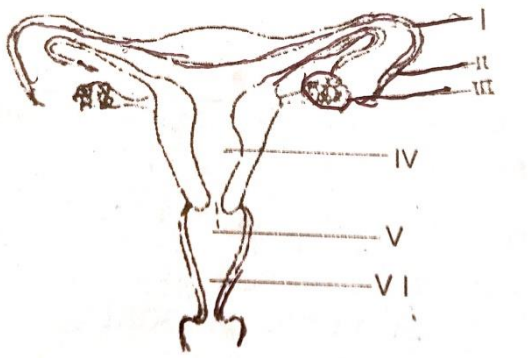
1. Which of the following is not a term used to describe the interactions between living things in an environment?

   A. Association
   B. Symbiosis
   C. Adaptation
   D. Biotic interaction
   E. Parasitism




Use the diagram above to answer questions 2-4

2. The structure labelled I is the ?

   A. Oviduct
   B. Ovary
   C. Uterus
   D. Funnel
   E. Funicle

3. In which of the structures does implantation take place?

   A. I
   B. II
   C. IV
   D. VI
   E. III

4. Which of the labelled parts is responsible for the release of a ripe ovum?

   A. VI
   B. III
   C. II
   D. I
   E. IV

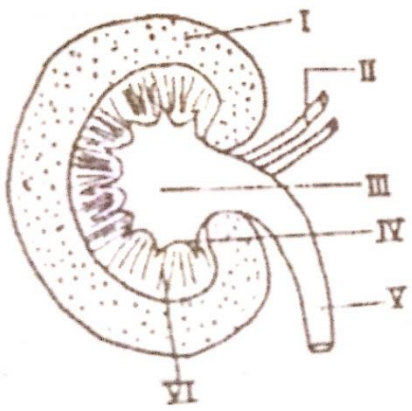
5. Which of the following is not an example of commensalism?

   A. Epiphytes growing on stem of large plant
   B. Bacteria living in the large intestine of human
   C. Association between remora and shark
   D. Tape-worm living in the small intestine
   E. Bacteria in the gut of termites

6. Which of the following is not a parasite of animal

   A. Tick
   B. Dodder
   C. Nematodes
   D. Fluke
   E. Mites

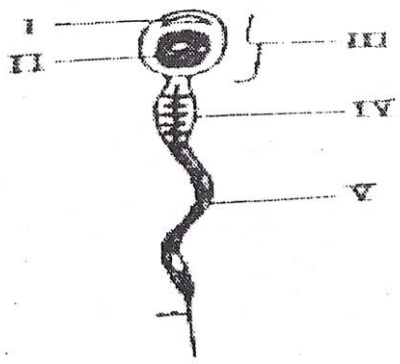
7. The ability of an organism to withstand extreme variations in the environmental condition is known as ---?
    A. Resistance
    B. Tolerance
    C. Adaptation
    D. Toughness.
    E. Rigidity
8. Which of the following is the tolerance range for most animals?
    A. $0^{o}$-$100^{o}C$
    B. -5-$35^{o}C$
    C. $0^{o}$-$42^{o}C$
    D. $0^{o}$-$45^{o}C$
    E. $5^{o}$-$25^{o}C$
9. Which of the following is incorrect?
    A. A species can only be found in an area having its range of tolerance
    B. Variation in abiotic factors are responsible for distribution of a species
    C. An ecological niche is also known as a biome
    D. The ability of an organism to withstand extreme variation in environment is tolerance
    E. None of the above




Use the diagram above to answer the questions that follow(10 and 11)

10. What is the name of the structure labelled VI?
    A. Cortex
    B. Medulla
    C. Pelvis
    D. Pyramid
    E. Renal vein
11. The part that empties into the urinary bladder is labelled?
    A. II
    B. III
    C. I
    D. IV
    E. V
12. The characteristics that enhances an organism's potential to survive in its environment is called ?
    A. Association
    B. Adaptation
    C. Modification
    D. Tolerance
    E. Selection

