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Name

Class			
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Index Number		
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BROADRICK SECONDARY SCHOOL

SECONDARY 2 NORMAL TECHNICAL

END-OF-YEAR EXAMINATION 2019

SCIENCE

Additional Materials: Multiple Choice Answer Sheet

October 2019
1 hr 30 minutes

READ THESE INSTRUCTIONS FIRST

This paper consists of two sections. Answer **all** questions.

Section A

For each question there are four possible answers **A, B, C** and **D**.

Choose **one** you consider correct and shade the answer in the OTAS sheet provided.

The total marks for this section is 40.

Section B

Write in dark blue or black pen.

You may use a pencil for any diagrams or graphs.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Write your answers in the spaces provided in the question paper.

The number of marks is given in brackets [] at the end of each question or part question.

The total of marks for this section is 60.

For Examiner's Use
100

Setter: Mr Sheikh Farid A K

Section A (40 marks)

Answer all questions on the OTAS sheet provided.

- 1 Which of the following does **not** cause water pollution?
- A Oil spills
 - B Using fertilisers
 - C Treatment of sewage
 - D Dumping of rubbish into rivers and seas
- 2 If a town is built too near a factory, which of the following may affect its water supply?
- A fertilisers
 - B pesticides
 - C recycled water
 - D toxic chemicals
- 3 A lake is found to be overgrown with greenish algae.
What is the possible explanation for this?
- A The air pollutants affected the water in the lake.
 - B The litter in the lake caused the growth of the algae.
 - C Chemical fertilisers from a farm were washed into the lake.
 - D Chemical waste from a nearby factory caused the growth of the algae.
- 4 Why do oil spills cause fish and other organisms in the water to die?
- A The oil changes the colour of the water.
 - B The oil encourages the growth of bacteria.
 - C The oil encourages the growth of seaweed.
 - D The oil decreases the amount of oxygen in the water.

- 5 Which of the following is **not** an effect of acid rain?
- A Acid rain kills germs and bacteria.
 - B Trees die gradually because of a loss of nutrients in the soil.
 - C Acid rain corrodes metal and stone, resulting in damaged buildings and statues.
 - D Fishes and plants in the water are killed by acid rain which flows into rivers and lakes.
- 6 Which of the following substances dissolve in rain water to form acid rain?
- A Oxygen
 - B Nitrogen
 - C Hydrogen
 - D Sulfur dioxide
- 7 Where are the bacteria causing diseases like typhoid and cholera usually found ?
- A sewage
 - B oil spills
 - C acid rain
 - D fertilisers
- 8 Which of the following is true about all air pollutants?
- A They are gases that warm the environment only
 - B They are gases that are difficult to detect in the environment
 - C They are solid particles that have pungent smell and are harmful to man
 - D They are solid particles/gases that cause harm to both the environment and man

- 9 Air is needed for daily activities. However, our daily activities are polluting the clean air that we need.

Which one of the following activities makes our lives more convenient but also causes air pollution?

- A Cycling
- B Driving
- C Drinking
- D Smoking

- 10 Which of the following activities help to reduce air pollution?

- I Use motorcycles more often
- II Use CFC-free products
- III Recycle cans, bottles and paper
- IV Plant trees and stop deforestation

- A I and II only
- B II and III only
- C II, III and IV only
- D I, II, III and IV only

- 11 When the air pollution index hits 250, there would be many solid particles suspended in the air that are harmful to our health.

Which of the following actions **best** prevents us from inhaling these particles?

- A Use a mask with a suitable filter size.
- B Cover our mouth and nose with a handkerchief.
- C Spray air freshener in the room to purify the air.
- D Stay indoors and open all windows and doors for ventilation.

