

- N. B. :** (1) All the questions are compulsory.
 (2) Figures to the right indicate marks
 (3) Draw diagrams wherever necessary.

1. Answer any two of the following :-
- (a) What is environmental monitoring? How does it help in ensuring protection of environment? 6
- (b) Give a brief account of the various methods used for physical characterisation of samples. 6
- (c) What is sampling? How can you ensure the storage of soil and water samples? 6
2. Answer any two of the following :-
- (a) "GC-MS plays an important role in environmental sample analysis". Explain. 6
- (b) Describe in detail theory and principle of voltameter. Add a note on its applications. 6
- (c) Write a brief note on theory, principle and applications of flame-photometer. 6
3. Answer any two of the following :-
- (a) Give the principle and instrumentation of X-Ray fluorescence. 6
- (b) Explain in detail about the analysers used for carbon monoxide(Co). 6
- (c) Give a brief account of x-Ray diffraction technique. 6
4. Answer any two of the following :-
- (a) Write a brief note on student t-test. 6
- (b) What is skewness and kurtosis? Explain its types. 6
- (c) During a census operation, a survey was conducted and following results were obtained. 6

	Male	Female
OBSERVED POPULATION	968	1042
EXPECTED POPULATION	1005	1005

Find out the goodness of fit and check whether the observed value fit with the expected value. $[\chi^2_{1, 0.05} = 3.841]$

5. Write short notes on any four of the following:-
- (a) Processing of water samples 3
- (b) Conventional Microscopy 3
- (c) Applications of Thermogravimetry 3
- (d) Beer-Lambert's law 3
- (e) Normal distribution curve 3
- (f) z-test 3