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2 SEM TDC BIOTCH G 1

2018

(May)

BIOTECHNOLOGY

(General)

Course : 201

(Biophysics and Analytical Techniques)

Full Marks : 48
Pass Marks : 19/14

Time : 2 hours

The figures in the margin indicate full marks for the questions

1. Choose and write the correct option from the following : 1×5=5

(a) The similarity between the molecular structures of haemoglobin and chlorophyll is

(i) presence of magnesium

(ii) presence of iron

(iii) presence of porphyrin

(iv) None of the above

(b) Dark reaction takes place in

(i) granum

(ii) thylakoid

(iii) stroma

(iv) Both (i) and (iii)

(c) The basic principle behind any chromatographic technique is

(i) molecular weight

(ii) charge of the molecules

(iii) physicochemical nature of the molecules

(iv) retardation factor

(d) Thin-layer chromatography is

(i) adsorption chromatography

(ii) electrical mobility of ionic species

(iii) partition chromatography

(iv) None of the above

(Continued)

(e) Infrared spectroscopy provides the valuable information about

(i) molecular weight

(ii) functional groups

(iii) conjugation

(iv) melting weight

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

(a) Ultrastructure of chloroplast

(b) Second law of thermodynamics

(c) Principle of UV-Vis spectroscopy

3. Explain the events in Blackman's reaction with suitable diagrams. 8+3=11

Or

Explain photosystems I and II with suitable diagrams. 8+3=11

4. Explain the principle and procedure of IR spectroscopy with a suitable diagram. Mention its applications. 4+3+2+2=11

Or

Explain the principle and procedure of X-ray crystallography with a suitable diagram. Mention its applications. 4+3+2+2=11

(Turn Over)

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

   (a) Principle and practice of ion-exchange chromatography

   (b) Colorimetry

   (c) Raman spectra

   (d) Principle and practice of SDS-PAGE

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