- 12 Which of the following **correctly** describes cells?
- A Cell is the basic unit of all living things.
 - B All cells in the human body have the same function.
 - C A large number of similar cells work together to form an organ.
 - D All cells in the human body contain a nucleus, cell membrane and cytoplasm.
- 13 Which part of the cell structure controls substances entering or leaving the cell?
- A nucleus
 - B cell wall
 - C cytoplasm
 - D cell membrane
- 14 Which of the following is **not** true of a red blood cell?
- A A red blood cell has a cell wall.
 - B A red blood cell transports oxygen.
 - C A red blood cell is circular biconcave.
 - D A red blood cell contains a red pigment.
- 15 Which of the following organs is **not** part of the human alimentary canal?
- A Liver
 - B Gullet
 - C Stomach
 - D Small intestine

16 Which of the following pairs of food groups need to be digested before they can be absorbed into the bloodstream?

- A Fats and proteins
- B Vitamins and starch
- C Vitamins and proteins
- D Proteins and mineral salts

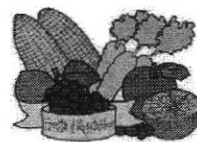
17 Which of the following food gives the **best** source of vitamin C when consumed?

A

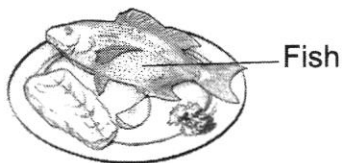


B

Fruits and
vegetables



C



D

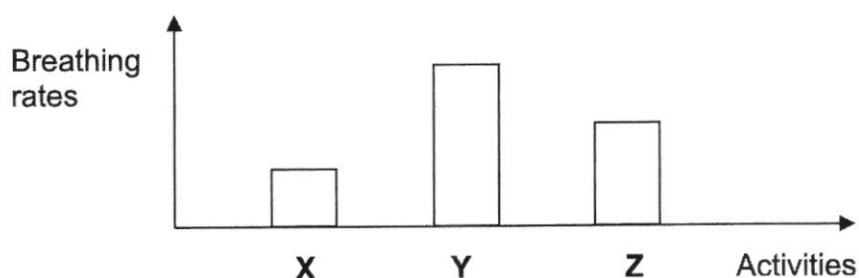
Chicken
wings



18 Which of the following processes will occur if the large intestine is **removed** from the digestive system?

- A Less water is reabsorbed.
- B Less fibre is broken down.
- C More carbohydrates is digested.
- D More fats are found in the faeces.

- 19 The graph below shows the breathing rates of Eric doing 3 different activities.



Which of the following activities **correctly** matches Eric's breathing rates based on the bar chart above?

	X	Y	Z
A	Jogging	Walking	Sitting
B	Sitting	Walking	Jogging
C	Sitting	Jogging	Walking
D	Walking	Sitting	Walking

- 20 David often suffers from constipation.
Which nutrient should he add to his diet to prevent this condition?

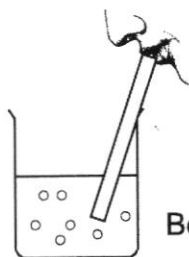
- A Proteins
- B Vitamins
- C Dietary fibre
- D Mineral salts

- 21 Food that is digested will be absorbed into the body.
What happens to the food that is undigested?

- A It is stored in the rectum.
- B It is stored in the small intestine.
- C It is further broken down in the large intestine.
- D It is left in the stomach to be dissolved by the strong acid.

- 22** Amy had a buffet dinner consisting of a variety of food.
What is the path taken by the food when it enters her body?
- A** Gullet → Small intestine → Stomach → Large intestine
 - B** Gullet → Stomach → Small intestine → Large intestine
 - C** Gullet → Stomach → Large intestine → Small intestine
 - D** Gullet → Small intestine → Large intestine → Stomach
- 23** Paul has a condition which causes difficulty in swallowing because one part of his digestive system is **not** functioning well. To obtain nutrients, he is given liquid food through a tube which goes directly into his stomach.
Which part of Paul's digestive system is **not** working?
- A** Anus
 - B** Gullet
 - C** Stomach
 - D** Large intestine
- 24** A dish containing rice, vegetable, fish and a slice of butter are consumed together.
Which one of the following food is digested **first** when it enters the digestive system?
- A** fish
 - B** rice
 - C** butter
 - D** vegetable

- 25** Soy tofu is a major source of protein. When consumed, at which part(s) of the digestive system will the fish be chemically broken down?
- I** Mouth
 - II** Stomach
 - III** Small intestine
 - IV** Large intestine
- A** I only
- B** I and III only
- C** II and III only
- D** III and IV only
- 26** Which of the following gases are products of respiration?
- A** Water vapour and oxygen
- B** Nitrogen and water vapour
- C** Carbon dioxide and hydrogen
- D** Carbon dioxide and water vapour
- 27** Fatimah exhaled air into some limewater as shown in the diagram below.



