FORM 3 BIOLOGY

END OF YEAR EXAM 2014

Answer all question

Section A

1. State the functions of the following

i) Ribosomes (1mk)

Ii) Nucleolus (1mk)

iii) Golgi apparatus (1mk)

2. Explain why

i) Individual with smaller body sizes require more energy per Kg of body weight than those with large body sizes (2mks)

ii) A hippo requires more energy than a crocodile of the same body size (2mks)

3. The following is an example of a food chain

Napier grass → Mouse →Snake →Hawk

a) Identify the Trophic level occupied by

i) Napier grass (1mk)

ii) Snake (1mk)

b) What would happen if snakes are removed from food chain (2mks)

4.In mice the allele for black fur is dominant to the allele for brown fur. A black mouse was crossed with a brown mouse using letter B to represent the Allele for black color

a)Work out F1, F2 were allowed to self. Work out F2 (3mks)

b)What is the phenotypic ration of F2? (2mks)

Genotypic ratio F2

5.A man whose blood group is B marries a woman whose blood group is AB is there any possibility of getting a child with blood group O (1mk)

6.a) What is meant by the term seed dormancy (1mk)

b)State three causes of seed dormancy (3mks)

7.The table below shows the transportation of substances in the human body

Substance	From	Transported by blood to
Oxygen	M	Whole body
N	Liver	Kidney
P	Intestine	Whole body

a)Name the substances represented by

M…….(1mk)

N…….(1mk)

P……(1mk)

b)Other than transport state 2 other functions of blood (2mks)

8.Distinguish between phenotype and Genotype as used in Genetics (1mk)

9.Explain why ;

a)testes are located to hang outside the body (2mks)

b)Four months after fertilization ovaries can be removed from a human female without terminating pregnancy (2mks)

10.The body temperature changes of a rat and a lizard were measured and findings are shown in the table below

Environmental temp (^{o}c)	Body temp of rat (^{o}c)	Body temp of lizard (^{o}c)
5	5.0	35.0
10	8.5	37.5
15	11.5	37.5
20	15.0	35.0
25	18.5	35.25
30	21.5	35.5
35	25.0	35.5
49	28.0	36.0

a)on the same axes, plot a graph of changes in body temperature of both the rat and lizard against environmental temperatures (8mks)

b)Explain the relationship between the environmental temperature and the body temperature of the (2ms)

i)Rat

ii)Lizard

c i)What is the name given to an organism whose body temperature corresponds to environmental temperatures (1mk)

ii)From the graph, which of the animal is better adapted to survive the fluctuation of body temperature?

d)List two behavioral adaptations the lizard exhibits in response to low temperatures (2mks)

e) Name the part of the brain that controls the temperature in a rat. (2mks)