

Summative Assessment (Ujian Akhir Sesi Akademik)

Marks

100

[Time: 2 hours]

SECTION A

[20 marks]

- 1 Which of the following habitats is suitable for polar bears?
- A Temperate climates
 - B Desserts
 - C Tundra
 - D Tropical rainforests

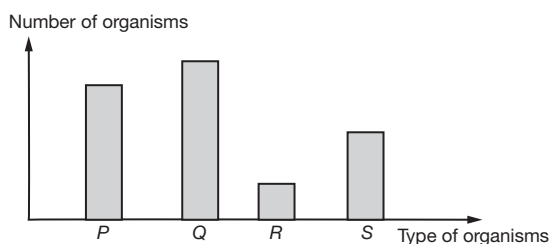
- 2 The diagram shows two animals from two different classes.



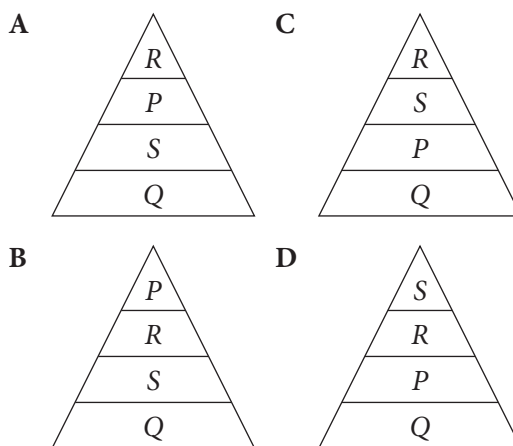
What are the similarities between the two organisms?

- A Have scales and are cold-blooded
 - B Have dry scales and hairs
 - C Lay eggs and have lungs
 - D Have lungs and warm-blooded
- 3 Which of the following groups of animals is classified as invertebrates?
- A Eel, centipede, grasshopper
 - B Leech, snail, fish
 - C Grasshopper, jelly fish, dragonfly
 - D Spider, lobster, snake
- 4 Which of the following human activities cause disruption in the nutrient cycle?
- I Recycling
 - II Deforestation
 - III Burning of fossil fuels
 - IV The use of chemical fertilisers
- A I, II and III
 - B I, II, and III
 - C II, III and IV
 - D I, II, III and IV

- 5 The graph shows the number of organisms P, Q, R and S in a habitat.

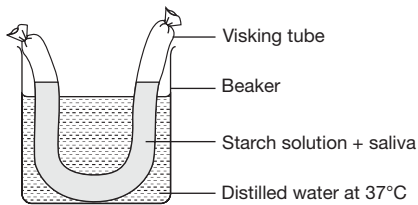


Which pyramid of numbers correctly represents the populations of the organisms in the habitat?



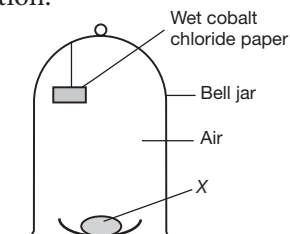
- 6 Which of the following is a healthy lifestyle practice to overcome obesity?
- I Exercising regularly
 - II Drinking more water
 - III Not getting enough sleep
 - IV Eating less fatty food
- A I and II
 - B II and III
 - C III and IV
 - D I and IV

- 7 The diagram shows an apparatus set-up to investigate the absorption of digested food.



What does the Visking tube represent?

- A Large intestine
 B Small intestine
 C Mouth
 D Kidneys
- 8 Which substance is **not** absorbed in the small intestine?
 A Fibre
 B Glucose
 C Fatty acids
 D Mineral salts
- 9 Diseases **not** spread by mosquitoes include
 I Zika fever
 II dengue fever
 III leptospirosis
 IV SARS
 A I and II
 B I and III
 C II and III
 D III and IV
- 10 Which of the following diseases is an infectious disease?
 A Influenza
 B Cancer
 C Cardiovascular disease
 D Hypertension
- 11 The diagram shows the apparatus set-up to study the effects of humidity on the rate of evaporation.

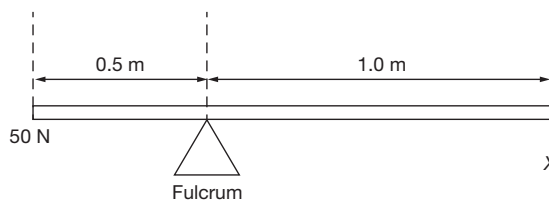


Substance X changes the colour of blue cobalt chloride paper to pink. What is substance X?

