

**M.B.B.S. DEGREE EXAMINATION**

(For the candidates admitted from the Academic Year 2019-2020)

**FIRST YEAR – (CBME)**

**PAPER II – BIOCHEMISTRY**

*Q.P. Code: 526056*

**Time: Three hours**

**Maximum : 100 Marks (80 Theory + 20MCQs)**

**Answer All Questions**

**I. Essay:**

**(2 x 15 = 30)**

1. Write in detail about the initiation, elongation and termination of transcription. Give an account of post transcriptional processing.
2. A 40 year old woman complains of tiredness and appears pale. She is experiencing a heavy and prolonged menstrual flow. Blood investigation shows decreased haemoglobin and microcytic hypochromic Red Blood Cells.
  - a) What are the causes of Anaemia?
  - b) Describe in detail about Iron homeostasis.
  - c) How will you diagnose and treat Iron deficiency?

**II. Write notes on:**

**(10 x 5 = 50)**

1. Synthesis and mechanism of action of Nitric Oxide.
2. Homocystinurias.
3. Hyperuricemias.
4. Normal Anion gap and High Anion gap metabolic acidosis.
5. Phase Two detoxification.
6. Special products formed from Glycine.
7. A 24 year old physiotherapist consulted his general practioner because of excessive sweating and was also concerned that his eyes seemed to have become more prominent and that he had lost weight recently although his appetite was normal. He also complained of palpitation. On examination, his doctor observed that his pulse rate was 100 / min at rest and that he had a slightly enlarged thyroid gland. Serum TSH: < 0.1 mIU/ mL (0.3 – 5 µIU/mL), Free T<sub>4</sub>:3.2 ng/ dL (0.8 – 2.7 ng/dL) Free T<sub>3</sub>: 880 pg/ dL (210- 440 pg/dL).
  - a) What is your diagnosis? Justify.
  - b) What is the cause of tachycardia in this condition?
  - c) What is the explanation for the eye prominence in this condition?
8. Electrophoresis.
9. Antioxidants.
10. A 42 year old male was diagnosed with poorly differentiated adenocarcinoma. A family counselling revealed that the proband had five family members with colorectal cancer diagnosed before 45 years of age. Hence all family members were counselled that this would have been caused by a defect of DNA repair and that all family members older than 25 years should undergo regular colonoscopic examination.
  - a) What are the different DNA repair mechanisms? Which repair defect causes Hereditary Non polyposis Colon Cancer (HNPCC)? Describe in detail about the repair mechanism.