



BIOLOGY

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MARKS: 40

This document consists of 3 printed pages.

1 genus; [1]

2 segmented bodies;
jointed legs; [2]

3 (a) guard cells; [1]
(b) chloroplasts – a part that contains chlorophyll / unequal thicknesses of cell walls [1]

4 $C_6H_{12}O_6 \rightarrow 2C_3H_6O_3$; A $2 C_2H_4OHCOOH$ [1]

5 (a) A contracts;
B relaxes; [2]

6 less protein at fifty (less growth);
more carbohydrate / energy giving food at fifty [2]

7 (a) 8 / 4 pairs; [1]
(b) meiosis; [1]

8 insulin;
liver converts excess glucose to glycogen / insoluble form; [2]

9 fatigue / tiredness
general weakness / pale skin / anaemic / low haemoglobin count; [1]

10 phagocytes;
engulf / ingest + digest pathogens;
kill / destroy [2]

11 large petals; big / wide / conspicuous
Pistil / stigma [2]

12 (a) radiation / UV / X-ray / gamma rays;
or
chemicals stated e.g. tar; mustard gas, peroxides [2]
(b) discontinuous; [1]

13 vasectomy; [1]

14 (a) cancer; [1]
(b) (pudu) toxic response / taxis / tactic [1]

15 circular muscles contract / radial muscles relax;
 pupil constricts / becomes smaller / reduced;
 amount of light entering the eye is reduced / to prevent retinal damage [2]

16 receptors: detect the change in temperature; [1]
 fatty tissue: insulate; prevents heat loss [1]

17 (a) antibiotic / kills bacteria; [1]
 (b) liver cirrhosis / dementia / loss of memory / brain damage / brain shrinks / stomach ulcers / cancer of the digestive system / heart disease; kidney failure; delirium tremor [1]

18 (a) Sun; [1]
 (b) grass → praying mantis / grasshopper → lizard → hawk; [2]
 (c) less energy is lost
 increased efficiency/ organism at the end gets more energy [1]

19 soil erosion;
 climate change / global warming / increase in carbon dioxide; / loss of carbon sinks / flooding less oxygen;
 imbalance in food chains; destruction of food chains / webs
 loss of habitats; / loss of species / loss of natural on indigenous vegetation
 loss of biodiversity;
 desertification / drought / reduced rainfall [max. 2]

20 (a) glomerulus; [1]
 (b) urea / uric acid / excess salts / hormones / drugs [1]

21 denitrification; [1]