

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

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3. Answer ALL questions in sections A and B and ONE (1) question from section C

Write your Examination Number on every page of your answer booklet(s).

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SECTION A (20 Marks)
Answer ALL questions in this section.

1. For each of the items (i) - (x) choose the correct answer from among the given alternatives and write its letter beside the item number.

(i) Which of the following is a symptom of a person suffering from HIV/AIDS?

- A Frequent urination
- B Persistent fever
- C Stomachache
- D Sneezing
- E Paralysis

(ii) The part of the brain which co-ordinates support and movement in the human body is called

- A cerebellum
- B cerebrum
- C medulla oblongata
- D spinal cord
- E hypothalamus.

(iii) A person picks up a telephone after hearing it ringing. Which characteristics of living things is the person showing by this action?

- A Excretion and reproduction
- B Respiration and growth
- C Irritability and movement
- D Respiration and nutrition
- E Response and irritability

(iv) An enzyme is a

- A fat
- B mineral salt
- C protein
- D vitamin
- E carbohydrate.

(v) The graph below (Figure 1) shows the rate of photosynthesis of a green plant exposed to light of different colours.

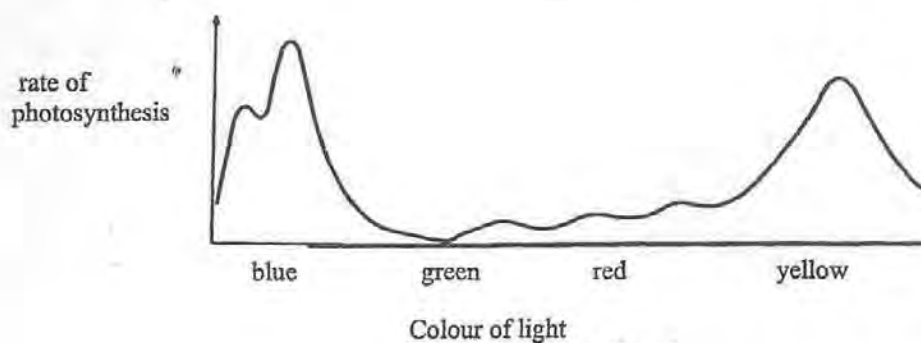


Fig. 1

In which colour of light would plants synthesise most slowly?

- A Blue
- B Green
- C Red
- D Yellow
- E A mixture of red and yellow

(vi) New plants sometimes grow from buds of parent plants. This is an example of

- A asexual reproduction
- B sexual reproduction
- C budding
- D fruit development
- E fertilization.

(vii) The chromosomes for the two sexes in human beings are

	female	male
A	YY	XY
B	XY	XX
C	XX	YY
D	XX	XY
E	X	Y

(viii) Five types of water pollution that may affect rivers are listed. Which pollutant is a pesticide?

pollutant	source of pollution	effects
A	farming	causes excessive plant growth followed by decay
B	industry	dissolves in rain, making rivers acidic
C	industry	kills water plants and fish
D	farming	poisons animals including humans
E	farming	soil erosion, flooding and drought

(ix) The diagrams below (Figure 2) show a plant cell and an animal cell. Which part makes food?

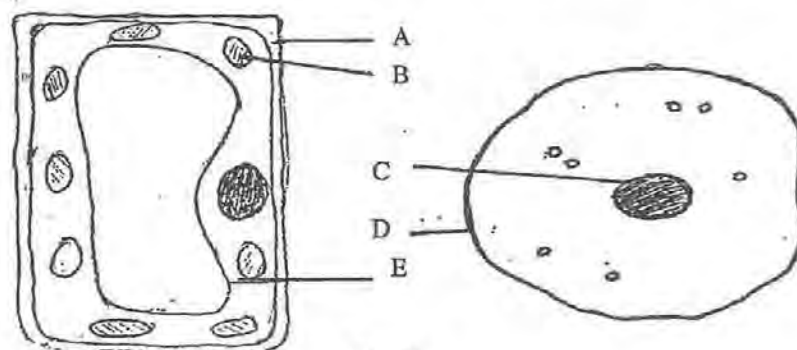


Fig. 2

- (x) The diagram (Figure 3) shows part of the digestive system and some other abdominal organs. Which one is the pancreas?

