5. Describe (a) Catabolism of heme (b) Hyperbilirubinemia and jaundice. 3+2

6. State four characteristics of the genetic code. Mention the various types of RNA and their functions. 2+3

7. Mention the significance of HMP shunt and describe glycogen storage diseases. 2.5+2.5

8. Mention therapeutic and diagnostic applications of enzymes (05 each) 2.5+2.5

9. What are ketone bodies? Describe the formation of ketone bodies. 1+4

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B.Pharm Even Semester Examination, May, 2025

PHARMACEUTICAL SCIENCES

(2nd Semester)

Course No: BP-203T

(Biochemistry Theory)

FM: 75

Time: 3 Hours

The figures in the right margin indicate full marks for the question

I. A Multiple choice questions 1x10=10

1. Which is the primary storage form of carbohydrates in animals?

   a) Cellulose b) Starch

   c) Chitin d) Glycogen

2. Precursor of steroid hormones is

   a) Phospholipids b) Cholesterol

   c) Triglycerides d) Fatty acids

3. Tryptophan hydroxylase requires the following for its activation:

   a) NADPH b) NADH

   c) Biopterin d) NADPH + O_2

4. Which of the following amino acids contains sulfur in its side chain?

   a) Lysineb) Methionine

   c) Glutamine d) Leucine

5. Which of the following is an example of globular protein?

a) Collagen b) Keratin

c) Haemoglobin d) None of the above

6. Which type of bond links nucleotides together in a nucleic acid chain?

a) Peptide bond b) Phosphodiester bond

c) Hydrogen bond d) Glycosidic bond

7. Which enzyme is responsible for adding nucleotides during DNA replication?

a) RNA polymerase b) DNA polymerase

c) Ligase d) Helicase

8. Which of the following contributes to the N_9 atom of purine ring of the nucleotides?

a) Aspartate b) Glycine

c) Glutamine d) N^{10}-formyl THF

9. Which of the following is called invert sugar?

a) Glucose b) Fructose

c) Maltose d) Sucrose

10. The parent molecule for the synthesis of purine nucleotides is

a) α-D-ribose-5-phosphate

b) Uridine monophosphate

c) Inosine monophosphate

d) None of the above

I. B Objective type (Answer the following in brief) 2x5=10

1. Explain osazone formation in glucose with reaction.

2. Mention the difference between DNA and RNA (04 points).

3. What do you mean by semi-essential amino acids? Give examples.

4. What are Glycolipids? Give two examples.

5. Mention the composition of nucleotides and nucleosides.

II. Long answers (Answer two out of three questions) 10x2=20

1. Explain urea cycle and its disorders.

2. Discuss aerobic glycolysis and its associated energetics.

3. Describe the â-oxidation of palmitic acid and its energetics.

III. Short answers (Answer seven out of nine questions) 5x7=35

1. Mention the various steps involved in the biosynthesis of pyrimidine nucleotides.

2. Define energy rich compounds. Mention the classification with examples. 1+4

3. Describe the IUB classification of enzymes with examples.

4. Mention the biosynthesis and significance of melatonin. 4+1