

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2018
(First Semester)

Branch - **BIOCHEMISTRY**

ENZYMES & ENZYME TECHNOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

- 1 Name the Scientist who coined the term enzyme.
(i) Pasteur (ii) Kuhne
(iii) Emil Fisher (iv) Robert
- 2 Which of the following is an analog for TPCK?
(i) Pepsin (ii) trypsin
(iii) Carbonic anhydrase (iv) chymotrypsin
- 3 A metal cofactor which is used in synthesis of glycolysis is
(i) Fe^{+3} (ii) Mn^{+2}
(iii) Co^{+2} (iv) Mg^{+2}
- 4 Which of the following are reduced coenzymes?
(i) NADH and FADH₂ (ii) NAD* and FAD
(iii) ATP and GTP (iv) Coenzyme A and Ubiquinone
- 5 The rate determining step of Michaelis - Menten kinetics is
(i) The complex dissociation step to produce products
(ii) The complex formation step
(iii) The product formation step (iv) Substrate forming
- 6 When $[S] = K_M$, the velocity of an enzyme catalyzed reaction is about
(i) $0.1 * V_{max}$ (ii) $0.2 * V_{max}$
(iii) $0.3 * V_{max}$ (iv) $0.5 * V_{max}$
- 7 Which is the enzyme that acts as a regulatory enzyme in a four-step metabolic pathway?
(i) First enzyme (ii) Fourth enzyme
(iii) Second enzyme (iv) Third enzyme
- 8 Biologist who suggested modification in lock and key model proposed by Emil Fischer is
(i) Jane Olive (ii) Emil August
(iii) Daniel Olive (iv) Daniel Koshland
- 9 Which medium is used for the production of Penicillin using immobilized cells?
(i) 1% peptone medium (ii) glucose medium
(iii) yeast extract medium (iv) LB broth
- 10 An example of bio sensor, urea electrode makes use of which of the following electrodes?
fii'i Ammonia electrode

SECTION - B (35 Marks!

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 7 = 35)

- 11 a What is active site? Explain its features.
OR
b How do you identify the intermediates by trapping method? Explain.
- 12 a Illustrate the structure, functions and mechanism of action of coenzyme A.
OR
b What are metalloenzymes and metal dependent enzymes? Illustrate with examples.
- 13 a Explain LB and Eadie plot.
OR
b Discuss the diagnostic applications of enzymes.
- 14 a Explain K and V series of enzymes.
OR
b Explain the feedback and feedforward regulation.
- 15 a What are the features of an ideal biosensor? Explain immuno biosensors.
OR
b Discuss on enzyme engineering with examples.

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Elucidate the investigation of active site by TPCK and TPLK.
- 17 Analyse the structure, functions and mechanism of PLP co enzyme.
- 18 Evaluate the mechanism of competitive enzyme inhibition with examples.
- 19 Exemplify the mechanism of chymotrypsin.
- 20 Analyse the methods and applications of enzyme immobilization.

Z-Z-Z

END