

ANNEXURE II

Rajiv Gandhi University of Health Sciences, Karnataka

First Phase MBBS Degree examination

Model Question paper

Biochemistry (RS-4)

Draw a neat labeled diagram wherever necessary

Time= 3 hours

Paper I

Maximum marks= 100

Long essays

2X10= 20 marks

1. A 14-year-old male presented with history of episode severe abdominal pain associated with vomiting 3 to 4 times a day and dark reddish urine. In the past, he had 2 episode of similar abdominal pain along with altered sensorium & neurological and abdominal examination was unremarkable. Laboratory investigation showed hemoglobin of 11 gm % and urine was strongly positive for porphobilinogen, Peripheral showed microcytic hypochromic anemia. (1+3+6=10 marks)
 - a) Suggest the probable diagnosis ?
 - b) What is the biochemical basis for the above mentioned laboratory findings.
 - c) Explain the pathway implicated in this condition
2. Explain any five liver function tests with their clinical interpretation.

Short essays

(10X5= 50 marks)

3. Classify proteins based on their functions with suitable examples
4. An 81- year-old woman presented with fatigue and was found to have anemia. She had some pancytopenia. She had low neutrophils, She had low platelets, she had some anemia, and then she was found to have a monoclonal protein. On x-rays, she was found to have bone lesions and advanced bone disease, and she was found to have an elevation in her creatinine with a lower creatinine clearance. Based on the clinical and laboratory evaluation it was diagnosed as paraproteinemia.
 - A. Explain the biochemical evaluation of this case with their clinical interpretation.
 - B. List the various immunoglobulins and their functions.
5. A 10-day old neonate was brought to hospital with complaints of feeding intolerance, emesis, strong body odour and convulsions. Laboratory tests revealed elevated serum ammonia and citrulline with no acidosis, Based on the presentation and laboratory evaluation doctor advised arginine for treatments following which the baby's condition improved
 - a. Mention the diagnosis with the defective enzyme.
 - b. Explain the biochemical basis for the treatment given.
 - c. Write the steps of the pathway implicated. (1+1+3)
6. Mention four specialized compounds formed from glycine and their significance (1+4).
7. Explain the Watson crick model of DNA with neat labeled diagram.
8. Enumerate the steps of purine nucleotide degradation.

9. Explain the sources of various atoms of purine and pyrimidine rings with illustrations.
10. List the various DNA repair mechanism and explain any two (1+2+2))
11. Define translation. Explain the post translational modifications (1+4)
12. Classify tumor markers with examples and their clinical significance.

Short answers

(10X3= 30 marks)

13. Write the steps of southern blot technique
14. Mention six application of Recombinant DNA technology in medicine
15. Define transamination reaction with suitable example and write its significance.
16. What is point mutation? Give example of missense mutation and its consequence
17. Write the mechanism of action of Reverse transcripts and state its significance
18. Enumerate the Tubular function test of kidney and explain the dilution test
19. Describe the Lac operon concept
20. Enumerate the steps of lipid peroxidation
21. Mention any three Antioxidant enzymes and write their significance.
22. Mention ant three biologically important peptides and write their functions.