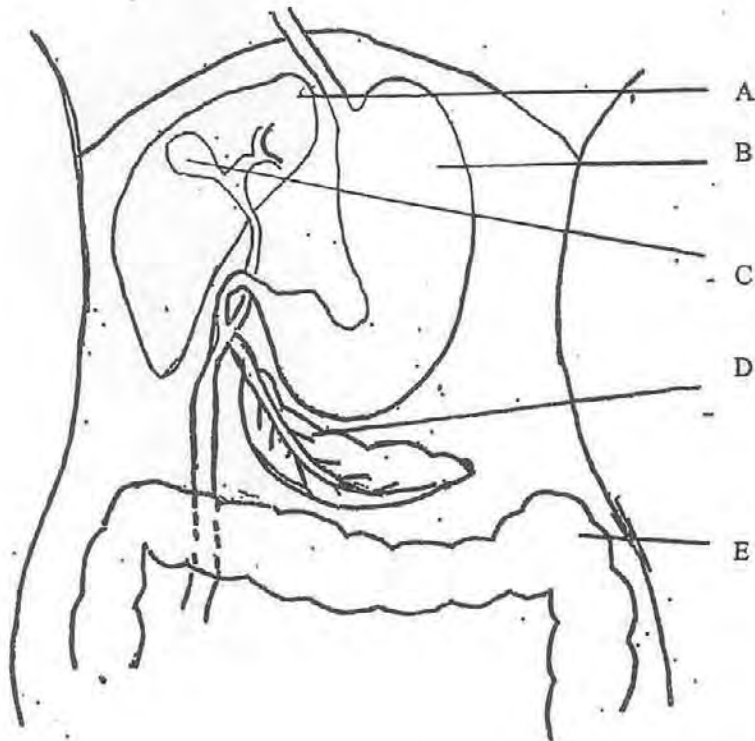


Fig. 3

2. Match the items in List A with the responses in List B by writing the letter of the correct response beside the item number.

LIST A	LIST B
(i) Prostitution	A diffusion
(ii) Classification system based on few observable features and economic values	B osmosis
(iii) A process of regulating body's internal osmotic pressure	C Larmakism
(iv) Survival of the fittest	D Darwinism
(v) Oily secretion which keeps the hair and skin soft and water proof	E hormonal disorder
(vi) Diabetes mellitus	F sebaceous gland
(vii) Movement of particles from high to low concentration	G sweat gland
(viii) Communication centre between mother and developing embryo	H endemic disease
(ix) Liquid portion of blood	I plasma
(x) $C_6H_{12}O_6 \rightarrow 2CO_2 + 2C_2H_5OH + 18\text{ kJ}$	J responsible sexual behaviour
	K irresponsible sexual behaviour
	L red blood cell
	M respiration
	N natural system
	O photosynthesis
	P artificial system
	Q umbilical cord
	R uterus
	S osmoregulation
	T homeostasis

SECTION B (60 marks)

Answer ALL questions in this section.

3. (a) What problems are likely to be associated with the farming activities listed below?
- (i) Growing cereals every year
 - (ii) Cutting down trees
 - (iii) Ploughing on land slopes or slopy land
 - (iv) Overgrazing pastures
- (b) Suggest solutions to the problems you have mentioned in (a) above. (8 marks)
4. (a) List down the secondary sexual characteristics in a
- (i) male
 - (ii) female human being.
- (b) (i) Name five parts of a female reproductive system in a human being and state the functions of each part.
- (ii) Why are young people at a greater risk of contracting sexually transmitted diseases than adults? (5 marks)
5. (a) (i) What do you understand by binomial nomenclature?
- (ii) List two advantages of scientific naming of living organisms.
- (b) A blackman, an Indian and an Aborigine are all grouped in one species, Homo sapiens. Give three reasons why they all belong to this group. (6 marks)
6. (a) (i) What is the importance of first aid kit?
- (ii) Mention four components of the first aid kit and state the functions of each.
- (b) (i) What will you do if a corrosive substance accidentally spills on your skin?
- (ii) What precaution will you take when working with inflammable (easily catch fire) substances in the laboratory? (5 marks)
7. (a) (i) Write down the chemical composition of DNA (deoxyribonucleic acid).
- (ii) Give three differences between DNA and RNA.
- (b) Colour blindness is a sex linked character controlled by a recessive gene located on the X – chromosome. Only homozygous females suffer from this condition. It is more common to males. What percentage will the males suffering from colour blindness be if a normal male marries a colour blind female? (6 marks)

