows : P680 ~ Q ~ plastoquinone ~ cytochrome f ~ plastocyanin
14	**D**	In the C_4 pathway, CO_2 from the atmosphere enters through the stomata into the mesophyll cells and combines with PEP, this reaction is catalysed by PEP carboxylase and oxaloacetate is formed. Oxaloacetate is converted to malate which is then shunted into the bundle sheath cell. Malate is decarboxylated and pyruvate is formed.
15	**B**	Maize is C_4 plants. The first fixation of CO_2 occurs in the mesophyll cells. CO_2 is fixed by phosphoenolpyruvate and is catalysed by phosphoenolpyruvate carboxylase. The first product formed where the carbon is incorporated into is oxaloacetate

TAMAT SAMPEL

Suka sampel ini?

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