Beaker containing clear limewater

She observed that the clear limewater turned cloudy.
Which of the following gases present in exhaled air caused this change?

- A** Oxygen
- B** Nitrogen
- C** Water vapour
- D** Carbon dioxide

- 28** In which part of the male reproductive system are sperms produced?
- A** Urethra
 - B** Penis
 - C** Sperm duct
 - D** Testes
- 29** How many days after ovulation does menstruation occur?
- A** 1 – 5
 - B** 6 – 10
 - C** 11 – 18
 - D** 19 - 28
- 30** Which of the following is a reason why some people use facilitated reproduction?
- A** cheap and easy to use
 - B** unable to get pregnant naturally
 - C** to prevent pregnancy from occurring
 - D** to have more babies
- 31** What is the main disadvantage of a permanent birth control method such as ligation?
- A** It cannot be reversed.
 - B** It can cause sexually transmitted disease.
 - C** It is cheap and dangerous.
 - D** It is not very effective.

- 32** Which of the following is a sexually transmitted disease caused by a virus?
- A** AIDS
 - B** gonorrhea
 - C** syphilis
 - D** tuberculosis
- 33** What is the meaning of abstinence?
- A** It is to use protection during sexual intercourse.
 - B** It is to avoid having sex.
 - C** It is to have sex at the right time to have the best chance at pregnancy.
 - D** It is to stay faithful to one sexual partner only
- 34** Which of the following might be a reason for someone to abuse drugs?
- A** They want to reduce some weight to look good.
 - B** They are pressured by their peers and friends.
 - C** The drugs are very tasty to consume.
 - D** The drugs are easily available at the supermarket.
- 35** How might drugs affect the mind of a drug abuser?
- A** It can cause depression and hallucinations
 - B** It can cause brain cancer
 - C** It can cause relaxation
 - D** It can cause brain infection

36 Which of the following organs is damaged by alcohol abuse?

- A** liver
- B** intestines
- C** testis
- D** mouth

37 Which of the following is **not** a poisonous chemical that is found in cigarettes?

- A** carbon monoxide
- B** tar
- C** nicotine
- D** sulfur dioxide

38 Which of the following is **not** a good way to stop smoking?

- A** learn the bad effects of smoking
- B** keep away from people who encourages you to smoke
- C** take up healthy activities such as sports
- D** do not socialise when you are outside of your home

39 What is passive smoking?

- A** It is smoking without moving around from place to place
- B** It is inhaling the smoke produced by other smokers
- C** It is smoking in an enclosed area
- D** It is forcing others to smoke as well

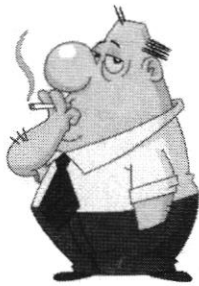
40 Which of the following shows a healthy lifestyle?



A



B



C



D

Section B (60 marks)

Answer **all** questions in the spaces provided.