8. (a) Transpiration is a wasteful process. However, it is important to plants. Explain by
- defining the term transpiration
 - stating the importance of transpiration to plants.
- (b) Mention four factors which affect the rate of transpiration. (9 marks)
9. (a) (i) Define the term evolution.
- Name two types of selection.
- (b) Re-arrange the following diagrams (Figure 4) by writing the correct sequence of letters in accordance with the stages of evolution:

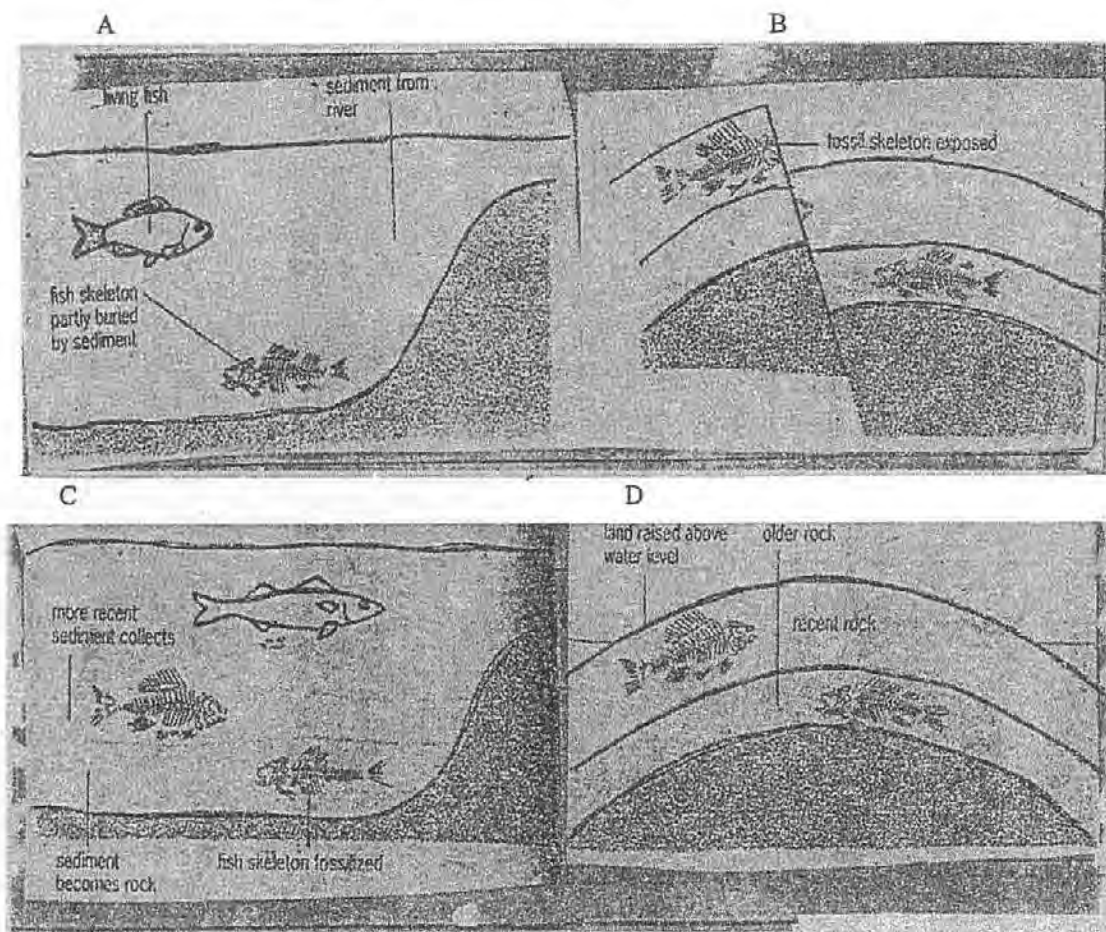


Figure 4

(5 marks)

10. (a) Draw and label a diagram of the transverse section of the spinal cord. On your diagram, show the three neurones involved in the reflex arc.
- (b) (i) How does a reflex action differ from a voluntary action?
- (ii) Drugs can temporarily stop pain felt after injury. Give reasons.
- (10 marks)

SECTION C (20 Marks)

Answer ONE (1) question from this section.

11. Write an essay on: Body defence against infection by skin, tears, white blood cells, stomach/gastric juice and mucous membrane.
12. With the aid of a big labelled diagram, discuss how hearing sensation is accomplished in man.
13. Rape is among the current social problems in our community. Write an essay on rape, based on the following:
- (a) meaning of rape
 - (b) possible causes of rape
 - (c) consequences of rape
 - (d) ways of avoiding rape.