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SARDAR PATEL UNIVERSITY

B.Sc. (SEM-6) EXAMINATIONS(BOTANY)

FRIDAY , 6<sup>TH</sup> APRIL-2018

10-00 AM TO 1-00PM

US06CBOT06-PLANT METABOLISM AND BIOCHEMISTRY (MARKS-70)

Q-1MCQ

(10)

(a) E.C.-6.a.b.c is an example for the class of enzyme namely:

(i) Hydrolases (ii) Transferases (iii) Isomerases (iv) Ligases

(b) The protein part of the conjugated enzyme known as :

(i) coenzyme (ii) apoenzyme (iii) Holoenzyme (iv) metal activator

(c) Which factor is affecting enzyme catalyzed reaction:

(i) Temperature (ii) water (iii) buffer (iv) All of these

(d) In Plants, glucose anaerobically converted into:

(i) Lactate (ii) Pyruvate (iii) Ethanol (iv) All of these

(e) Which one of the following is a malt sugar?

(a) Lactose (ii) Maltose (iii) Dihydroxy acetone (iv) None of these

(f) Which one of the following is a reducing sugar?

(a) Lactose (ii) Maltose (iii) Glucose (iv) All of these

(g) Which one of the following is a MUFA?

(i) Oleic acid (ii) Linoleic acid (iii) Acetic acid (iv) None of these

(h) How many double bond are present in Oleic acid?

(a) 1 (ii) 2 (iii) 3 (iv) 4

(i) Wax is a :

(a) Lipid (ii) Protein (iii) Hormone (iv) All of these

(j) Protein is a polymer of :

(a) Aminoacids (ii) Fattyacids (iii) Nucleotides (iv) All of these

①

[P.T.O.]

Q-2 ANSWERS ANY TEN

(20)

- (a) Why enzymes are known as biocatalysts?
- (b) Define: activation energy
- (c) What is  $K_m$ ?
- (d) What is meant by reducing sugar?
- (e) What is substrate level phosphorylation?
- (f) What is the role of kinase in Glycolysis?
- (g) What are PUFA?
- (h) Write structure of caproic acid.
- (i) Give examples of alcohol present in lipids.
- (j) Draw a structure of glycine.
- (k) What are the sources of nitrogen?
- (l) Give examples of bacteria involved in nitrogen fixation.

Q-3(a) Derive M-M equation when  $V_0 = V_{max}/2$

(07)

(b) Write in brief on mechanism of enzyme action?

(03)

OR

Q-3(a) Derive line weaver-burk equation.

(05)

(b) An enzyme catalyzed reaction has a  $K_m$  of 1mM and a  $V_{max}$  of 5nM per second. What is the reaction velocity when substrate concentration is 0.25 mM?

(05)

Q-4(a) What is oxidative phosphorylation? Write reactions where ATP produced by OP during glucose oxidation.

(07)

(b) Why kreb's cycle is known as central metabolic pathway?

(03)

OR

Q-4(a) What is oxidative decarboxylation? Explain by giving suitable reactions during glucose catabolism.

(07)

(b) Explain: Fermentation

(03)

Q-5 How many ATP molecules are produced after complete oxidation of one molecule of stearic acid. Write all energy producing and consuming reactions. (10)

OR

Q-5 Write in detail about cyclic pathway reported by sir Hans Krebs (10)

Q-6(a) Explain: Nitrogen cycle (07)

(b) Define: Nitrification (03)

OR

Q-6(a) Write in detail about Transamination. (07)

(b) Define: Denitrification (03)