13. Which of the following adapts tad-pole to aquatic life?
    A. Presence of sharp claws
    B. Presence of external gills
    C. Presence of spines
    D. Possession of short beak
    E. Possession of beak
14. Which of the following does not illustrate adaptation to the environment?
    A. Colour changes by chameleon
    B. Streamlined body
    C. Light bones in birds
    D. Development of big muscles by a weight lifter
    E. Possession of fins by fish
15. The changing of colour by a chameleon to that of the environment is an example of ?
    A. Adaptive radiation
    B. Protective colouration
    C. Courtship display
    D. Display of body colour
    E. Feighning
16. Which of the following is an air pollutant?
    A. Detergent
    B. Crude oil
    C. Untreated sewage
    D. Smoke
    E. Chemicals
17. One of these cannot cause noise pollution?
    A. Smoke
    B. High intensity and unpleasant noise
    C. Industrial facilities
    D. Mob actions
    E. Generator
18. One of these is false ;
    A. Soil is polluted by clearing refuse dumps
    B. Oil spillage cripples economic life of fishermen
    C. Water pollution is dangerous to water supply
    D. Noise pollution may cause restlessness\
    E. Land pollution is of no consequence
19. Long term effects of air pollution does not include
    A. Lung cancer
    B. Irritation of the eyes
    C. Chronic respiratory diseases
    D. Wild fires
    E. Tears

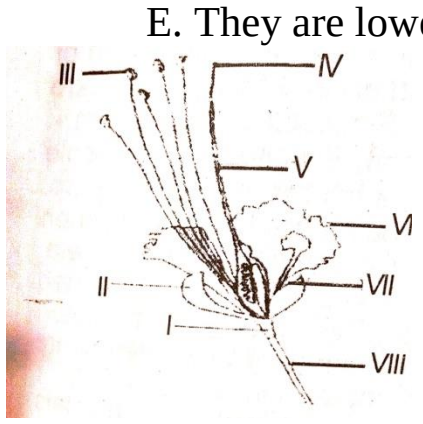



Use the diagram to answer questions 23-25

20. Which of the labelled structures is the nucleus?
    A. I
    B. II
    C. III
    D. IV
    E. V
21. Which of the following labelled structures secrets enzymes which facilitate penetration of the egg?
    A. I
    B. II
    C. III
    D. IV
    E. V
22. Which of the following labelled structures is similar to the locomotary structure in Euglena?
    A. I
    B. II
    C. III
    D. IV
    E. V
23. Effective control of natural resources by man is described as
    A. Utilization
    B. Evaluation
    C. Conservation
    D. Integration
    E. Development
24. One of the methods of ensuring conservation of natural resources may be by?
    A. Bush burning
    B. Felling of tree
    C. Mechanised farming
    D. Establishment of forest reserves
    E. Continuous cropping.
25. The need for preserving and conserving natural resources is most urgent these days due to _____?
    A. Fast depletion of natural forest resources
    B. High rate of corruption
    C. Low prices of materials from the forest
    D. Bad government policies
    E. Slow rate of desert encroachment.
26. One of these is not a benefit of conservation of natural resources;
    A. Poor patronage by tourists to waterfalls
    B. Great scientific value
    C. Preservation of natural beauty
    D. Sustained availability of resources

E. Conservation of endangered species

27. Pests are important to man because?
    A. They are a rich source of protein
    B. They contribute greatly to soil fertilizer
    C. They affect valuable agricultural produce
    D. They reproduce profusely
    E. They are lower than man.




Study the diagram above and use it to answer the questions that follows

29. Which of the labeled parts represent the female reproductive system?
    A. III, IV
    B. I, II
    C. II, IV, V
    D. IV , II
    E. VIII, VII

30. The androecium is represented by?
    A. IV
    B. III
    C. VII
    D. II
    E. I

31. Pest control involves the following **except**?
    A. Reduction of pest population
    B. Protection of crops
    C. Good knowledge of life cycle of pests
    D. Good knowledge of pest habits
    E. Good study of the size of the pests.

