**BIOLOGY, FORM THREE,MID-TERM 2 EXAM 2022.**

 **50 MARKS.**

**TIME :1 HR;15 MIN.**

 **MARKING SCHEME**

***Instructions to candidates***

***ANSWER ALL QUESTIONS IN THE SPACES PROVIDED***

1. The diagram below represents a nucleus.



1. Name the structures labelled E and F. (**2 marks**)

 **E- Nucleolus**

**F - Nuclear pore/nucleopore**

 b. State the function of F. (**1 mark**)

**Facilitates movement of materials in and out of the nucleus**

1. With reference to the nucleus state one difference between an animal and a bacterial cell. (**1 mark**)

**Nuclear material in the bacterial cell is not enclosed Within a membrane /prokaryotic, while in animal cell it is enclosed/ eukaryotic**

1. Name the plant cell organelle:

a. That stores chlorophyll (**1 mark**)

**Chloroplast**

b. Responsible for intracellular digestion. (**1 mark**)

 **Lysosome**

3. State two main functions of the vacuole in the amoeba. (**2 marks**)

 **Feeding (food vacuole)**

 **Osmoregulation (contractile vacuole);**

 **Excretion/removal of wastes**

4. The figure below shows the structure of a chromosome.

Identify the parts labeled K and J. (**2 marks**)



K

 **J- Chromatids**

 **K- Centromere**

5. The figure below shows a part of female reproductive structure of a plant. Label the marked parts. (**3 marks**)



C

B

A

 **A – style; B - ovary C. Carpel;**

6. Below is a diagram of a mature yeast cell.



Parent yeast cell

1. State the kingdom to which the yeast belongs. (**1 mark**)

 **Fungi**

1. Name the process illustrated by the cells above. (**1 mark**)

**Budding**

7**.** Define the term reproduction (**1 mark**)

**The process by which mature individuals produce offspring**

8. Name the two types of cell division ( **2 marks**)

**Mitosis**

**Meiosis**

9. State three mechanisms that hinder self-pollination (**3 marks**)

**Protandry**

**Protogyny**

**Self-sterility**

10. Using a well labelled drawing, show the four major parts of a flower (**5 marks**)

 Well labelled structure of a flower.

 **Drawing=1mrks**

 **Labelling parts; Gynoecium,Androecium, petal, sepal.=4mrks**

11. Describe the process of double fertilization in flowering plants. (**10 marks**)

**The pollen grain contains the generative nucleus and a tube nucleus.**

**When the pollen grain lands on the stigma, it absorbs nutrient and germinates forming a pollen tube. This pollen tube grows through the style pushing its way between the cells, and gets nourishment from these cells.**

**The tube nucleus occupies the position at the tip of the growing pollen tube.**

**The generative nucleus follows behind the tube nucleus, and divides to form two male gamete nuclei. The pollen tube enters the ovule through the micropyle.**

**When the pollen tube penetrates the ovule disintegrates and the pollen tube bursts open leaving a clear way for the male nuclei.**

**One male nucleus fuses with the egg cell nucleus to form a diploid zygote which develops into an embryo.**

**The other male gamete nucleus fuses with the polar nucleus to form a triploid nucleus which forms the primary endosperm.**

12. Describe the changes that take place in a flower after fertilization: (**10 marks**)

**The integuments develop into seed coat (testa).**

**The zygote develops into an embryo.**

**The triploid nucleus develops into an endosperm.**

**The ovules become seeds.**

 **The ovary develops into a fruit.**

**The ovary wall develops into pericarp.**

**The style, dries up and falls off leaving a scar.**

**The corolla, calyx and stamens dry up and fall off.**

 **In some the calyx persists.**

13. Name four methods of seeds and fruit dispersal (**4 marks**)

**Animal**

**Wind**

**Water**

**Self-dispersal**