

**2021**

Time :As in Programme

Full Marks : 100

*The figures in the right-hand margin indicate marks.*

*Answer **all** questions.*

*Draw diagrams wherever necessary*

**SECTION-A (50-MARKS]**

1. What is translation? Name its intracellular site. Enumerate the steps of translation. Describe in detail the initiation of translation? (2+2+8+3=15)

OR

What is genetic code? Describe the salient features of a genetic code. What is wobbling phenomenon? (3+8+4=15)

2. Write short notes on:- (4X5=20)
- a) Respiratory acidosis and its compensatory mechanism.
  - b) Kwashiorkor
  - c) Role of magnesium in the body
  - d) Role of glutathione in detoxification.
  - e) Congenital orotic aciduria.

(Turn Over)

3. A healthy 10 year-0ld boy interested in sports started complaining of muscle cramps and weakness after the game. On examination he had mild wasting of the lower limb muscles. It was revealed that his mother had a younger brother, who had a similar illness to which he succumbed around the age of 20.(1X5=5)
- a) What is the most probable cause?
  - b) What are the investigations to be done?
  - c) How does the history give a clue to the disease?
  - d) What is the prognosis?
  - e) Explain the nature of inheritance in this case?

4. Write one word answer/short answer of the following.  
(1x10=10)

- a) Name one oncogenic virus.
- b) True/false:-  
Calmodulin is a calcium transport protein.
- c) Alpha fetoprotein (AFP) is used as a tumour marker for which cancer.
- d) Which macronutrient has maximum SDA? What is the value?
- e) True or false:-  
Ceruloplasmin is copper containing ferroxidase.
- f) Name two a typical nitrogenous bases present in t-RNA.
- g) Name a reverse transcriptase enzyme.

- e) The respiratory quotient of a person oxidising mainly fat is\_\_\_\_\_.
- f) The enzyme deficiency which was first corrected by gene therapy is\_\_\_\_\_.
- g) In which phase of cell cycle, synthesis of DNA is maximum?
- h) The daily nitrogen excretion in a normal healthy adult consuming 100g of protein is \_\_\_\_\_
- i) Name two natriuretic peptides.
- j) Which amino acid is required for synthesis of both purines and pyrimidines?



(Contd.)

- h) In HBC disease, at 6<sup>th</sup> position of B-chain of haemoglobin glutamic acid is replaced by \_\_\_\_\_
- i) Elements capable of undergoing radioactive decay are called \_\_\_\_\_.
- j) Frame-shift mutation occurs due to \_\_\_\_\_ of a single base (substitution, deletion)

**SECTION-B [50-MARKS]**

5. What is the normal pH of blood? Explain the rural mechanism of maintenance of acid base balance of the body. What is the titrable acidity of urine?  
(2+10+3=15)

OR

Enumerate the functions of liner and various functions tests. Describe any two function tests in detail with their clinical significance. (4+4+4+3=15)

6. Write short notes on:- (4x5=20)
- a) Gold-berg Hogness box
  - b) Operon concept
  - c) Difference between oncogenes and oncogenes
  - d) Guardian gene
  - e) Okazaki fragments

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(Turn Over)

(3)

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7. A 4 year old girl was brought to paediatrics OPD for started growth and bow legs. Her mother said that she had normal developmental mile stones and was active. It was difficult to feed her. Her x-ray of wrist showed wide epiphysis and poor calcification. Her biochemical reports were as follows:- (1x5=5)

Serum calcium-7.8, mg/dl

Serum vitamin D was low

Serum ALP-6701 u/l

- What is the diagnosis for this girl?
- Give two causes of this disorder.
- How can this be treated? Can the bow legs can be rectified?
- What is the relation of vitamin D and calcium?
- Name two clinical signs to elicit calcium deficiency.

8. Write in one word answer/short answer of the following:- (1x10=10)

- Degradation of lame is done by the enzyme\_\_\_\_\_.
- \_\_\_\_\_ is an antioxidant mineral.
- \_\_\_\_\_ is the disease dur to deficit in protein targeting.(primary hyperoxaluria, xeroderma pigmentosum, ataxia telangiectasia)
- Orange crystalluria is due to defect of\_\_\_\_\_ enzyme.

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