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**2 SEM TDC BIOTCH G 1**

**2016**

**( May )**

**BIOTECHNOLOGY**

**( General )**

**Course : 201**

**( Biophysics and Analytical Technique )**

Full Marks : 48

Pass Marks : 19/14

**Time : 2 hours**

*The figures in the margin indicate full marks  
for the questions*

1. Choose the correct answer from the following : 1×5=5

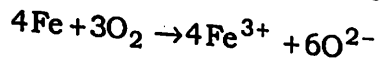
(a) At equilibrium  $\Delta G$  of a reaction is

- (i) positive
- (ii) negative
- (iii) zero
- (iv) None of the above

*( Turn Over )*

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- (b) Which of the following statements is incorrect for the given reaction?



- (i) It is a redox reaction
  - (ii)  $\text{Fe}^{3+}$  is an oxidising agent
  - (iii) Metallic iron is a reducing agent
  - (iv) Metallic iron is reduced to  $\text{Fe}^{3+}$
- (c) Stationary phase in paper chromatography is

- (i) paper strip as such
- (ii) developing solvent
- (iii) water molecules trapped in paper strip
- (iv) sample itself

- (d) Which of the following metal ions plays an important role in the formation of  $\text{O}_2$  at photosystem II?

- (i) Manganese (Mn)
- (ii) Magnesium (Mg)
- (iii) Copper (Cu)
- (iv) Iron (Fe)

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- (e) The photoreceptor 'cones' is responsible for

- (i) dim light vision
- (ii) bright light vision
- (iii) dim light and colour vision
- (iv) bright light and colour vision

2. Write briefly about the following : 3+3+4=10

- (a) Monochromator
- (b) Partition principle in chromatography
- (c) Enthalpy and entropy

3. Describe the principles and practice of electrophoresis. Also mention its application. 3+4+4=11

Or

Mention Lambert and Beer law, and discuss the colorimetric determination of concentration of biomolecules. 4+7=11

4. What is photophosphorylation? Discuss briefly how ATP is produced during this process. 4+7=11

Or

Stating second law of thermodynamics, mention its application in living system with suitable examples. 4+7=11

( Turn Over )

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5. Write short notes on any *two* of the following : 5½×2=11

- (a) Photoreception in living system
- (b) Ion-exchange chromatography
- (c) Atomic absorption spectroscopy
- (d) Energetics in living body

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