

UGANDA MARTYRS' HIGH SCHOOL-LUBAGA

BIOLOGY (THEORY)

PAPER 1

TIME ALLOWED: 2HOURS

S.4 IV TOPICAL TEST, TERM I 2020

GROWTH, DEVELOPMENT AND REPRODUCTION

INSTRUCTIONS:

TIME: 01½ HRS

-All questions in section A and B are compulsory.

-Write the answers in the spaces provided.

SECTION A: 30 Marks

Growth and Development:

- Which of the following are responsible for dormancy in seeds?
 - Presence of germination inhibitors
 - Immaturity of the embryo.
 - Lack of oxygen.
 - Impermeability of the seed coat.
 - Lack of water.

(a) i, ii, iii (b) i, ii, iv (c) i, ii, v (d) ii, iii
- Secondary thickening in flowering plants is brought about by division of the :
 - Phloem cell
 - cambium
 - xylem cells
 - cortex cells
- Mitosis in a root cell ends with the formation of:
 - Two nuclei each with the same number of chromosomes as the mother cell.
 - Two nuclei each with half the number of chromosomes as the mother cell
 - Four nuclei each with the same number of chromosomes as the mother cell.
 - Four nuclei each with half the number of chromosomes as the mother cell.
- In which of the following tissues does mitosis occur?
 - Cambium
 - phloem
 - pith
 - xylem
- Which of the following is true about meristematic cells?
 - Thick cell wall, dense cytoplasm
 - Thin cell wall, dense cytoplasm
 - Large nucleus, thick cell wall
 - Small nucleus, thick cell wall.
- The best method of determining the rate of growth in a seedling is by determining the:
 - Length of radical and fresh weight
 - diameter of radical and fresh weight
 - length of radical and dry weight
 - diameter of radical and dry weight
- Seed dormancy due to embryo immaturity may be overcome by

- a) Improving on seed coat permeability
- b) Providing an after ripening period
- c) Exposing hydrated seeds to cold conditions
- d) Storing in dry conditions at high Temperature

8. Secondary growth in plants causes an increase in

- (a) Height
- (b) number of branches
- (c) thickness or girth
- (d) Length

9. The regions of most active growth in plants are found mainly in the :

- (a) Axillary buds and flowers
- (b) Stems and leaves
- (c) Stems and root hairs
- (d) Stem and root Apices

10. Which of the following contribute most in the strengthening of the stem of a young plant?

- a) Xylem
- (b) phloem
- (c) sclerenchyma
- (d) collenchymas

11. Germinating seeds produce:

- a) Heat, oxygen, and carbon dioxide.
- (c) Oxygen, carbon dioxide and water.
- b) Heat, carbon-dioxide, and water.
- (d) Energy, carbon dioxide and carbohydrates.

Reproduction:

12. Self pollination in flowering plants can be prevented by the following except;

- a) Failure of pollen from the anther of a flower to germinate on the stigma of the same flower.
- b) Ripening male and female parts at different times.
- c) Location of male and female parts at different levels.
- d) The flower failing to open until pollination has taken place

13. Which of the following is true about wind-pollinated flowers?

- a) Larger and sticky pollen grains
- b) scented and nectar always present
- c) Long style with sticky stigma.
- d) Long stamens often hanging out of the flower

14. Asexually produced offspring are likely to exhibit:

- (a) Wide distribution
- (b) rapid and early growth
- (c) Increased resistance to diseases
- (d) variations in shape and type

15. Which one of the following is a disadvantage of cross-pollination

- a) there is less chance of producing an improved variety
- b) there is less chance of it taking place
- c) it is more likely to result in fertilization

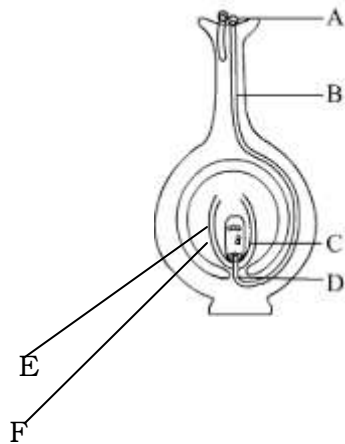
- d) there are more seeds produced
16. The structure that secretes seminal fluid in the mammalian male reproductive organ is
- a) Prostate gland (b) Vas deferens (c) Epididymis (d) Semniferous tubules
17. Fertilization results immediately in the formation of:
- (a) An embryo (b) a zygote (c) a placenta (d) a foetus
18. Identical twins arise from:
- a) Two sperms and two ova (c) One sperm and two ova
 (b) One sperm and one ovum (d) Two sperms and one ovum
19. A flower is said to be ECTORMORPHIC if:
- (a) It is bilaterally symmetrical (c) It is radically symmetrical
 (b) It has no symmetry (d) Have many carpels
20. In mammals the sperm cells mature in.....
- a) Epididymis b) seminal vesicle c) prostate gland d) vas deference
21. Which of the following is an example of a dioecious plant?
- (a) Hibiscus (b) maize (c) bean (d) pawpaw
22. Asexually produced offspring are likely to exhibit:
- (a) Wide distribution (b) rapid and early growth
 (c) Increased resistance to diseases (d) variations in shape and type
23. The nucleus in the embryo sac that fuses with the male nucleus to form a zygote in a flowering plant is
- A: polar nucleus B: Antipodal nucleus
 C: synergid nucleus D: egg nucleus
24. The hormone responsible for the powerful contractions of the uterus during parturition (birth) is:
- a) LH b) FSH c) Oestrogen d) Oxytocin
25. The total number of chromosomes in a zygote are:
- a) Twenty one b) Twenty three c) Thirty eight d) Forty six
26. Internal fertilization and external embryo development is exhibited by:
- a) Mammals b) Amphibians c) Fish d) Bird
27. The hormone most responsible for triggering ovulation is

