

(3 Hours)

[Total Marks: 80]

- N.B.: 1) All questions are compulsory  
2) Figures to the right indicate full marks  
3) Draw neat, labeled diagrams wherever necessary.

**Q.1. a) Answer the following: -**

16

- i. Write the composition and function of cerebrospinal fluid.
- ii. Enlist any four hormones of anterior pituitary.
- iii. Define: (a) Total lung capacity (b) Inspiratory capacity.
- iv. Enlist any four symptoms of Parkinson's disease.
- v. Write the functions of lacrimal fluid.
- vi. Describe Cushing's syndrome.
- vii. Define atrophy and give one example.
- viii. Enlist the triggers for asthma.

**Q.1B) Answer the following: -**

4

- i. \_\_\_\_\_ and \_\_\_\_\_ muscles present in iris are responsible for change in pupil diameter.
- ii. Fight and flight response is elicited by \_\_\_\_\_ system of ANS.
- iii. Aldosterone is a \_\_\_\_\_ (Mineralocorticoid / Glucocorticoid).
- iv. \_\_\_\_\_ enzyme causes break down of Acetylcholine in synapse.

**Q.2. a) Answer the following: -**

8

- i. Explain the causes of cell injury.  
**or**  
Differentiate between apoptosis and necrosis.
- ii. Explain the cytomorphological changes in cancer.  
**or**  
Explain the process of metastasis.

**Q.2.B) Answer any one the following**

4

- i. Describe the factors affecting the biological effects of radiation
- ii. Explain the biological effects of nuclear radiation.

**Q.3.A) Answer any two the following:**

8

- i. Give an account of parts of the brain stem and their functions.
- ii. Write a note on cranial nerves.
- iii. Discuss the structure and the functional classification of the neurons.

**Q.3.B) Discuss the pathophysiology of (any one)**

4

- i. Stroke
- ii. Alzheimer's disease

**Q.4.A) Answer any two the following:**

8

- i. Discuss transport of oxygen in blood.
- ii. Explain mechanism of external respiration.
- iii. Draw neat and labeled diagram of bronchial tree.

**Q.4.B) Discuss the pathophysiology of (any one)**

4

- i. Respiratory acidosis and alkalosis
- ii. Bronchitis

**Q.5.A) Answer any two the following:**

8

- i. Explain calcium homeostasis.
- ii. Comment on physiological role of thyroid hormones.
- iii. Explain in detail role of posterior pituitary.

**Q.5.B) Discuss the pathophysiology of (any one)**

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- i. Grave's Disease
- ii. Addison's disease

**Q.6.A) Answer any two the following:**

8

- i. Discuss the anatomical features of the middle ear and its role in hearing.
- ii. Write a note on physiology of gustation.
- iii. Discuss the structure of the skin.

**Q.6.B) Answer any one the following**

4

- i. State the effect of acetylcholine on the following: bronchi, heart, salivary gland, pupil of the eye
- ii. Distinguish between sympathetic and parasympathetic nervous system.

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Q1

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| a) Oxidation of one acetyl CoA molecule via TCA cycle gives ----- ATPs                                 | 1 |
| b) Enlist the precursors used for pyrimidine biosynthesis  | 1 |
| c) Name the inhibitors of Cyclo oxygenase enzyme   | 1 |
| d) Give name of any one enzyme involved in regulation of <i>de novo</i> synthesis of purine nucleotide | 1 |
| e) Define "Glycolysis"   | 1 |
| f) Give 2 examples of chemical uncouplers of oxidative phosphorylation                                 | 1 |
| g) Give the regulatory reaction for cholesterol biosynthesis   | 2 |
| h) Give complete reaction for rate – limiting step of fatty acid biosynthesis with structures.         | 2 |
| i) Give the significance of HMP pathway  | 2 |
| j) Calculate the total ATPs obtained in $\beta$ - oxidation of oleic acid                              | 2 |
| k) Define salvage pathway and what is the disorder associated with salvage pathway                     | 2 |
| l) Define proton motive force  | 2 |
| m) Enlist the enzymes involved in Glycogenesis   | 2 |

Q2 (a) Give the names and structures of substrate and product of the following enzyme catalysed reaction (**Any four**) 8

- i) Enoyl ACP hydratase
- ii) Glucose-6-phosphate dehydrogenase
- iii) Phosphofructo kinase - I
- iv) Prostacycline synthase
- v) Orotidylic acid decarboxylase

