2Yt0(7sr11 n ;

ZOOLOGY

PAPER—IWGroupcB)

Full A^arksr`:,d

7Y'me : 2 hours

Apswgr- **any four questions** .tg[Wng **two** from each Unit

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

Write the answers Questions of each Unit in separate books

UNIT-I

(Histology and Physiology)

[Marks :251

1. (a) What is vital staining ? **2**

(b) Distinguish between Azo -dye and Nitro-dye. 2

(c) (i) State the role of thiamine pyrophosphate **(TPP) as co-enzyme.** **21**

2

(h) **Mention the functions of pantothenic acid.** 2

(d) **Give an account of spare receptor and threshold receptor occupancy in the mechanism of hormone action.** 3

2. **(a) Mention the characteristics and significance of active transport.** 5

(b) Classify fixatives with **suitable examples.** 2

(c) State the factors any *three* involved in tissue-dye interaction. 2

(d) Why are dyes **coloured?** 3

(a) What is the difference between haematoxylin and haematin ?

(b) cAMP mediated hormone action is short lived. Explain. 3

(c) Why does the action potential propagate always in a forward direction? 1

(d) Describe the mechanism of hormone action through tyrosine kinase where the receptor has no tyrosine kinase.activity. 6

4. (a) Give an outline classification of dye **on the basis of chromophoric system with example. 4**

(b) Describe **the mechanism** of fixation. 4

(c) What is a,ntiixidant? Which vitamins are antioxidant ? Mention its significance. 41

2

UNIT-II

Biophysics and Biochemistry)

[Marks:25]

5. (a) Discuss the active site of an enzyme using specific example in the light of amino acid residues in the active site that take part in the enzyme -substrate reaction.

(b) What is the significance of redox potential? Calculate the free energy release when 2 electrons flow from cytochrome b to cytochrome c, understandard condition. The two half reactions with E Os are given as follows

(i) Cytbra-+Cytbm.40=+O05V

(ti) Cytci. -Cytci .EE=+O.25V

[Given F= 23.062 **cal mol-**' volt-' 1.

(c) What is regulatory enzyme? 'Glycogen phosphorylase **enzyme'** is covalently **modulated** regulatory enzyme. **Explain.**

(d) What is multienzyme **complex?** 121 2

6. (a) Write briefly on nonoxidative deamination with **an example** 3

(b) Why **tyrosine is both glucogenic and ketogenic amino acid ?** 1 2

(c) Show the position of the components of fatty acid synthase system with a diagram . Mention the importance of ACP. 3

(**d) How specific dynamic action of protein is related to the reactions** of TCA cycle? 3

(e) Why liver glycogen can supply glucose to blood but muscle glycogen cannot ? 2

(a) Draw a diagram illustrating the Helmholtz-Gouy double layer of a colloidal particle. How formation of stone in the gall-bladder is prevented ? $3\frac{1}{2} + 1\frac{1}{2}$

(b) Buffers can resist but cannot prevent the change of pH. Explain. Why pH of a buffer solution is not changed by dilution ? 4

(c) Describe the effect of Donnan phenomenon on the osmotic pressure difference on the two sides of a membrane. $3\frac{1}{2}$

8. **(a) State the differences between solubility and osmoticity. Write briefly on artificial kidney.** $1\frac{1}{2} + 3$

(b) Write short **notes** on *any four* of the following : 2x4

(i) Specific rotation

(ii) **Principal components of a spectrophotometer.**

(iii) Reynold's number

(iv) Switching over from ammonotelism to **ureoteleism**

(v) Anaplurosis

(vi) **FOF1 ATP synthase**

(vii) **Electrodialysis**

(*viii*) Salting out.