

QP Code : 10405

(3 Hours)

[Total Marks : 70

- N. B. :** (1) All questions are compulsory
(2) Figures to the right indicate full marks
(3) Draw neat labelled diagram wherever necessary.

1. (a) Answer the following :- 12
(i) Explain (a) Vital capacity (b) Tidal volume
(ii) Enlist types of neuroglia & give function of any one.
(iii) Enlist secretions of hypothalamus.
(iv) Give in brief etiology of type II diabetes mellitus.
(v) Explain different types of epilepsy in short.
(vi) Enlist functions of skin.
- (b) Fill in the blanks :- 3
(i) _____ hormones is regulated by positive feedback mechanism.
(ii) _____ is an example of an inhibitory neurotransmitter.
(iii) _____ eye muscles are capable of moving the eye in almost any direction.
2. (a) Answer **any two** of the following :- 8
(i) Describe mechanism of apoptosis.
(ii) Explain causes of cell injury.
(iii) Explain mechanism of metastasis in cancer.
- (b) Answer **any one** of the following :- 3
(i) Describe the biological effects of u.v. radiation.
(ii) Enlist different types of radiations & comment on biological effects of x-rays.
3. (a) Answer **any two** of the following :- 8
(i) With the help of neat labelled diagram describe T.S. of spinal cord.
(ii) Write a short note on sensory areas of cerebral cortex.
(iii) Write a note on cranial nerves.
- (b) Write short note on **any one** of the following :- 3
(i) Alzheimer's disease
(ii) Stroke
4. (a) Answer **any two** of the following :- 8
(i) Draw a neat labelled diagram of respiratory membrane.
(ii) Write a note on respiratory acidosis and respiratory alkalosis.
(iii) Give pathophysiology of bronchial asthma.

- (b) Answer **any one** of the following :- 3
- (i) Explain factors affecting pulmonary ventilation.
 - (ii) Discuss transport of carbon dioxide in blood.
5. (a) Answer **any two** of the following :- 8
- (i) Explain synthesis, storage & release of thyroid hormone.
 - (ii) Write a note on regulation of blood glucose levels.
 - (iii) Discuss hormones secreted by adrenal gland.
- (b) Write short note on **any one** of the following :- 3
- (i) Addison's disease
 - (ii) Goiter
6. (a) Answer **any one** of the following :- 4
- (i) Explain physiology of vision
 - (ii) Explain physiology of gustation
- (b) Answer **any one** of the following :- 4
- (i) Describe the effect of stimulation of parasympathetic & sympathetic division on blood vessels & gastrointestinal tract.
 - (ii) Write a note on autonomic ganglia
- (c) Answer **any one** of the following :- 3
- (i) Write a note on light and dark adaptations.
 - (ii) Explain with the help of suitable diagram anatomy of olfactory receptors.
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5. (a) Explain development of Pharmacy profession in India. 2
(b) Explain any one method to measure flow properties of non-newtonian liquids. 2
(c) Discuss filling operation of monophasic liquids. 3
(d) Discuss particle size reduction using hammer-mill or fluid energy mill. 4
6. (a) What is Pharmacopoeia ? Explain its importance. 3
(b) Define bioavailability and state the factors affecting bioavailability. 2
(c) Explain various quality control tests performed on monophasic liquids. 4
(d) What are quality control parameters for powders ? 2
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Sem - II CBSSGS / KT

[PP - II]

14/11/14

QP Code : 10398

(3 Hours)

[Total Marks : 70

N.B. : (1) All questions compulsory.

(2) Draw neat labelled diagrams wherever necessary.

1. (a) Determine the pH of 0.1 N NaOH solution and 0.1 N H_2SO_4 . 2
- (b) What is Henry's law? Give limitations of Henry's law. 3
- (c) Derive the equation for rate constant (k) for first order reaction. 3
- (d) What is spreading coefficient? write any two applications of spreading coefficient. 3
- (e) Write a note on Glass electrode. 2
- (f) Differentiate between hydrophilic colloid and hydrophobic colloid. 2

2. (a) What is tonicity and describe the methods used to adjust tonicity. 4

OR

- (a) Write short note on pharmaceutical biological buffers.
- (b) What is phase rule? Describe the phenol water system with the help of diagram. 4
- (c) Define following. 3
 - (i) Order of reaction
 - (ii) Molecularity
 - (iii) Chemical kinetics

3. (a) Write a note on solubility of gases in liquid. 4
- (b) Describe in detail any two methods to determine the order of reaction. 4

OR

- (b) What is the effect of increase of temperature on reaction rate and explain Arrhenius equation.
- (c) What is adsorption isotherm? Derive the equation for Langmuir Adsorption isotherm. 3

4. (a) Derive the Handerson Hasselbach equation for a weak acid and its salt. 4
- (b) Explain different types of electrodes. 3
- (c) Write short note on electrical properties of colloids. 4

OR

- (c) Write short note on following.
 - (1) Zeta potential
 - (2) Kinetic properties of colloids

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BN-Con. : 3454-14.

