

**GULF SAHODAYA EXAMINATION SAUDI CHAPTER – 2013-2014  
CLASS XI  
BIOTECHNOLOGY**

**Time Allowed: 3 Hrs**

**General Instructions:**

*total Marks:- 70*

- All questions are compulsory.
- There is no overall choice. However internal choice has been provided in one question of three marks and two questions of five marks. You have to attempt only one of the choices in such questions. Question paper contains four sections – A, B, C and D
- Question numbers 1 to 6 are very short answer questions, carrying 1 mark each.
- Question numbers 7 to 14 are short answer questions, carrying 2 marks each.
- Question numbers 15 to 25 are also short answer questions, but carrying 3 marks each.
- Question numbers 26 to 28 are long answer questions, carrying 5 marks each.
- Use of calculators is not permitted. However, you may use log tables if necessary

**Section – A (1 Mark)**

1. What do you mean by splicing?
2. Differentiate between transition and transversion.
3. What is glycosylation?
4. Why is TCA cycle called an amphibolic pathway?
5. What are ampholytes?
6. Which enzyme catalyzes the reduction of di nitrogen to ammonia? What is it composed of?

**Section – B (2 Marks)**

7. Differentiate between lag phase and stationary phase in fermentation.
8. What do you mean by monochromatic x rays?
9. List the criteria shown by the characters controlled by the cytoplasmic gene.
10. Write a short note on Lac operon.
11. Differentiate between microtubules and microfilaments
12. What are C and G bandings?
13. List any 4 advantages of gel permeation chromatography.
14. Name and explain the test used to detect the presence of sugar in blood/urine.

**Section – C (3 Marks)**

15. What is a fermenter used for? Give the function of baffles and antifoams in a fermenter.
16. Muscle is a tissue which is unique to animals and plays a leading role in mobility of animals explain.
17. What is the role of chlorophyll a molecule in the light reaction of photosynthesis?

**OR**

Draw and explain the structure of a nerve cell.

18. Differentiate between phase contrast, dark field and electron microscopy.
19. (a) What are antibodies? (b) Name the classes of it (c) Draw the diagram of an immunoglobulin.
20. Define the following (a) Apoptosis (b) Apomixis (c) Microsomes
21. (a) What is karyotyping? (b) Which stage of chromosomes are used in this process? (c) From where are the cells obtained for karyotyping?
22. Explain briefly the Griffiths experiment demonstrating bacterial transformation.
23. List any six differences between DNA and RNA.
24. Show a dihybrid cross between homozygous round, yellow seeds and wrinkle, green seeds in pea plant and mention the Mendel's law it follows.
25. Explain the 2 techniques based on solubility.

**Section – D (5 Marks)**

26. (a) Give two important characteristics of stem cells. How do embryonic cells differ from adult stem cells?  
(b) State any two functions of the proteins embedded in the plasma membrane.
27. (a) Explain Calvin cycle with a neat flow chart. (b) Give reason why this cycle is also known as C<sub>3</sub> cycle?

**OR**

(a) Explain EMP pathway with a neat flow chart. (b) Expand EMP.

28. Explain the process of semi-conservative replication of DNA along with a short note on the enzymes involved in the process.

**OR**

Explain the process of initiation, elongation and termination in the process of transcription.