(b) Give the name of the enzyme catalysing the following conversion 4

- i) trans- $\Delta^2$ - Enoyl CoA to L- $\beta$ - hydroxyl acyl CoA
- ii) Aspartate to N-carbamoylaspartate
- iii) Pyruvate to oxaloacetate.
- iv) Glucose -6-phosphate to 6- phosphoglucono- $\delta$ -lactone

Q3 (a) Write reactions for conversion of succinate to oxaloacetate in Krebs cycle along with structures, enzymes, coenzymes. Also indicate whether reaction is reversible or irreversible. 3

- |   |   |
|---|---|
| (b) Give the reaction catalysed by transketolase.   | 3 |
| (c) Differentiate between $\beta$ - oxidation of saturated and unsaturated even number fatty acids. | 2 |
| (d) Enlist enzymes involved in biosynthesis of triglycerides  | 2 |
| (e) Outline the steps involved in synthesis of AMP from IMP.  | 2 |

- Q4. (a) Explain the complexes of ETC 3  
 (b) Give series of reactions for conversion of Acetyl-CoA to 3-ketoacyl ACP in the biosynthesis of fatty acids 3  
 (c) Give significance of ketone bodies 2  
 (d) Give names of two enzymes with the reactions which are only present in glyoxylate cycle and not in TCA cycle. 2  
 (e) Give reaction catalysed by thymidylate synthase enzyme. 2
- Q5 (a) Give the reactions involved in pay off phase of glycolysis. 3  
 (b) Explain the  $\beta$ -oxidation of odd number carbon containing fatty acids. 3  
 (c) Discuss substrate-level phosphorylation. 2  
 (d) Outline the steps involved in conversion of acetyl CoA to mevalonate. 2  
 (e) Give the reaction involved in synthesis of PRPP. 2
- Q6 (a) Outline the steps involved in synthesis of acetoacetate. 3  
 (b) Give the enzymes involved in glycogen breakdown with their roles. 3  
 (c) Describe the Cori cycle. 2  
 (d) Give the synthesis of CTP from UMP. 2  
 (e) Mention drugs modulating cholesterol synthesis. 2

Duration: 3 Hours

Marks:80

1. All questions are compulsory
2. Draw diagrams wherever necessary
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- 1 (i) Define Environment 1
- (ii) Define Silence Zone 1
- (iii) Define abiotic components of an ecosystem 1
- (iv) Define Troposphere 1
- (v) Enlist the methods for conservation of water as a natural resource 2
- (vi) Illustrate a simplified food chain 2
- (vii) Illustrate Disaster Management Cycle 2
- (viii) Give a schematic representation of multidisciplinary nature of environmental studies 2
- (ix) Explain Water Cycle 2
- (x) Enlist any two major significance of food chains and food webs 2
- (xi) What are biogeochemical cycles 2
- (xii) Enlist measures to control noise pollution 2
  
- 2.(i) What are ecological pyramids. How are they classified. What information do they convey. Discuss with examples 4
- (ii) What are solar cells. Draw a diagram and enumerate its applications. 4
- (iii) Discuss the salient features of Water (Prevention and Control of Pollution) Act 1947 4

OR

Discuss the salient features of Forest (Conservation Act), 1980

- 3.(i) What is EIA. How are the projects under EIA classified. Give a schematic representation of Environmental Clearance Process. 4
- (ii) With a neat labelled sketch explain bag house filters or Electrostatic precipitators as one of the devices for control of air pollution. 4
- (iii) What is wind energy and explain the working of wind turbine 4
  
- 4.(i) What are greenhouse gases and greenhouse effect. Discuss the impacts of greenhouse effect 4
- (ii) Explain use of principle of 3R in management of solid waste. Enumerate on Sanitary Landfill as one of the methods of solid waste management 4
- (iii) Give a brief account of Bhopal Gas Tragedy 4

OR

Write a note on techniques of disaster management with reference to earthquakes.

5. (i) Discuss in brief causes and effects of Water Pollution 4

OR

Explain global environmental crisis related with water

- (ii) What is Green Building. Enlist the merits and demerits of Green Buildings 4
- (iii) What is indoor air pollution. Discuss the sources and effects of indoor air pollution 4



- 6. (i) What are the causes and effects of depletion of soil resources and measures undertaken for prevention of same 4
- (ii) What are Carbon Credits. Explain the need and advantages of Carbon Credits 4
- (iii) Discuss the role of technology in environment and health 4

OR

Describe Ganga Action Plan

\*\*\*\*\*



Q.P. Code :02284

[Time: Three Hours]

[ Marks:80]

**Please check whether you have got the right question paper.**

- N.B:
1. All questions are compulsory.
  2. Figures to right indicate full marks.
  3. Draw a neat labelled diagram wherever applicable.