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5. (a) Write a note on collision theory. 3
(b) What is wetting angle and give its importance. 4
(c) Define Schultz Hardy Rule and write a note on protective colloids. 4

OR

- (c) Write a note on gold number.
6. (a) The half life of a substance in a first order reaction is 100seconds. Calculate the rate constant and how long will it take for the reaction to be completed 75%. 3
(b) Define surface tension and explain Du nuoy tensiometer method to determine surface tension. 4
(c) Write short note on following. 4
(i) Quinhydrone electrode.
(ii) Standard Hydrogen electrode.
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QP Code : 10395

(3 Hours)

[Total Marks : 70

N.B. : (1) All questions are compulsory.

1. Answer the following :-
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| (a) Draw structure of cellobiose. | 1 |
| (b) Draw fischer projection formula of C ₂ epimer of glucose. | 1 |
| (c) Explain Inversion of sucrose. | 1 |
| (d) Draw str. of any one basic amino acid. | 1 |
| (e) Draw str. of any one aliphatic side chain containing amino acid with one letter code. | 1 |
| (f) Draw str. of Arachidonic acid. | 1 |
| (g) Explain the effect of substrate concentration on enzyme activity. | 2 |
| (h) What is irreversible enzyme inhibition ? | 2 |
| (i) Give the mechanism of ACE inhibitor. | 1 |
| (j) Explain positive feedback inhibition in regulation of enzyme activity. | 1 |
| (k) Define vitamin and classify it. | 1 |
| (l) Give the role of vit. C. | 1 |
| (m) Define catabolism with e.g. | 1 |
2. (a) Write note on secondary structure of proteins with significance. 3
 (b) Define Michaelis-menten equation and state its important assumptions. 3
 (c) Discuss NADH as energy carrier. 3
 (d) Give salient features of digestion and absorption of lipids. 2
3. (a) Write a note on starch. 3
 (b) Write note on vitamin A or vitamin D. 3
 (c) Discuss compartmentalization of enzymes. 2
 (d) Write a note on Nicotinamide. 2
 (e) Give role of kidney or muscle in digestion and absorption of food. 1
4. (a) Define and classify amino acid according to the chemical nature and structure (one str. from each class). 3
 (b) Write short note on triacylglycerols. 3
 (c) Discuss Biological role of vit. B12 or vit. B2. 3
 (d) Explain what is thermodynamically favorable reaction. 2

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5. (a) Write note on the chemistry and biological role of sucrose. 3
(b) Write note on factors affecting enzyme activity. 3
(c) Write note on inositol. 3
(d) Define standard free energy. 2
6. (a) Draw str. of lecithin. 2
(b) Give e.g.s of drugs that inhibit the following enzymes and their clinical significance :- 2
(i) Cyclooxygenase
(ii) Renin.
(c) Explain in brief post-translational modification to control enzyme activity. 2
(d) Write short note on Folic acid. 3
(e) Discuss the role of Tocopherol. 2
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QP Code : 10393

(3 Hours)

[Total Marks : 70

- N.B. (1) All the questions are compulsory.
(2) Draw diagrams wherever necessary.

1. (a) Answer the following :- 11
- (i) What are sequestering agents? Give one example.
 - (ii) Define Curie.
 - (iii) What is the cause of temporary hardness?
 - (iv) What is acidity and what could be its outcome?
 - (v) What are diluents? Give one example.
 - (vi) Explain the use of zinc oxide and how does it act?
 - (vii) Explain radiochemical purity.
 - (viii) What are dental carries?
 - (ix) Give two examples of astringent.
 - (x) What do you mean by milliequivalent?
 - (xi) Write symptoms of hypermagnesemia.
- (b) Justify the following :- 4
- (i) Calcium phosphate cannot be used as supplement for phosphate.
 - (ii) Aluminum containing antacids should be used for prolonged period.
2. (a) Write a note on saline cathartics OR antidiarrheal agents. 4
- (b) Classify anti-infective agents and explain mechanism of anti-infective agents. 3
- (c) (i) What are topical agents? Classify with suitable examples. 4
- (ii) Explain the consequences of Cyanide poisoning and explain the mechanism of action of one antidote used.
3. (a) Define Hematinic. Discuss anyone example in detail. 2
- (b) Enumerate various fluoride containing agents. Discuss their mechanism of action. 4
- (c) (i) What do you mean by radiopharmaceuticals? Describe anyone method to measure radioactivity in detail. 3
- (ii) Write a note on ^{131}I with respect to radiation(s) emitted, its half-life, its uses and various compounds used as radiopharmaceuticals. 2
4. (a) Discuss any two methods removing permanent hardness of water? 4
- (b) Write notes on (any two) :- 4
- (i) Diluents
 - (ii) Lubricants
 - (iii) Suspending agents
- (c) What is meant by half-life of radiopharmaceutical? Why it is an important parameter in clinical application. 3
5. (a) What are electrolytes used in combination therapy? Explain any two in detail. 4
- (b) Write a note on application of chelating agents. 3
- (c) What are gastrointestinal protective and adsorbents? Give properties, action and uses of hydrated aluminum silicate. 4
6. (a) Answer the following (any two) :- 6
- (i) Write a note on systemic acidosis and measures to rectify.
 - (ii) What are physiological functions of phosphate? Enumerate conditions related to phosphate imbalance.
 - (iii) Write a note on physiological role of sodium and calcium.
- (b) (i) Give the various mechanism of action of topical anti-infective agents. 3
- (ii) Write a note on nitrous oxide gas. 2