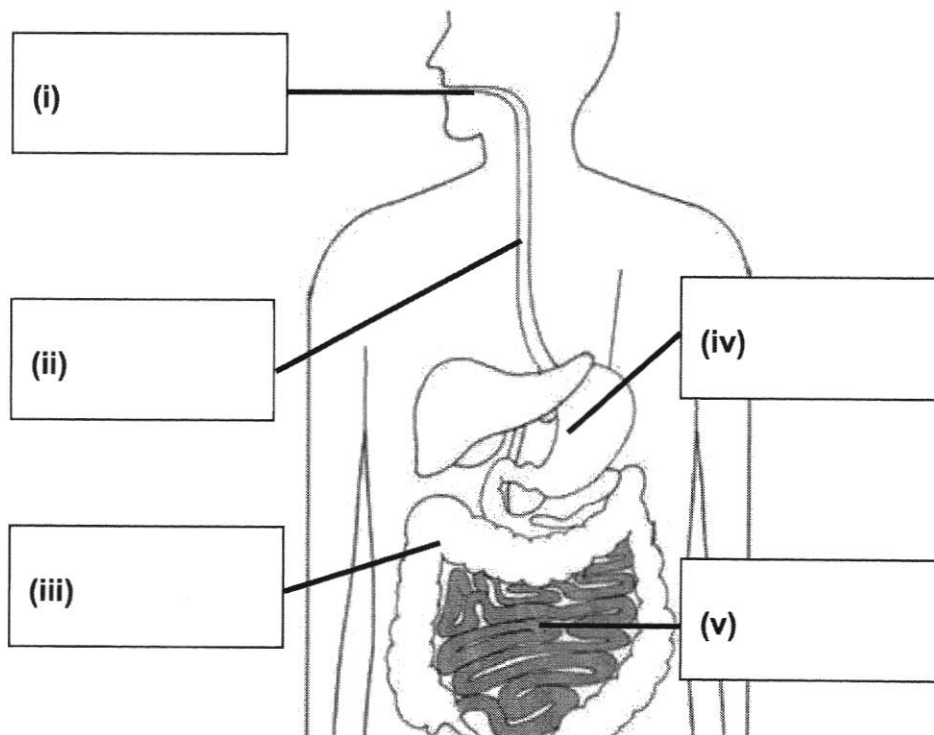
- 1 Use the helping words or phrases provided below to answer **(a)** and **(b)**.

You may use the words once, more than once, or not at all.

absorbs digestive enzymes faeces
 large Intestine mineral salts mouth oesophagus
 respiratory stomach small intestine

- (a)** Digestion only takes place in the mouth, [6]
 and Chemical substances calledincrease
 the speed of digestion. Digestion does not take place in the big intestine.
 It only water and Solid
 waste called is also formed here. It leaves the body
 through the anus.

- (b)** Label the parts of the digestive system in the boxes below. [5]



- 2 (a) Classify the following into harmful drug, useful drug and inhalant. [3]

antibiotics	cocaine	thinner
ecstasy	glue	paracetamol

Harmful Drugs	Useful Drugs	Inhalant

- (b) Give a reason why people take harmful drugs. [1]

.....

- (c) Name **one** way to prevent a person from abusing drugs. [1]

.....

- 3 (a) Suggest **one** illness or disease caused by smoking. [1]

.....

- (b) State **one** benefit other than a healthy body, a smoker can gain if he stops smoking. [1]

.....

- (c) Name **two** things that the Singapore government has done to discourage Singaporeans from smoking. [2]

1

2

4 A person who drinks alcohol and drives can get into an accident very easily.

(a) Suggest **two** ways a driver who wishes to consume alcohol can avoid accidents. [2]

1

2

(b) List **two** ways through which a person can avoid being addicted to drinking alcohol. [2]

1

2

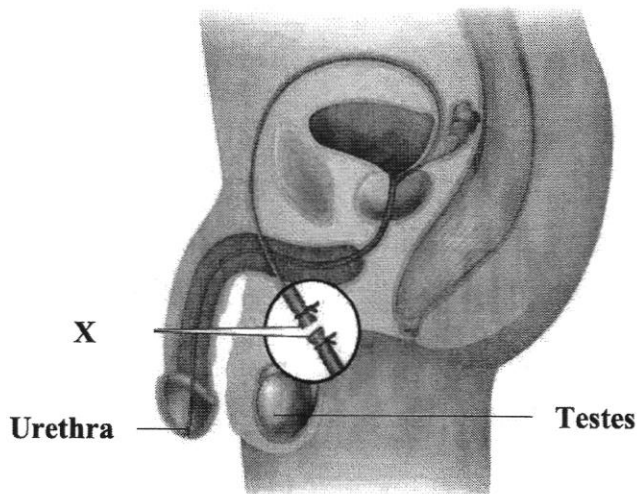
5 (a) State one temporary birth control method and how this method prevents pregnancy. [2]

.....

.....

.....