- A.1 a)** Explain organizational structure of hospital **02**
- b)** Explain role hospital pharmacist and nursing staff in charging policies in wards. **02**
- c)** Explain suitable method used for addition and deletion of drugs from hospital formulary. **02**
- d)** Explain infection control policies in hospital. **02**
- e)** Write note on 'Drug utilization Review.' **02**
- f)** Enlist various techniques used for sterilization of hospital supplies. Explain any one in brief. **02**
- g)** Enlist various intravenous additives. **02**
- h)** List different traits to be possessed by an entrepreneur. **02**
- i)** Explain functions of purchasing. **02**
- j)** Write note on 'Risk management in retail practice.' **02**
- Q.2 a)** Discuss the role of pharmacist in exercising control on ward stock items related to control substances. **04**
- b)** Comment on adverse drug reaction monitoring. **04**
- c)** Write a note on 'Legal aspects related to wholesale.' **04**
- Q.3 a)** Write a note on handling of radiopharmaceuticals in hospital pharmacy. **02**
- b)** Write short note on sterilization of surgical dressings and rubber gloves. **04**
- c)** Elaborate on importance of advertising in retail drug store. **04**
- d)** Explain want book method of inventory control. **02**
- Q.4 a)** Explain the 'Role of hospital pharmacist in the preparation and implementation of budget for hospital pharmacy.' **02**
- b)** Define hospital formulary. Elaborate on format and appearance of hospital formulary. **04**

Q.P. Code :02284

c) Write short note on joint stock company.

04

OR

Write short note on functions of retailer.

04

d) Elaborate on 'Risk management in drug store.'

02

Q.5 a) Explain care to be taken in designing procedures for administration of control drugs to in - patients.

02

b) State importance of PTC. Give composition of PTC.

02

c) Describe layout of CSSR. Elaborate on important factors to be considered for functioning of CSSR.

04

d) What do you understand by inventory control? Enlist different inventory control systems used in drug store. Explain any one in detail.

04

OR

Explain the factors to be considered in establishing purchasing policies in drugs store.

04

Q.6 a) Explain the 'Role of hospital pharmacist in efficient running of a hospital.'

04

b) Enlist different packaging materials used for sterilization. Elaborate on any one.

02

OR

Discuss various components of TPN with special precautions to be taken in manufacturing of TPN.

02

c) Explain 'Role of wholesaler in channels of distribution of pharmaceuticals.'

02

d) Elaborate on objectives of a drug store. Comment on role of store building, store front and doorway in efficient running of a drug store.

04

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Q.P. Code :36439

[Time: Three Hours]

[ Marks:80]

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
  2. Illustrate your answers with sketches and structures wherever necessary.
  3. Answers to sub-questions must be written together.

- Q.1 a) State whether true or false and justify all the statements with significant reasons or examples. 08
- i) Xanthum gum is an example of plant origin crude drug.
  - ii) Lactophenol is a good clearing agent.
  - iii) Barks and wood can be differentiated by the presence of xylem.
  - iv) Molish test is used to distinguish between carbohydrates and glycosides.
  - v) Gibberelins are plant hormones that regulate stem elongation.
  - vi) Asbestos is a synthetic fibre.
  - vii) Linoleic acid is an unsaturated fatty acid.
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- b) Answer the following. 12
- i) Give merits and demerits of alphabetical classification of crude drugs.
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  - iii) Discuss calcium oxalate crystals as cragastic cell content.
  - iv) Differentiate between Waxes and fats.
  - v) Write in short on any two natural pest control agent.
  - vi) Discuss Talc as a mineral origin drug.
- Q.2 i) Explain the significance and future scope of Pharmacognosy. 04
- ii) Write a note on underground modifications of stems. 04
- iii) Explain Source, preparation, chemical constituents, chemical tests and uses of acacia. 04
- Q.3 i) Differentiate between fruit and seed and explain with labeled diagram the microscopical features of fruit. 04
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- ii) Describe the factors to be considered during processing and storage of drugs with suitable examples. 04
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- Q.5 i) Write a note on Tannis and Lignans. 04  
ii) Compare and contrast Absorbant and Nonabsorbent cotton. 04  
iii) Give biological source, chemical constituent and uses of ‘Shatavari’ and “Brahmi”. 04
- Q.6 i) Discuss with examples dried latex, dried juices and dried extracts. 04  
ii) a) Give source, composition and application of any one plant lectin. 02  
b) Give source, constituent and uses of Chirata. 02  
iii) Write a note on TKP and Chitin. 04

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- Q.2 i) Explain the significance and future scope of Pharmacognosy. 04
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