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SUGGESTED GUIDE UCE BIO1
MACADITA 2023
BABALANDA SERIES.

SECTION A.

1. A	11 B	21. D
2 D	12 D	22. D
3 B	13 A	23. D
4 A	14 D	24. B
5 B	15 B	25. D
6 C	16 B	26. A
7 C	17 A	27. D
8 A	18 B	28. C
9 A	19 B	29. A
10 No answer	20. B	30. B

SECTION B

3(a)(i) The amount of insulin secreted decreases gradually with increasing time of exercise; ✓ due decrease in glucose levels below normal levels; ✓ as it was oxidised / broken down; ✓ to produce energy used in exercise; ✓ decreasing the stimulation of the Beta cells / insulin secretory cells of the Islets of Langerhans; ✓ 05max

@1mark 05max.

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(ii) The amount of glucagon secreted increased gradually; then rapidly with increasing time of exercise; due to decreased in the blood glucose levels below normal levels; as it is respired; causing stimulation of the alpha cells / glucagon secretory cells of Islets of langerhans to secrete glucagon; to bring about mechanisms which increase glucose levels back to normal level; by negative feedback mechanism; 05

@1mark 05max.

→ glucose is oxidised to produce energy for respiration Should be marked once;

b(i) The concentration of insulin will remain constant initially; then later rise as glucose is absorbed; then fall back to original / normal levels; 03

(ii) The concentration of glucagon will ~~remain~~ decrease; ~~constant~~; as the alpha cells of the pancreas will not be more stimulated; due to rise in glucose levels above normal; 03

(c) Inorder to maintain / regulate glucose levels at normal levels; as its the main respiratory substrate / energy source; for body cells like brain cells; and its levels cause fainting; and maintain constant Also solute concentration of blood; and prevent loss or gain of water by body cells; @1mark 04max

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32 a) i) Structure A has blood vessels which supply the eye cells with nutrients and oxygen; ✓ and also remove wastes from the eye cells; ✓ 02

b) i) Light / light intensity; ✓ 01

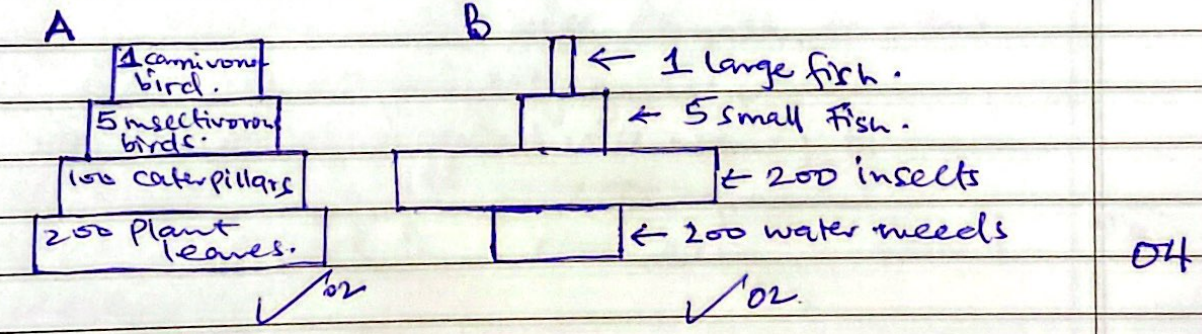
ii) Structure B circular and ~~cired~~ radial muscles; relax or contract antagonistically; regulating size of pupil (OR) When stimulated structure B contracts; or relaxes; controlling size of pupil; 03

@1mark 03max.

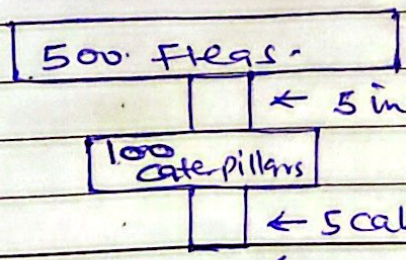
(c) Part C contracts; making suspensory ligaments relaxed; then making the lens big / bulged; and light from near object is refracted more; and focused on the retina; 04

@1mark 04max.

33



✓02 ✓02 04



✓02 @ 02, 04max.

- mark one on B or C
- Award only when all bars are correct.