a) FSH b) LH c) oestrogen d) progesterone

28. Fertilized eggs of a toad can be identified with the help of their appearance. Which of the following is true?
a) They are whitish underneath (b) They are whitish all over
(c) They are black all over (d) They are black underneath
29. In favorable conditions yeast reproduces by:
(a) Fragmentation (b) sporulation (c) conjugation (c) budding
30. Which of the following is not an advantage of vegetative reproduction?
(a) Off springs growth rates high (b) offspring is nourished by the parent
(c) Offspring's are overcrowded (d) dispersal agents are not necessary
31. Which of the following nutrients is likely to be received by the developing foetus from the placenta?
a) Proteins b) Sucrose c) Amino acids d) Glycogen
32. Which of the following is not important of a jelly which surrounds the eggs of a toad?
(a) Prevent overcrowding of the eggs
(b) Prevent predators from grasping and eating the eggs
(c) To enable the eggs to float on the water surface
(d) To promote fast development of the embryo
33. The anterior pituitary hormone that stimulates secretion of oestrogen from the growing follicle before ovulation is
a) FSH b) LH c) progesterone d) Oestrogen
34. The average duration of menstrual cycle is
a) 14 days b) 21 days c) 28 days d) 36 days
35. Which of the following is not a sexual characteristic that occurs during puberty in males?
a) Growth of the testis
b) Growth of the penis
c) Descent of the testis into the scrotum
d) Darkening and distribution of pubic hair,

SECTION B: (45 marks)

36. The following diagram show part of the plant. Use it to answer the questions that follow:



(a) Name the parts labeled (do it from the drawing) (03 Marks).

(b) (i) Name the process taking place in the above diagram and the process that precedes it (01 Marks).

(ii) Outline the events of the above process ($04\frac{1}{2}$ marks).

(iii) State any 4 events which occur after the above described process (02 marks).

(c) (i) Outline 2 ways by which self-pollination is prevented (02 marks).

(ii) State two disadvantages of cross-pollination (02 marks).

37. (a) (i) Outline any 4 functions of the placenta in humans (02 marks).

(ii) State any 2 adaptations of the mammalian placenta (02 marks).

(b) How are the following parts adapted for their roles?

(i) Fallopian tube. (02 mark).

(ii) Uterus. (02 marks).

(iii) Penis. (02 marks).

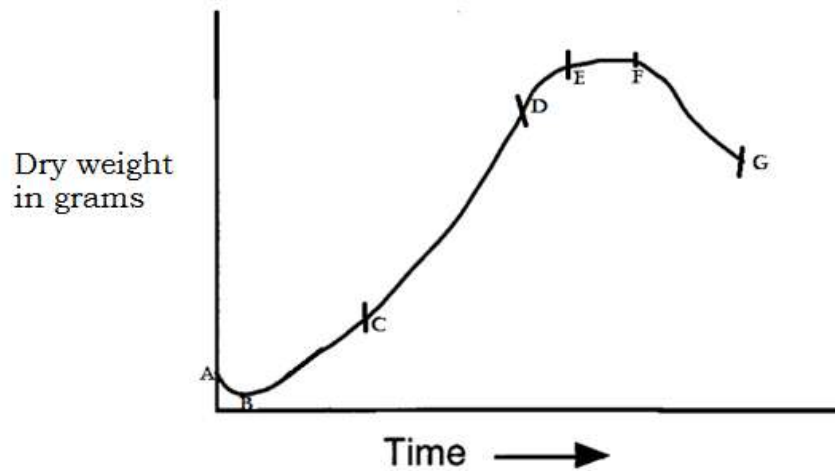
(c) State the roles of the following hormones:

(i) Oestrogen. (02 marks).

(ii) Progesterone (02 marks).

(iii) Testosterone (02 marks).

38. The following graph shows the variation of the dry weight of a germinating seed. Use it to answer the questions that follow:



(a) (i) What name is given to the above shape of graph ($0\frac{1}{2}$ marks).

(ii) Describe the shape of the graph. (05 marks).

(b) (i) Explain the above shape. (10 marks).

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