

(v) Cardiac biomarkers are only useful for diagnosing heart attacks.

4. (a) Discuss the role of follicle-stimulating hormone, luteinizing hormone, testosterone and estradiol in reproductive health. Also explain their regulatory mechanisms.

(b) What is cytogenetics? Explain different techniques used in prenatal and postnatal cytogenetics with examples. (9,9)

5. (a) Describe the principle and working of a spectrophotometer. Discuss its applications.

(b) Discuss the benefits of automation in clinical laboratories. What are the challenges associated with lab automation? (9,9)

6. (a) Explain and draw a graph for GTT showing normal and impaired glucose tolerance, and diabetes mellitus.

(b) Discuss the possible causes of proteinuria? (9,9)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1175 I

Unique Paper Code : 3183010007

Name of the Paper : Medical Laboratory Technology (DSE)

Name of the Course : **B.Sc. (Hons) Biomedical Science (NEP)**

Semester : V

Duration : 3 Hours Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all.
3. Question No. 1 is compulsory.
4. Attempt subparts of a question together.
5. Give illustrations and examples wherever required.

1. (a) Briefly explain the following (any 3) : (3×2=6)

- (i) Informed consent
- (ii) Pap smear
- (iii) Melena
- (iv) Time of liquefaction

(b) Differentiate between the following (any 3) :

(3×3=9)

- (i) Erythropoiesis and Thrombopoiesis
- (ii) Aspiration and Exfoliative Cytology
- (iii) Conjugated and Unconjugated Bilirubin
- (iv) Simple and Fractional Distillation

(c) Expand the following (any 3) : (3×1=3)

- (i) PPE
- (ii) CBWTF
- (iii) IHC
- (iv) CSF

2. (a) Discuss how Real Time PCR can be used for the diagnosis of infectious diseases. Explain with an example.

(b) Explain how RBC fragility is affected in conditions like sickle cell anemia, thalassemia, hereditary spherocytosis and hemolytic anemia? (9,9)

3. (a) Write short notes on the following (any 3) :

(3×4=12)

- (i) Stem cell banking
- (ii) Lab safety measures
- (iii) G - banding
- (iv) Incubators and hot air ovens
- (v) Glycosylated Hemoglobin

(b) Comment on the following statements (any 3) :

(3×2=6)

- (i) During FISH, cells are treated in a hypotonic solution.
- (ii) Vertical Biosafety cabinets are more suitable for working with pathogenic materials.
- (iii) Excess of EDTA in blood can lead to incorrect blood index measurements.
- (iv) Liver function tests can indicate liver damage even when symptoms are absent.