(b) The diagram below shows parts of a male reproductive system.



(i) Name the male reproductive part, Part X. [1]

.....

- (ii) How does cutting Part X prevent pregnancy? [1]

.....

- (iii) Is this birth control method permanent or temporary? [1]

.....

- (iv) State the name of the birth control method in (iii)? [1]

.....

- (c) How can one prevent the spread of sexually transmitted infections?

List down two methods. [2]

(i)

(ii)

- (d) List down two risks of abortion. [2]

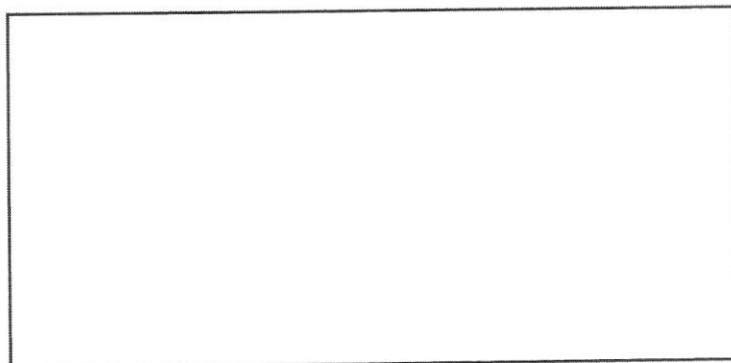
(i)

(ii)

- 6 (a) In the space provided below, draw a typical **animal** cell. Include and label the following in your drawing:

cell membrane cytoplasm nucleus

[3]



- (b)** In which part of the human cell do most of the chemical reactions take place? [1]

.....

- (c)** What is the name of the material in the nucleus which is passed down from parents to their children? [1]

.....

7 The human blood contains red blood cells and white blood cells.

- (a)** What is the function of a red blood cell? [1]

.....

.....

- (b)** What substance contained in a red blood cell enables it to perform its function? [1]

.....

- (c) (i)** Which part of a typical cell is absent in the red blood cell? [1]

.....

- (ii)** Suggest a reason why this part is absent in the red blood cell. [1]

.....

.....

- (d)** What is the function of a white blood cell? [1]

.....

.....

- 8 Fill in the blanks with the correct words from the following list. Each helping word may only be used once. [6]

increased control life processes
concerned reservoirs uses

Many countries in the world are about water pollution.

Water is a very important resource that supports all and has many in our everyday life.

It is important to prevent water pollution in Singapore as our main source of water supply comes from the Water supplies can be if we and prevent water pollution.

- 9 Inhalation of polluted air affects our breathing and may cause the development of respiratory problems.

Match each type of air pollutant to the respiratory problem that it can cause. [4]

<u>Air pollutant</u>		<u>Respiratory problem</u>	
carbon particles	☐	☐	enters our lungs and bloodstream, preventing blood from absorbing oxygen
carbon monoxide	☐	☐	found in haze which block light rays and could trigger asthmatic attacks
nitrogen dioxide	☐	☐	causes acid rain which causes irritation of our respiratory system
sulfur dioxide	☐	☐	excessive amounts make us dizzy and cause difficulty in breathing

- 10** A lifestyle survey was conducted on 4 students. The results of the survey are given below.

Student	Lifestyle choice
W	eats large amount of non-nutritious food, hardly exercises, smokes when stressed.
X	has a balanced diet, exercises 3 times a week, copes well with stress, does not smoke or abuse drugs.
Y	has a balanced diet, exercises daily, copes well with stress, smokes daily.
Z	has a balanced diet, does not exercise, experiences little daily stress.

- (a)** Which student leads the healthiest lifestyle? [1]

Student

- (b)** ABC Secondary School is having a stress management workshop to help students manage stress.

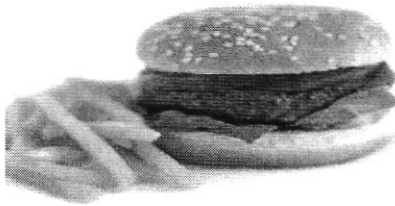
Which of the students above should go for the workshop? [1]

Student

- (c)** List two students who may have a higher risk of developing cancer and heart diseases. [2]

Student and student

- (d) Student **W** does not know what a balanced diet is. He argues that the meal in the figure below contains slices of vegetables and so it is healthy.



