

Biotech Industrial Training Programme (BITP) 2013-14

Sample Questions for Online Test

Basic Science:

1. The class of enzymes catalyzing transfer of electrons is called: 1 Mark
 - a. Isomerases
 - b. Transferases
 - c. Lyases
 - d. **Oxidoreductases**
2. Which amongst the following is the strongest electron donor? 1 Mark
 - a. CH₃
 - b. CH₃CH₂
 - c. CH₃CH₂CH₂
 - d. **CH₃CH₂CH₂CH₂**
3. What is the approximate molarity of pure H₂O at 25 degrees C and 1 atmosphere pressure? 1 Mark
 - a. 18
 - b. **55**
 - c. 40
 - d. 80
4. If $x-7=2y$ and $x = 5+3y$, what is the value of y? 1 Mark
 - a. -5
 - b. -2
 - c. **2**
 - d. 5
5. How many mL of water must be added to 300 mL of 0.75 M HCl to dilute the solution to 0.25 M? 1 Mark
 - a. **900 ml**
 - b. 600ml
 - c. 300ml
 - d. 930ml

Basic Biotech

1. Which of the following have groups of spherical cells: 1 Mark
 - a. Streptococci
 - b. **Staphylococci**
 - c. Pediococci
 - d. Pneumococci
2. Enzyme papain is used with success to: 1 Mark
 - a. Leaven bread
 - b. Ripen papaya fruit
 - c. Increase meat production

- d. **Tenderize meat**
3. To optimize the bioreactor system which one of the following conditions is the least important for anaerobic fermentation? 1 Mark
- Control parameter like pH
 - Maintenance of temperature
 - Respiratory Quotient
 - Culture agitation**
4. Which one of the following is not true about DNA microarray technology? 1 Mark
- The technology is derived from computer chip manufacture
 - Technology works best for organism whose genome is completely sequenced
 - The technology is used to access transcription from multiple gene simultaneously
 - An electron microscope is used to gather data from the arrays**
5. An animal cell line was transfected with DNA extracted from a tumor tissue. Which one of the following will be diagnostic for tumorous transformation? 1 Mark
- Altered cell shape
 - Contact inhibition
 - Anchorage independent cell division**
 - Increased duration of cell cycle
6. Which enzyme of the citric acid cycle is inhibited by malonate? 1 Mark
- Citrate synthetase
 - Succinyl CoA synthetase**
 - Pyruvate dehydrogenase
 - Isocitrate dehydrogenase
7. A new antibiotic was discovered which strongly inhibited mRNA precursor transcripts and snRNA transcript formation. This antibiotic could be an inhibitor of: 1 Mark
- RNA polymerase I
 - RNA polymerase II**
 - RNA polymerase III
 - Helicase
8. Which of the following is isomerized by light as the first event in visual excitation? 1 Mark
- Retinol
 - All-*trans* retinal
 - Retinoic acid
 - 11 *cis*-retinal**
9. Opsonization process relates to 1 Mark
- B cells
 - T Cells
 - Hepatocytes
 - Macrophages**
10. The Regulatory agency in India which approves containment facility for use of GMOs involving 20 litre capacity and above. 1 Mark
- Institutional Biosafety Committee

- b. Genetic Engineering Appraisal Committee
- c. Review Committee on Genetic Manipulation.
- d. National Biotechnology Regulatory Authority

Biotech Difficult

1. A solution of protein has an absorbance at 280nm of 0.64 in a 0.5cm path length cuvette. Given that the molar extension coefficient for the same protein is $4 \times 10^3 \text{ M}^{-1} \text{ cm}^{-1}$, the concentration of protein solution is

2 Mark

- a. 20 μ M
- b. 0.2 mM
- c. 1×10^{10} M
- d. 0.1mM

2. Match the industrial application of the following enzymes:

2 Mark

- | | |
|-----------------|-------------------|
| a. Pencillinase | 1. Pharmaceutical |
| b. Pectinase | 2. Leather |
| c. Protease | 3. Wine |
| d. Rennin | 4. Dairy |

- | | |
|-----------------|------------------|
| a-1 b-3 c-2 d-4 | a-4, b-3 c-1 d-2 |
| a-1 b-2 c-3 d-4 | a-4 b-2 c-3 d-1 |

3. Which one of the following partial amino acid sequences is likely to be found in trans membrane protein

2 Mark

- a. -Leu-Glu-Ala-Ser-Val-Phe-
- b. -Leu-Val-Pro-Asp-Ile-Met-
- c. -Leu-Arg-Val-Leu-Val-Lys-
- d. -Leu-Val-Met-Phe-Ala-Ile-

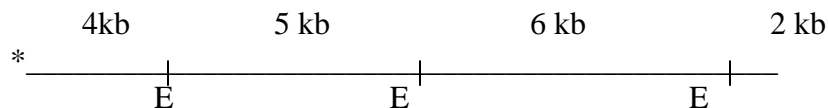
4. Ame's test is performed to determine

2 Mark

- a. carcinogenicity of chemicals;
- b. sporulation of bacteria
- c. pathogenicity of a bacterium;
- d. motility of a bacterium

5. A linear ds DNA radiolabelled at only one end (denoted as *) is partially digested with *EcoRI* (E). The DNA is electrophoresed in a agarose gel. The DNA bands are blotted on to a nitrocellulose and later exposed to X-ray film. The molecular weights of the band were determined. The band/s that would be observed on X ray films is/are

2 Mark



- a. 4, 5, 6 and 2 kb fragments
- b. 9, 11, 8 kb fragments
- c. 4 kb fragment only
- d. 4, 9, 15 and 17 kb fragments