Q. P. Code: 33973

2 ½ Hours

Total Marks: 75

1) Attempt **all** questions.
2) **All questions** carry **equal** marks.
3) Draw **neat labelled diagrams** wherever necessary.
4) Use of **log tables** and **non-programmable calculator** is **allowed**.
5) For **Q.2, Q.3 and Q.4** attempt A and B **OR** C and D.

Q.1 Do as directed (Any fifteen) **15**

1. Give significance of molecular diagnostics.
2. Give significance of using mixture of phenol and chloroform in DNA isolation procedure.
3. State the use of proteinase K.
4. State the significance of polyT or polyU oligomers in mRNA isolation.
5. How depurination of larger fragment of DNA is is achieved during blotting?
6. Proteins are separated using _____.
7. State true or false: Enzymatical amplification of RNA is called PCR
8. Give an application of Taq Pol.
9. What is UNG?
10. Who is the Inventor of PCR?
11. Define Forward primer.
12. State true or false: DNA can be found in aerosol
13. Give an application of thermostable DNA ligase.
14. State true or false: Exonuclease-I can degrade primers.
15. Give the full form of VNTR
16. State true or false: RFLPs can be used as original molecular targets for gene mapping, human identification, and parentage testing.
17. In sickle cell anaemia valine is inserted into the polypeptide instead of _____
18. Gonorrhea is caused by the microbe _____
19. State true or false: Fragile X Syndrome leads to Mental Retardation.
20. Define Clinical Genetics.

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Q. 2 A	Explain restriction enzyme mapping.	**08**
Q. 2 B	Elaborate on DNA probes and protein probes	**07**
	OR	
Q. 2 C	Explain the initial steps in nucleic acid isolation depending on the nature of the starting material.	**08**
Q. 2 D	Explain in detail the DNA transfer methods from gel to membrane.	**07**
Q. 3 A	Explain the process of PCR.	**08**
Q. 3 B	Discuss the process of synthesis of cDNA.	**07**
	OR	
Q. 3 C	What is Real time PCR and explain it in detail.	**08**
Q. 3 D	Discuss: Primer designing.	**07**
Q. 4 A	Discuss molecular testing for *Neisseria.*	**08**
Q. 4 B	What is an Informed Consent? Mention all the information that should be provided in an Informed Consent Form for Clinical Genetic testing.	**07**
	OR	
Q. 4 C	Diagrammatically explain the application of RFLP in detection of Sickle cell anaemia	**08**
Q. 4 D	Explain the classification of Genetic testing Indications.	**07**
Q 5	Write Short notes on **any three** of the following	**15**

a. Specimen requirements for HIV viral assays.

b. Patents relating to molecular diagnostics .

c. Physical methods used for control of PCR contamination.

d. PCR product clean-up

e. Any one Method used for probe labelling.
