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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 ΔG of a reaction is

(i) positive

(ii) negative

(iii) zero

(iv) None of the above

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

$$4Fe + 3O_2 \rightarrow 4Fe^{3+} + 6O^{2-}$$

(i) It is a redox reaction

(ii) Fe^{3+} is an oxidising agent

(iii) Metallic ion is a reducing agent

(iv) Metallic ion is reduced to 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 O_2 at photosystem II?

(i) Manganese (Mn)

(ii) Magnesium (Mg)

(iii) Copper (Cu)

(iv) Iron (Fe)

(Continued)

(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)

5. Write short notes on any *two* of the following : $5\frac{1}{2} \times 2 = 11$

(a) Photoreception in living system

(b) Ion-exchange chromatography

(c) Atomic absorption spectroscopy

(d) Energetics in living body

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