- A Water
 B Silica gel
 C Sodium chloride
 D Sodium hydroxide
- 12 Which of the following statements about water purification is **not** true?
 A Boiling kills microorganisms
 B Filtration removes dissolved substances
 C Distillation produces pure water
 D Chlorination does not remove dissolved mineral salts
- 13 Which of the following is the characteristic of acids?
 A Have pH values of more than 7
 B Have a bitter taste
 C Have a slippery texture
 D Change blue litmus paper to red

- 14 A $40\ \Omega$ resistor connected in parallel with another $40\ \Omega$ resistor would have an effective resistance of
 A $80\ \Omega$
 B $40\ \Omega$
 C $20\ \Omega$
 D $0.05\ \Omega$

- 15 The diagram shows a balanced lever system.



What is the value of load X?

- A 10 N
 B 20 N
 C 25 N
 D 60 N
- 16 Which of the following applies the principle of air pressure?

P: Filter funnels
 Q: Aerosol cans
 R: Syringes

- A P and Q
 B P and R
 C Q and R
 D P, Q and R

- 17 When a dented ping-pong ball is placed in hot water, it regains its original round shape. This is because
- A the pressure in the ping-pong ball decreases when heated
 - B the hot water has entered the ping-pong ball
 - C hot air has diffused into the ping-pong ball
 - D pressure in the ping-pong ball increases when heated

- 18 Sound waves can travel through the medium of
- A solid only
 - B liquid only
 - C gas only
 - D solid, liquid and gas
- 19 The Sun generates energy through
- A chemical reactions
 - B nuclear reactions
 - C hydrogen reactions
 - D supernova reactions
- 20 Which of the following objects is larger than a meteoroid but smaller than a planet?
- A Comet
 - B Meteorite
 - C Meteor
 - D Asteroid

SECTION B

[20 marks]

- 1 Mark (✓) on the substances that can be removed and (X) on the substances that cannot be removed by each of the following water treatment methods.

Method	Suspended solids (Examples: Clay and sand)	Dissolved substances (Example: Mineral salts)	Microorganisms
Boiling			
Filtration			
Chlorination			
Distillation			

[4 marks]

- 2 (a) Write the class of food that corresponds to each of the following functions.

Food class	Function
(i)	Repairs damaged tissue and is important for growth
(ii)	Supplies energy to the body

[2 marks]

- (b) Match the following minerals to the correct functions.

Mineral	Function
Calcium	To form haemoglobin
Iron	To form healthy skin
	To form strong bones and teeth

[2 marks]

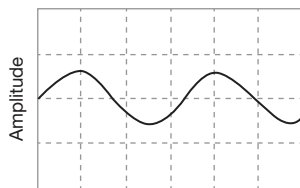
3 (a) Underline the correct answers for the following statements.

(i) Marble tiles are good (reflectors , absorbers) of sound.

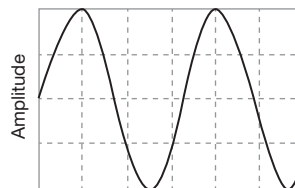
(ii) Curtains are good (reflectors , absorbers) of sound.

[2 marks]

(b) Write in the space provided which wave pattern produces a loud sound and a soft sound.



(i)



(ii)

[2 marks]

4 State whether the following statements are **True** or **False**.

Statement	True/False
(a) H1N1 is an infectious disease	
(b) Hypertension is an infectious disease	
(c) SARS is transmitted through touch	
(d) Antigens destroy antibodies	

[4 marks]

5 Underline the correct answers.

(a) When a solute is added to a solvent, a (solution / suspension) is formed.

(b) A substance that does not dissolve in a solvent forms a (solution / suspension).

(c) Suspensions appear (cloudy / clear) because particles that do not dissolve spread throughout the solvent.

(d) (Solutions / Suspensions) allow light to pass through them.

[4 marks]

SECTION C

[60 marks]

1 The diagram shows the nutritional facts of a type of snack eaten regularly by a teenager.



Nutritional facts

Each 30 g serving contains 350 calories

% daily value

Total fats 10 g = 20%

Saturated fats 10 g = 10%

Sodium 280 mg = 8%

Carbohydrate 15 g = 5%

(a) What is your opinion about the nutritional facts of the snack? Justify your opinion.

HOTS

[2 marks]

(b) (i) What are the consequences on the health of the teenager who consumes the snack regularly?

[2 marks]

(ii) Suggest **an** alternative snack that would be more suitable for the teenager if he likes eating snacks.

