ST. MARIA GORETTI SECONDARY SCHOOL KATENDE

S.4 EXTERNAL SEMINAR QUESTIONS 2015

1. (a)(i)Define the term mitosis

(ii) Discuss the stages of mitosis

(b) (i) Give the differences between mitosis and meiosis

(ii) Give the similarities between mitosis and meiosis.

(St. Mark S.S Namagoma)

2. (a) Distinguish between tropism and nasties.

(b) What is meant Phototropism.

(c) Describe an experiment to show phototropism in plants

(d) Outline the importance of tropism.

(St. Maria Goretti S.S.S Katende)

3. (a).Explain why a skeleton is necessary in a mammalian body

(b) With the aid of diagrams describe how a human arm can bend and straighten

(SOS Herman Gmeiner S.S Kakiri)

4. (a) What properties do respiratory surfaces of a fish and mammals have in common?

(b) How does the respiratory system of an insect differ from that of a frog?

(c)A vigorous exercise at 4000 metres above sea level produces increased breathing rate than at sea level. Account for this difference.

(d) Discuss ventilation and gaseous exchange in fish

(St. Joseph of Nazareth)

5. (a) Distinguish between voluntary actions and reflex actions.
(b) Explain the sequence of events that occur in the ear, until a sound of a bullet fired from a pistol is heard.

(St. Balikuddembe S.S Mitala Maria)

6. (a) What is a reflex arc?

(b) (i) Kajubi was collecting rubbish and suddenly his foot was pricked by a thorn, his response was quick as was seen by fast withdrawal of his leg. Describe the process that led to the quick withdrawal of his leg after it was pricked by a thorn.

(ii). State three advantages of reflex actions to animals.

(London College of St. Lawrence)

7. A bird is one of the animals adapted for flight

(a) List the adaptations of birds to flight

(b) Describe the different types of flights in birds

(c)Explain how active flight is brought about in birds

(St. John's College Mpigi)

8. (a) Define the term "accommodation" of the eye

(b) Describe how the eye is able to see nearby and distant objects.

(c) (i) State the cause of short-sightedness and long-sightedness

(ii).Suggest how the defects in (c)(i) above can be corrected.

(Mt. Olive College Kakiri)

9. (a) What is asexual reproduction?

(b) What is the advantage of asexual reproduction over sexual reproduction?

(c) Describe asexual and sexual reproduction in mucor.

(Kisubi Mapeera S.S)

10. (a) What is transpiration?

(b) State the environmental factors that affect the rate of transpiration.

(c) Describe an experiment to show that a plant transpires.

(d) In what ways are desert plants adapted to conserve water

(St. Jude S.S Katende)

11. (a) What is meiosis and where does it occur in plants and animals?

(b) What is the relevance of meiosis in reproduction?

(c) In a breeding experiment, plants which were homozygous for white flowers were crossed with those homozygous for red flowers. The resultant F1 generation all had red flowers.

(i) Explain the absence of white flowers in the F1 generation
(ii) Using genetic symbols, show the results in the F2 after selfing the F1 generation.

(Mpigi Mixed S.S)

12. (a) What is a parasitic mode of nutrition?

(b) Describe the life cycle of *Plasmodium falciprum*

(c) Outline the adaptations of parasites to their mode of life.

(St. Joseph High School Nakirebe)

13. (a) Describe the methods you would use in carrying out a study of the distribution of a named animal species in a habitat. What assumptions would you make if any?

(Pride College Mpigi)

14. (a) (i)What is mutation?

(ii) Outline the causes of mutation

(b) (i) What role does mutation play in the process of evolution

(ii) Give favorable conditions in man caused by mutation

(iii). Briefly explain how mutation is applied in agriculture.

(Lowell Girl's School)

15. (a) What is pollution?

(b) Outline the causes of air pollution.

(c) Discuss how pollution can be controlled.

(St. Theresa S.S.S Katende)

16. (a) Distinguish between physical and chemical digestion.

(b) Peter had a meal containing starch and proteins for supper. Describe the process of digestion that the food passed through from the time it was ingested until it was ready for absorption.

(c)How is the ileum adapted to its functions?

(Crown city of St. Lawrence)

17. (a) Distinguish between diffusion and osmosis

(b) Describe an experiment to demonstrate osmosis, using a named plant material

(c) How is the root hair adapted to its functions?

(St. Mark S.S Kamengo)

18. (a) (i)What are homologous structures?

(ii) In what ways do homologous structures provide evidence for evolution?

(b) An albino person has no pigment in the skin and is often pale. This condition is caused by a recessive gene. If an albino man marries a phenotypically normal woman whose father was an albino and the mother was normal.

(i) How likely is it that their first child will be an albino? Show your working.

(ii) Give your reasons in full

(c) Certain individuals in this family are carrier(s)

(i) What does this word mean?

(ii) Which one(s) are carriers?

(Destiny Eagle's S.S.S)

19. (i) What is excretion?

(ii) Name the excretory organs of mammals and in each case state the excretory products.

(b) Describe the process of urine formation in humans.

(c) Explain why plants do not have complex organs of excretion like mammals.

(St. Lawrence Pari Palais)

20. (a) What is germination?

(b) With the aid of well labeled diagrams explain the difference between hypogeal and epigeal germination.

(c) Describe an experiment you would carry out to show that heat is liberated by germinating seeds.

(Fisher Branch S.S Kalagala)

21. (a) What is family planning?

(b) Describe the methods of birth control.

(c) Discuss the changes in the female reproductive system from the time of fertilization to birth.

(Village of Hope S.S, Watoto)

22. (a)What is environmental conservation?

(b) Discuss the dangers of destroying forests in Uganda.

(c)Suggest ways of conserving forests in Uganda

(Lumuza High School)

23. (a) (i) Distinguish between endotherms and ectotherms?

(ii) Why is it important for mammals to maintain a constant body temperature?

(b) Discuss ways in which the following organisms regulate their body temperature?

(i) Endotherms

(ii)Ectotherms

(Kibuuka Memorial S.S Mpigi)

24. (a) Define the term seed dormancy?

(b) Discuss the causes of seed dormancy.

(c)Outline ways of breaking down seed dormancy

(Mpigi High School)

25. (a) What is homeostasis?

(b) Describe the homeostatic control of sugar in the mammalian body

(c) Why is the liver considered to be the most functionally diverse organ of the body.

(Kyasanku Hill College Mpigi)

26. Describe the menstrual cycle, with reference to the alternation of menstruation and ovulation.

(Mt. Vernon S.S Maya)

27. (a) Define the term immunity

(b) With specific examples distinguish between the following immunological terms

(i) Innate immunity and acquired immunity

(ii) Natural active acquired immunity and Natural passive acquired immunity

(iii) Artificial active acquired immunity and artificial passive acquired immunity.

(c) Outline the different causes of diseases.

(St. Bruno S.S Gooli)

28. (a) What is growth?

(b) List down the factors affecting growth.

(c) (i)Distinguish between primary growth and secondary growth.

(ii) Of what importance is secondary growth in plants?

(Friend's Academy)

29. (a)Make a plan drawing of the mammalian circulatory system.
(b) List the components of blood giving functions of each blood component.
(c) How are red blood cells adapted to their functions.

(Lukalu S.S)

30. (a) Define the term pentadactyl limb.

(b) Distinguish between axial skeleton and appendicular skeleton.

(c) Name three vertebrae in mammals and state where they are located.

(d) Outline the differences between cartilage and bones

(St. Lucia Hill College)