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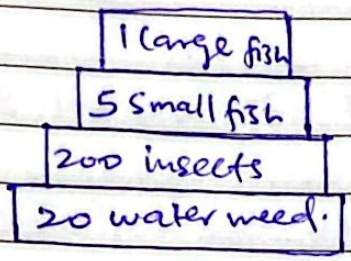
(b)



✓02 02

(c) The Pyramid of number is inverted or water weed has a small sized bar compared to insects while Pyramid of biomass is upright; ✓ because pyramid of numbers doesnot account for size of organism; ✓ 02

d Light, ✓ temperature, ✓ water, ✓ soil, ✓ Wind; ✓ Altitude; 02
@ ½ mark 02max.

SECTION B

34g) The leaf is the main respiratory surface in plants; ✓
It should be flat and broad to increase surface area for exchange of gases; ✓
Should be well ventilated with stomata, to allow in and out movement of gases; ✓
Should be well supplied with veins; to maintain a high gas concentration gradient; ✓
Should be thin to reduce distance moved by gases; ✓ 05
Should have intercellular air spaces; to allow diffusion of gases to plants cells; ✓

@1mark 05max.

allow Must

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(b). Inhalation

During this process air is taken into the insects body; ✓

The abdominal muscles relax; ✓

Volume of abdominal cavity increases; ✓

the pressure decreases below atmospheric pressure; ✓

Air enters in insect body via spiracles to trachea and finally tracheoles; ✓ 10

Exhalation.

During this process air is moved out of the insects body; ✓ its abdominal muscles contract; ✓ its volume decreases; ✓ and pressure rises above atmospheric pressure; ✓ forcing air to move out of the insects body; ✓

@1mark 10Max.

35. Aim: An expt to determine percentage of air in a soil sample; ✓

Materials

- Water ✓
- Glass rod ✓
- Dry soil sample ✓
- measuring cylinders ✓ (2)

Procedure

- Collect a dry soil sample and measure its volume, $x cm^3$ in a measuring cylinder; ✓
- Measure $y cm^3$ of water in measuring cylinder; ✓
- Add the soil and water together; ✓

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- Allow to stand and later stir until no more bubble is produced; ✓
- Record the new volume of the mixture, z cm³. ✓

Treatment of results.

volume of dry soil = x ✓

volume of water. = y ✓

volume of dry soil and water before stirring. = x + y ✓

Volume of dry soil and water after Stirring = P ✓

Volume of air in soil = (x + y) − P ✓

%age of ~~air~~ in soil = $\left(\frac{(x+y)-P}{x} \times 100\right)$ ✓ (02)

15

3(a) - It distributes oxygen for respiration to muscle cells; ✓

- ~~Protects the body by clotting when wounded;~~ ✓
- Distributes antibodies to infected sites; ✓
- Distributes hormones to their target sites; ✓
- Distributes heat to all body parts, enabling temperature regulation; ✓
- Carries waste products from body cells to excretory organs; ✓
- Distributes food nutrients to body cell for respiration; ✓

@1mark 06max.

06

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b) Plants produce wastes very slowly; because of low metabolism; as they don't locomote and are able to reuse some wastes like oxygen and carbondioxide in other processes; and lose some wastes as its leaves and fruits abscise (fall); thus can survive without excretory circulatory system to move wastes to excretory sites; 09

Plants have vascular tissues (phloem & xylem); which runs throughout all plant parts;

~~Some plants have~~

Gaseous exchange in plants take place in all plant parts (Roots, leaves and stems); thus no need to move oxygen around;

Plants move food products from leaves to roots by pressure gradient forces; thus no need of circulation of food;

@1mark 09max.

37a) Bile salts breakup fats into tiny globules / emulsifies them to increase surface area for their digestion; 02

Bile salts also neutralise the acidic chyme providing optimum pH for the duodenal enzymes;

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ii) Amino acids are used by body cells to buildup proteins which are essential to body fmctioning; ✓ eg enzymes/hormones/antibodies; ✓
Used in repair of worn out and damaged tissues; ✓ and growth of new tissues; ✓
Excess ~~protein~~ amino acids cannot be stored; ✓ and are de-aminated in the liver; ✓ their amino group form urea; ✓ which is excreted in urine; ✓ and the remaining Carbohydrate residue converted to glycogen; ✓ and stored/used; ✓ 07

@1mark 07max

(b) Digestion of food in the ileum.
Presence of food in the ileum stimulates its walls to secrete intestinal juice/succus entericus; ✓ with several enzyme which carry out final digestion of food
Sucrase convert sucrose to glucose + fructose; ✓
Maltase convert Maltose to glucose; ✓
Lactase convert lactose to glucose + galactose; ✓
Peptidase convert polypeptides to Amino acids; ✓
Lipase convert lipids to fatty acids + glycerol; ✓ 06

@1mark 06max.

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