Explain why the meal above is **NOT** a balanced diet.

[2]

.....

.....

.....

End of Paper

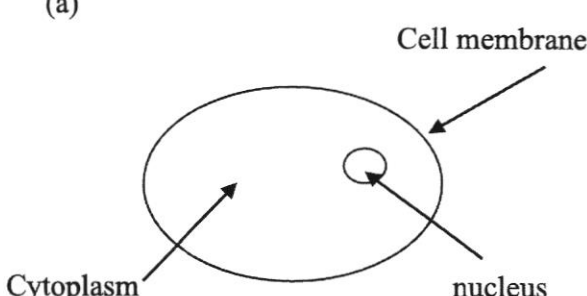
Answers to Sec 2NT Science EOY Examination 2019

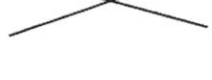
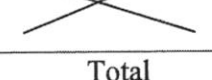
Section A (40 MCQs) 40 marks

1	C	11	A	21	A	31	A
2	D	12	A	22	B	32	A
3	C	13	D	23	B	33	B
4	D	14	A	24	B	34	B
5	A	15	A	25	C	35	A
6	D	16	A	26	D	36	A
7	A	17	B	27	D	37	D
8	D	18	A	28	D	38	D
9	B	19	C	29	C	39	B
10	C	20	C	30	B	40	A

Sec 2NT Science Section B EOY Examination 2019

Q no.	Solution	Mark	Remark
1	(a) stomach small intestine enzymes absorbs mineral salts faeces (b) mouth oesophagus stomach large intestine small intestine	1 2 2 1 1 2 2	
	Total	11	
2	(a) Cocaine antibiotics glue Ecstasy paracetamol thinner (b) They are curious, addicted, bored, etc (c) Any one reasonable way eg. educate him on the harmful effect of drug abuse.	3 1 1	
	Total	5	
3	(a) Heart disease, lung cancer, constant coughing, Mouth cancer, etc (b) Lower risk of lung cancer, heart disease, save money, no smelly fingers and good breath, etc (c) 1 no smoking in air-con room/public places 2 under-18 not allowed to buy cigarettes	1 1 1 1	
	Total	4	
4	(a) 1 ask someone else to drive 2 take public transport, eg cab, bus, mrt, etc (b) 1 avoid people who drink 2 always choose other beverages, eg water, tea, soft drink, etc	1 1 1 1	

	Total	4	
5	(a) Diaphragm/condom – prevents sperm from entering female body Contraceptive pill – prevent ovulation IUD – kills sperm and prevent fertilization Spermicide – kills sperm (b) (i) sperm duct (ii) it prevents the sperms from travelling out of the urethra (iii) permanent (iv) vasectomy (c) (i) do not share needles (ii) do not have sex with infected person /abstain from sex /have only 1 sex partner (d) (i) may not be able to conceive again (ii) damage to other organs /death due to heavy bleeding /severe abdominal pain/back pain	2 1 1 1 1 1 1	Any one
	Total	8	
6	(a)  (b) Cytoplasm (c) genes	1 1,1 1 1	
	Total	5	
7	(a) transport oxygen to all parts of the body (b) haemoglobin (c) (i) nucleus (ii) blood cell can carry more oxygen (d) To produce antibodies and fight against infection/foreign bodies	1 1 1 1 1	
	Total	5	

Q no.	Solution	Mark	Remark
8	Concerned	1	
	Life processes	1	
	Uses	1	
	Reservoirs	1	
	Increased control	1,1	
	Total	6	
9	carbon particles 	1	
	carbon monoxide 	1	
	nitrogen dioxide 	1	
	sulfur dioxide 	1	
	Total	4	
10	(a) X	1	Any 2 answers.
	(b) W	1	
	(c) W Y	1,1	
	(d) It consists of deep fried food which contains a high level of cholesterol	1	
	It has a high amount of calories /there are no fruit in this meal (accept other possible answer)	1	
	Total	6	