32. Which of the following structures is absent in the reproductive system of a fish?
    A. Claspers
    B. Epididymis
    C. Bile duct
    D. Testis
    E. Vasa differentia

33. The genital opening in reptiles is also called?
    A. Epididymis
    B. Vas deferens
    C. Follide
    D. Penis
    E. Cloaca.

34. One similarity between the male and the female reproductive system is the presence of?
    A. Oviduct
    B. Cloaca
    C. Epididymis
    D. Vasa efferentia
    E. Gametes

35.The male gametes are produced and stored in the testes which are found in the scrotal sacs outside the body due to the consideration of:

A. Light
B. Humidity
C. Pressure
D. Temperature
E. Sound.

36.All are types of ovary except

a. Superior
b. Half superior
c. Inferior
d. Half inferior
e. None of the above

37.The liquid part of blood responsible for transporting nutrients is:

A. Platelets
B. Plasma
C. White blood cells
D. Red blood cells
E. Hemoglobin

38. The male reproductive organ of the flower is:

A. Ovary
B. Style
C. Stigma
D. Stamen
E. Petal

39. The function of the ovary in the flower is to:

A. Produce pollen grains
B. Protect the anther
C. Store nectar
D. Develop into fruit
E. Aid in pollination

40.The brightly colored parts of the flower that attract pollinators are:

A. Petals
B. Sepals
C. Filaments
D. Stigmas
E. Ovules

41.Which part receives pollen during fertilization?

A. Ovary
B. Filament
C. Stigma
D. Petal
E. Anther

42.Which of the following parts of the flower holds the anther?

a. Style
b. Petals

c. Filament’
d. Receptacle
e. Ovary

43.The type of placentation found in the ovary of a Tomato flower is?

A. Marginal
B. Axile
C. Parietal
D. Free-central
E. Basal

44.Which of the following statements is not a feature of anemophilous flowers?

a. There is no scent and nectar
b. Flowers are small and conspicuous
c. Flowers are borne on large inflorescence
d. Pollen grains are heavy, rough-edged and sticky
e. Petals are not coloured.

45.In internal fertilization, mating or coition is preceded by?

a. Courtship
b. Fighting
c. Warning
d. Feeding
e. Flying.

46.. Farmers practice crop rotation because it?

a. Helps to prevent soil erosion
b. Allows two crops to be planted at the same time
c. Helps to conserve soil fertility
d. It’s an alternative to shifting cultivation
e. Availability of land

47.. The main function of the swim bladder is for?

a. Swimming
b. Detecting sound
c. Buoyancy
d. Breathing
e. Tethering

48.. All of the following cancer types are peculiar to the females except?

a. Ovarian Cancer
b. Epididymitis cancer
c. Uterine cancer
d. cervical cancer
e. vulva cancer

49.. The folds of skin, clitoris, and openings of urinary and genital ducts are termed as?

A. Vulva
B. Vagina
C. Gametes
D. Udder
E. Labia

50. All are floral parts except?

a. Sepals
b. Petals
c. Whorls
d. Stamens

e. Gynoecium

51. The large and colored petals and scented flowers serve to?
    a. Beautify the flower
    b. Catch the eye
    c. Attract insects
    d. Prevent seeding
    e. Trap air

ESSAY (ANSWER ANY FOUR QUESTIONS)

BIOLOGY ESSAY QUESTIONS

(A) define decomposition, mention/classes of decomposers and products*(4 marks)*
(B) List four types of placentations in plant with one example each, of a plant that manifests it*(4 marks)*
(C) State two ways in which human activities can disrupt the oxygen cycle. *(2 marks)*

QUESTION 2: *(10 marks)*

(A) Explain the following ecological relationships, giving one example each:
(i) Mutualism *(2 marks)*
(ii) Parasitism *(2 marks)*
(iii) Commensalism *(2 marks)*
(B) make a well labeled diagram of the front view of the human female reproductive system (8-10cm) *(4 marks)*

