

**Q.P. CODE: M102A031****DR NTR UNIVERSITY OF HEALTH SCIENCES : VIJAYAWADA- 520008****MBBS DEGREE EXAMINATION: AUGUST, 2024****FIRST M.B.B.S. EXAMINATION****BIOCHEMISTRY PAPER-II****(Theory Questions)****Time: 2 Hour 40 Minutes****Max Marks: 80****Note: Answer all questions.****Draw diagrams, representation wherever necessary.**

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**SECTION-II (THEORY QUESTIONS - 80 MARKS)****STRUCTURED ESSAY QUESTIONS:****2x15=30**

1. A 10-year-old girl at neurology OP presented with a recent history of generalized fits and pellagra-like skin rashes for the past 2 years. She also has a H/o psychotic behavior and difficulty in walking for the past 6 months. Chromatography of urine revealed that excretion of tryptophan and other neutral amino acids. In serum also, low levels of these amino acids were observed. In urine, by doing Obermeyer test, indicant products were identified. (2+4+4+5)

- a) What is your probable diagnosis? Interpret the case.
- b) Describe the metabolic pathway of tryptophan.
- c) Name the biologically important substances produced from tryptophan.
- d) Write briefly on the biological role of serotonin and melatonin.

2. Polymerase chain reaction:

(2+4+4+5)

- a) What is the principle of PCR?
- b) Write about types of PCR and their uses.
- c) Describe the technique of PCR.
- d) Write about the applications of PCR.

**SHORT EASSY QUESTIONS:****10x5=50**

- 3. Write about the composition and functions of the extracellular matrix.
- 4. Write about the synthesis and functions of catecholamines.
- 5. What is a vaccine? Write about types of vaccines with their advantages and disadvantages.
- 6. Carcinogenic agents.
- 7. A 55-year-old man was brought to the hospital with severe abdominal pain. The patient was in a state of shock. On examination, his abdomen was distended and both femoral pulses were obliterated. After laparotomy, the condition was identified as a ruptured abdominal aortic aneurysm. The laboratory investigations were as follows: Blood pH: 7.0, plasma  $\text{HCO}_3^-$  8 mEq/L,  $\text{pCO}_2$  25 mmHg,  $\text{pO}_2$  90 mmHg, Anion gap 24 mEq/L. **Interpret the data and discuss the case.**
- 8. Describe the absorption and functions of magnesium in the body.
- 9. Write about the de novo synthesis of purine nucleotides.
- 10. Write about the vesicular transport across the cell membrane.
- 11. Describe globulins with their functions.
- 12. Functions of Zinc.

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