HOTS

[2 marks]

(c) What suggestions can you give to an obese teenager that intends to lose weight?

HOTS

[3 marks]

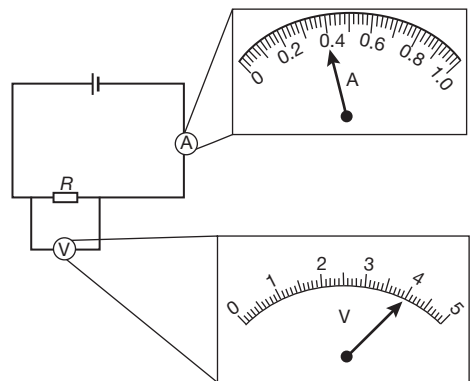
(d) Why is it important to maintain an ideal weight?

[1 mark]

2 An electrical circuit is connected to investigate the resistance of resistor R as in the diagram.

(a) (i) State the type of circuit used to connect the voltmeter.

[1 mark]



(ii) State the values of current and voltage in the diagram.

Current: _____ A

Voltage: _____ V

[2 marks]

(iii) Calculate the resistance value in the diagram using the formula $R = \frac{V}{I}$

[2 marks]

- (b) Another experiment investigates the effects of the thickness of copper wire on the resistance value.

HOTS

The results of the investigation are recorded in the following table.

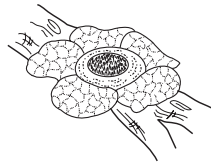
The thickness of the copper wire (cm)	The reading of ammeter (A)	Resistance (Ω)
0.5	0.5	8.0
1.5	1.3	5.0

The bulb that is connected to the thin copper wire lits up dimly as compared to the bulb that uses the thick copper wire when both bulbs are supplied with the same current for the same duration of time.

Based on the table, explain the situation.

[3 marks]

- 3 In a balanced ecosystem, living organisms interact with one another. The diagram shows two examples of interactions between organisms.



Interaction 1



Interaction 2

- (a) Suggest the type of interaction shown in the diagram.

Interaction 1: _____

Interaction 2: _____

[2 marks]

- (b) What will happen to the host in interaction 1?
Explain your answer.

[2 marks]

- (c) Ducks are sometimes seen in paddy fields with a large population of snails. How can ducks reduce the snail population? Explain your answer.

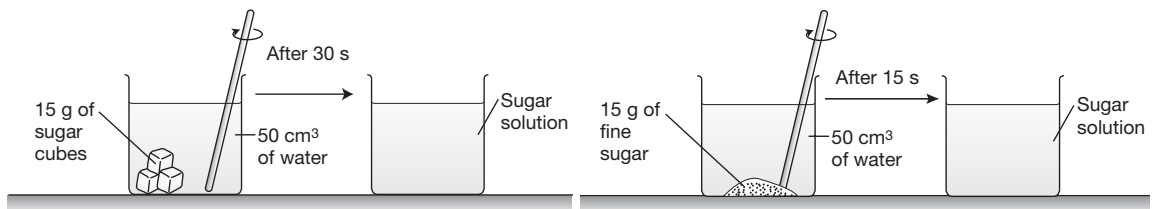
[2 marks]

- (d) State **two** other ways that can be used by farmers to reduce the population of snails in paddy fields.

1. _____
2. _____

[2 marks]

- 4 (a) The diagram shows the apparatus set-up that a student used to investigate how the size of sugar particles affects the solubility rate of the sugar.



- (i) State **one** observation based on the diagram.