QUESTION 3: *(10 marks)*

(A) Define the term pollution and differentiate between biodegradable and non-biodegradable pollutants, giving one example of each. *(4 marks)*
(B) Briefly define oviparity, viviparity and ovoviviparity with examples of organisms in each case. *(3 marks)*
(C) State three measures that can be taken to reduce air pollution in urban centers. *(3 marks)*

QUESTION 4: *(10 marks)*

(A) Explain the meaning of conservation and state three reasons why it is important. *(4 marks)*
(B) write the names and acronyms of two international and two local conservation societies *(2 marks)*
(C) Outline four roles of government and non-governmental organizations (conservation societies) (NGOs) in environmental conservation. *(4 marks)*

QUESTION 5: Sexual Reproduction *(10 marks)*

(A) Differentiate between asexual and sexual reproduction in a table using 4 points. *(2 marks)*
(B) Write an essay in not more than 250 words (definition, classification and control) of crop *(6 marks)*
(C) Outline 4 examples of parasitic relationships. *(2 marks)*

QUESTION 6: Homeostasis *(10 marks)*

(A) Mention 4 floral parts of a flower and explain any 2. *(4 marks)*
(B) Describe how the skin regulates body temperature under hot and cold conditions. *(4 marks)*
(C) Enumerate any 2 adaptations of xerophytes *(2 marks)*

**WAEC STANDARD BIOLOGY ESSAY MARKING SCHEME**

**QUESTION 1: Nutrient Cycling *(10 marks)***

**(A) Explanation of nitrogen fixation with a well-labeled diagram** *(4 marks)*

- Correctly labeled diagram of nitrogen fixation **(2 marks)**
- Explanation of nitrogen fixation process (e.g., role of nitrogen-fixing bacteria, conversion of atmospheric nitrogen into ammonia, nitrification) **(2 marks)**

**(B) Role of plants, animals, and decomposers in the carbon cycle** *(4 marks)*

- **Plants**: Absorb $CO_2$ for photosynthesis, releasing oxygen. **(1 mark)**
- **Animals**: Consume plants, release $CO_2$ through respiration. **(1 mark)**
- **Decomposers**: Break down organic matter, returning $CO_2$ to the atmosphere. **(2 marks)**

**(C) Two human activities that disrupt the oxygen cycle** *(2 marks)*

- **Deforestation** reduces oxygen production. **(1 mark)**
- **Burning fossil fuels** increases $CO_2$ levels, reducing oxygen balance. **(1 mark)**

**QUESTION 2: Biotic Interactions *(10 marks)***

**(A) Explanation of ecological relationships with examples** *(6 marks, 2 marks each)*

- **Mutualism**: A relationship where both organisms benefit, e.g., bees and flowers. **(2 marks)**
- **Parasitism**: One organism benefits at the expense of another, e.g., tapeworm in humans. **(2 marks)**
- **Commensalism**: One organism benefits while the other is unaffected, e.g., barnacles on whales. **(2 marks)**

**(B) Effect of competition on population size** *(4 marks)*

- **Intraspecific competition**: Competition within the same species limits food and space, reducing weaker individuals. **(2 marks)**
- **Interspecific competition**: Competition between different species may lead to population decline of less competitive species. **(2 marks)**

**QUESTION 3: *(10 marks)***

**(A) Definition and differentiation between pollutants** *(4 marks)*

- **Definition of pollution**: The introduction of harmful substances into the environment. **(2 marks)**
- **Biodegradable pollutants**: Decompose naturally, e.g., plant waste. **(1 mark)**
- **Non-biodegradable pollutants**: Persist in the environment, e.g., plastics. **(1 mark)**

**(B) Three negative effects of oil spills on aquatic life** *(3 marks, 1 mark each)*

1. Reduces oxygen availability in water.
2. Coats gills of fish, leading to suffocation.
3. Destroys aquatic plants and food sources.

