

Q-23 (3 marks)  
Q-19 (3 marks)  
Q-28, 29 (5 marks)

**Hope Hall Foundation School**  
**First Terminal Examination (2014-2015)**  
**Sub- Biology**  
**Class XII**  
**Set -I**

MM- 70

Time- 3 Hrs

**SECTION- A (1mark each)**

Q.1 The path of sperm transport is given below. Provide the missing steps in the blank boxes.



Q.2 Give an example of a plant which flowers once in a life time.

Q.3 What is metastasis?

Q.4 If a patient is advised anti- retroviral therapy, which infection is he suffering from? Name the causative organism.

Q.5 Mention two functions of codon AUG.

Q.6 *Coelacanth* was caught in 1938 in South Africa. Why is it very significant in the evolutionary history of vertebrates?

Q.7 What are sampling ports in a bioreactor?

Q.8 How is an action of exonuclease different from endonuclease?

**SECTION- B (2marks each)**

Q.9 Explain Zygote Intra Fallopian Transfer (ZIFT). How is intra- uterine transfer different from it?

Q.10 a) In whiptail lizards, only females are born generation after generation. There are no males. How is this possible?

b) Define geitonogamy.

Q.11 Justify the statement – A male honeybee (drone) has no father, but has a grandfather.

Q.12 Unambiguous and degenerate are some of the terms used for genetic code. Explain the salient features of each one of them.

Q.13 How is primary immune system different from secondary immune system?

Q.14 Complete the flow chart of secondary treatment of effluents in a sewage treatment.

Primary effluent is passed through ----(a)-----



Pumping of air



----- (b) -----



Decrease in BOD of the effluent



Collection in settling tank



----- (c) -----



Pumping into anaerobic sludge digester



----- (d) -----

Q. 15 How do mycorrhiza act as a biofertilizer? Name the genus of fungi that forms mycorrhizal association with plants.

OR

Name the source of Streptokinase. What is the role of this bioactive molecule in human body?

Q.16 Placenta acts as an endocrine tissue. Justify.

Q.17 If a father and a son are both defective in red- green color vision, is it likely that the son inherited the trait from his father? Comment.

Q.18 Draw a neat labeled sketch of a replicating fork of DNA.

**SECTION- C (3marks each)**

Q.19 a) In the table given below, select and enter the correct device out of the following:

Oral pills, condoms, copper T, saheeli, vasectomy, diaphragm, tubectomy, cervical cap.

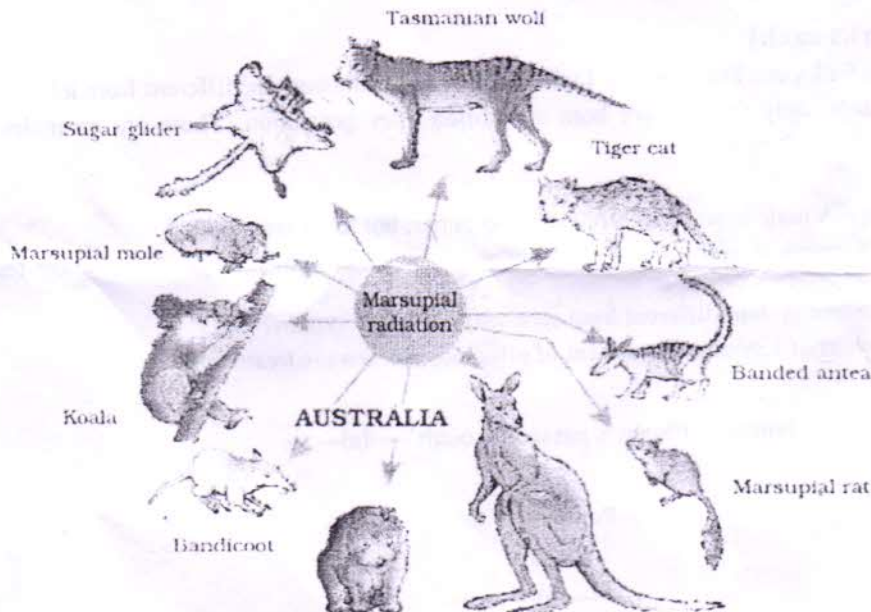
Method of birth control	Device
1. Barrier	
2. IUD	
3. Surgical technique	
4. Administering hormone	

b) Name two STDs which can be transmitted through contaminated blood.

Q.20 a) List two essential roles of ribosome during translation.

b) Differentiate between exons and introns.

Q.21 Name and explain the evolutionary concept represented in the illustration given below. What type of evolution does it show – convergent/ divergent?



Q.22 Explain following terms with example:

- a) Co- dominance
- b) Incomplete dominance

Q.23 Draw a well labeled diagram of an antibody molecule.

Q.24 How does RNA interference help in developing resistance in tobacco plants against nematode infection?

Q.25 a) How did Eli Lilly Company go about preparing the human insulin?

b) How is the insulin produced different from that produced by the functional human insulin gene?

Q.26 Describe briefly the following terms:

- a) Origin of replication
- b) Bioreactor
- c) Downstream processing

Q.27 Give reasons for each of the following:

- a) Smoking leads to deficiency of O<sub>2</sub> in body tissues

- b) Chewing of tobacco causes an increase in blood pressure.
- c) A person needs to take immune-suppressive drugs throughout his/her life after an organ transplant.

**SECTION- D (5marks each)**

- Q.28 a) Show diagrammatically the stages of embryonic development from zygote to implantation in humans.  
b) Briefly explain the formation of chorionic villi and placenta in embryonic development.

OR

- a) Diagrammatically show stages in development of megaspore mother cell to form a mature embryo sac in angiosperms.  
b) Why is this type of embryo sac development called as monosporic?
- Q.29 a) Briefly describe the methodologies in human genome project?  
b) Which human chromosome was sequenced last?  
c) Name any 4 non-human model organisms whose DNA is sequenced.

OR

Answer the following questions based on Messelson and Stahl's experiment.

- a) Why the scientists used  $^{15}\text{NH}_4\text{Cl}$  and  $^{14}\text{NH}_4\text{Cl}$  as sources of nitrogen in the culture medium of *E.coli*?  
b) Name the molecules that  $^{15}\text{N}$  got incorporated into.  
c) How did they distinguish between  $^{15}\text{N}$  labeled molecule from  $^{14}\text{N}$  ones?  
d) Mention the significance of taking *E.coli* samples at definite time interval for observation.  
e) Write the conclusion drawn by them at the end of their experiment.
- Q.30 a) What is insertional inactivation? Describe this phenomenon.  
b) Show diagrammatically the steps in PCR.

OR

- a) What is gene therapy?  
b) Illustrate using the example of Adenosine deaminase deficiency.