_____ [1 mark]

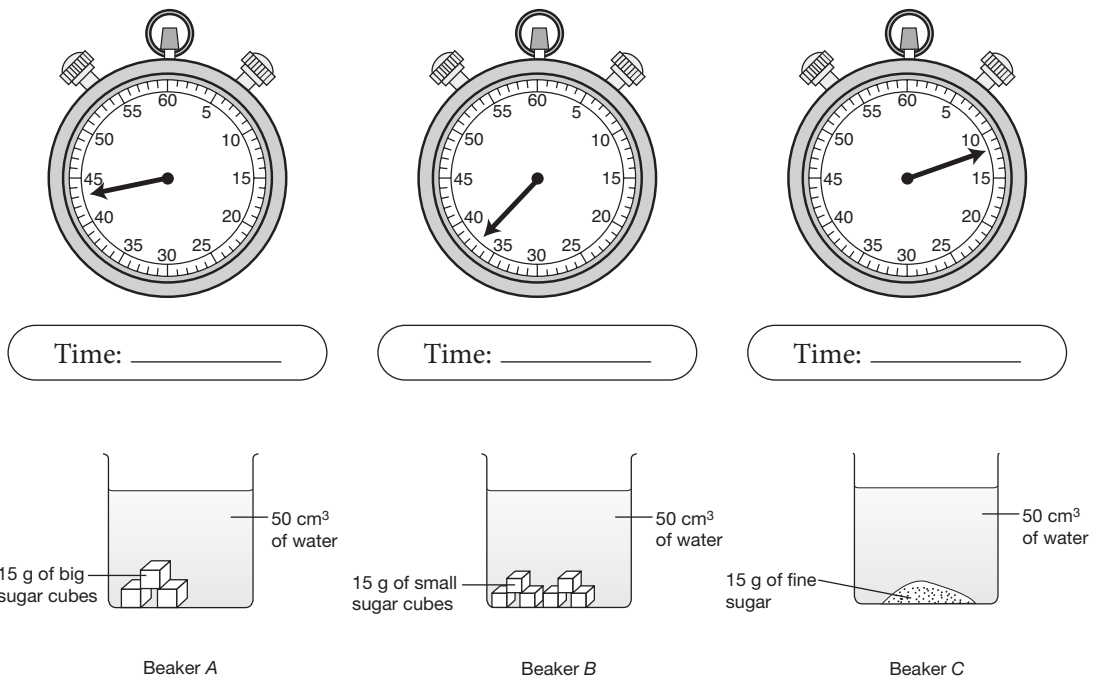
- (ii) What inference can be made based on the observation in (a)(i)?

_____ [1 mark]

- (iii) State **one** hypothesis for this experiment.

_____ [2 marks]

- (b) Another student repeats the experiment using three different sizes of sugar particles. The following diagram shows the results of the investigation.



Build a table to record the time taken for all the sugar in all three beakers to dissolve completely.

[4 marks]

- (c) Amin wants to make salt water. Besides using fine salt, what can Amin do to dissolve the salt faster?

[2 marks]

- 5 On a hot day, Aini made some lemon juice for her family.

- (a) (i) State **one** characteristic of lemon juice.

[1 mark]

- (ii) State the observation obtained if the lemon juice is tested with moist blue litmus paper.

[1 mark]

- (b) Aini left a glass of fresh milk on the table in the morning. In the evening, Aini found that the milk had turned sour and lumpy.

HOTS

If in the morning the fresh milk has a pH of 6.5, predict the pH of the milk in the evening. Explain your answer.

[3 marks]

- (c) Zara wants to make pickled mangoes. First, she slices the mangoes into thin pieces. Then, she puts the sliced mangoes into a glass bottle and adds some vinegar.

HOTS

- (i) Explain why Zara slices the mangoes into thin slices.

[2 marks]

- (ii) Explain why Zara uses a glass bottle instead of an aluminium tin to keep her pickled mangoes.

[2 marks]

- (iii) State **an** advantage and **a** disadvantage of using vinegar.

[3 marks]

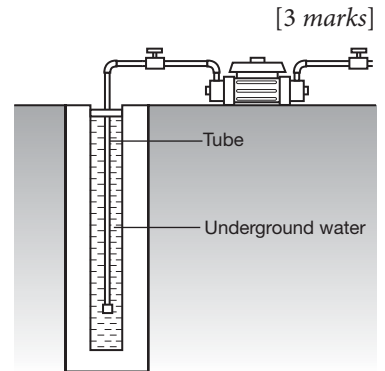
- 6 Water is essential for life. However, in many parts of the world, clean water is scarce.

- (a) The following table shows the pH values of water and suspended solids collected from different sampling areas.

Sampling area	pH value	Suspended solids (mg/ml)
A	5.3	45
B	6.5	14
C	6.8	3

Based on the table, suggest the best sampling area to collect water for daily use. Explain your answer.

- (b) **HOTS** An engineer suggests using a tube well to help villagers facing problems obtaining clean water for domestic use and irrigation. The diagram shows a tube well. It consists of a long tube bored into the ground. A pump is used to pump water from underground.



Do you think using a tube well is a good idea to solve the water problem and improve the livelihood of the villagers? Justify your answers.

- (c) **HOTS** During an expedition, you ran out of drinking water. You found a stream but the water is muddy and not drinkable. Using an empty mineral water, a knife, gravel, coarse sand, fine sand, charcoal, rubber and cloth, design **an** apparatus to filter the water. Draw your design in the space below.

Design:

Explanation:

[5 marks]