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Your Roll No. .....

5185-B

B.Sc. Prog./Life Science/III Sem. B

Paper—LSPT 306

(Introduction to Medical Diagnostics)

Time : 3 *Hours* *Maximum Marks* : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Answer *Five* questions in all, including question number **1** which is compulsory.

1. (*a*) Define any *four* of the following :

(*i*) Neoplasm;

(*ii*) Haemostasis;

(*iii*) XXY condition;

(*iv*) Landsteiner's Law;

(*v*) Type I diabetes. 4

(*b*) Differentiate between any *five* of the following pair of terms :

(*i*) Serum and Plasma;

(*ii*) Embolus and Thrombus;

(*iii*) Agglutinogen and Agglutinin;

(*iv*) Leucocytosis and Leucopenia;

(*v*) Metaplasia and Aplasia;

(*vi*) Hypertrophy and Hyperplasia. 10

(*c*) Name any *five* of the following :

(*i*) An instrument used to estimate amount of haemoglobin;

(*ii*) Cancer arising from muscle/mesodermal or connective tissue;

(*iii*) High sugar level of blood;

(*iv*) Wandering cell of vertebrate blood;

(v) Packed cell volume;

(vi) Chemical that stimulates cell division. 5

(d) Expand the following abbreviations :

(i) ESR

(ii) CT

(iii) TAFs

(iv) EDTA. 4

(e) Match the terms of column B with those of column A :

Column A	Column B
(i) Wilhelm Roentgen	(a) PET
(ii) Edward Hoffan	(b) MRI
(iii) Dr. Karl Theodar Dussik	(c) X-ray
(iv) Raymond Damadian	(d) Ultrasound 4

2. (*a*) What is the nature, source and function of insulin in the body ? 4

(*b*) Describe the method of GLC. 6

(*c*) How is HPLC a better chromatographic technique than LC ? 2

3. (*a*) Describe the tests for :

(*i*) Urea, and

(*ii*) Glucose. 3+3

(*b*) Explain the importance of blood coagulation as a diagnostic tool in hematology. 4

(*c*) Write a note on the mode of action of anticoagulants. 2

4. (*a*) Describe in detail Alzheimer's disease. 4

(*b*) What is meant by metastasis ? List the various types of cancer. 4

(*c*) The frequency distribution of marks obtained by 100 students in Bio-informatics papers is given below. Compute :

(*i*) Arithmetic Mean;

(*ii*) Mode;

(*iii*) Median; and

(*iv*) Standard Deviation/Variance.

Marks	Frequency
10—20	5
20—30	17
30—40	26
40—50	12
50—60	23
60—70	17

4

5. (*a*) Give an account of the life history of malarial parasite in man with the help of diagrams. 10

(*b*) Why is *Plasmodium falciparum* more dangerous than other forms of *Plasmodium* ? 2

6. (*a*) Give the differences between discrete and continuous variables with the help of suitable examples. 2

(*b*) Discuss the application of Chi-square test. 2

(*c*) Which disease is caused by *Mycobacterium tuberculosis* ? Describe its pathogenicity. 4

(*d*) Systolic blood pressure of six hypersensitive patients were 183, 179, 165, 190, 175 and 180 mm Hg. After administration of a particular drug for one week, the BP were 187, 175, 150, 180, 180 and 170 mm Hg respectively. Could such differences arise due to chance ? Give reasons for your answer. 4

7. Give the principles and applications of :

(*a*) Ultrasound

(*b*) MRI

(*c*) CT

(*d*) PET. 3+3+3+3

8. (*a*) What is a tumour marker ? 2

(*b*) Describe the diseases of ageing. 5

(*c*) What are immunological diseases ? Describe autoimmune hemolytic anemia (AHA). 5