**(C) Three measures to reduce air pollution** *(3 marks, 1 mark each)*

1. Using cleaner energy sources (e.g., solar, wind).
2. Enforcing emission control regulations.
3. Increasing afforestation programs.

**QUESTION 4: Conservation of Natural Resources *(10 marks)***

**(A) Definition and importance of conservation** *(4 marks)*

- **Definition**: The sustainable use and management of natural resources. **(2 marks)**
- **Three reasons for conservation**:
    1. Prevents species extinction. **(1 mark)**
    2. Maintains ecological balance. **(1 mark)**

**(B) Two soil erosion control measures** *(2 marks, 1 mark each)*

1. Planting cover crops.
2. Constructing terraces on slopes.

**(C) Four roles of government and NGOs in conservation** *(4 marks, 1 mark each)*

1. Enforcing environmental protection laws.
2. Promoting public awareness and education.
3. Supporting afforestation and reforestation programs.
4. Funding research on conservation strategies.

**QUESTION 5:** ***(10 marks)***

**(A) Difference between asexual and sexual reproduction with two advantages of sexual reproduction** *(4 marks)*

- **Difference**: Asexual reproduction involves one parent, while sexual reproduction involves two. **(2 marks)**
- **Advantages of sexual reproduction**:
    1. Increases genetic diversity. **(1 mark)**
    2. Leads to better adaptation and evolution. **(1 mark)**

**(B) Fertilization process and role of the placenta** *(4 marks)*

- **Process**: Sperm meets egg in the fallopian tube, forming a zygote. **(2 marks)**
- **Role of placenta**: Transfers nutrients and oxygen from mother to fetus. **(2 marks)**

**(C) Two factors leading to infertility in humans** *(2 marks, 1 mark each)*

1. Hormonal imbalances.
2. Blockage of fallopian tubes.

**QUESTION 6: Homeostasis** ***(10 marks)***

**(A) Definition and importance of homeostasis** *(4 marks)*

- **Definition**: The regulation of internal body conditions. **(2 marks)**
- **Importance**: Maintains stable conditions for enzyme function and metabolism. **(2 marks)**

**(B) Skin regulation of temperature** *(4 marks)*

- **Hot conditions**: Sweating, vasodilation. **(2 marks)**
- **Cold conditions**: Shivering, vasoconstriction. **(2 marks)**

**(C) Two diseases related to homeostatic imbalance** *(2 marks, 1 mark each)*

1. Diabetes (imbalance in blood sugar).
2. Hypertension (imbalance in blood pressure).

**QUESTION 7: Pollination** ***(10 marks)***

**(A) Well-labeled diagram of an insect-pollinated flower** *(4 marks)*

- Correct structure with labeled parts **(4 marks)**

**(B) Differences between self- and cross-pollination with two advantages each** *(4 marks)*

- **Self-pollination**: Transfer of pollen within the same flower. **(1 mark)**
- **Cross-pollination**: Transfer of pollen between different flowers. **(1 mark)**
- **Advantages of self-pollination**:
    1. Requires fewer pollinators. **(1 mark)**
    2. Ensures reproductive success in isolated areas.

- **Advantages of cross-pollination**:
    1. Promotes genetic diversity. **(1 mark)**
    2. Increases survival against diseases.

**(C) Two structural adaptations of wind-pollinated flowers** *(2 marks, 1 mark each)*

1. Light pollen grains for easy dispersal.
2. Long, feathery stigmas to trap pollen.

**TOTAL MARK DISTRIBUTION**

| Question | Marks Allocated |
|---|---|
| Question 1: Nutrient Cycling | 10 marks |
| Question 2: Biotic Interactions | 10 marks |
| Question 3: Pollution | 10 marks |
| Question 4: Conservation of Natural Resources | 10 marks |
| Question 5: Sexual Reproduction | 10 marks |
| Question 6: Homeostasis | 10 marks |
| Question 7: Pollination | 10 marks |
| **Total** | **70 marks** |

---