

M.Phil. (Science) Examination**PHYSICS—III****(Research Methodology)**

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) Solve any **FIVE** questions.

(2) All questions carry equal marks.

1. (a) What are different types of research ? 6
(b) What do you mean by significance of research ? 4
(c) Explain the postulates of science method and its advantages. 6
2. (a) Explain in detail the layout of 'Research Process'. 12
(b) Elaborate different types of research approaches. 4
3. (a) Discuss various factors to be considered while selecting a research problem. 6
(b) Discuss the method of interview questionnaire in the field of research. 5
(c) What is hypothesis ? Discuss the role of hypothesis in research work. 5

4. (a) Discuss types of interviews and advantages of an interview as research tool. 6
- (b) What are various types of data gathering devices ? 4
- (c) Distinguish between problem method and field study. 6
5. (a) Explain coordinated research programme and state its merits and limitations. 6
- (b) What are evidences ? Discuss types of evidences. 6
- (c) Explain in brief the technique of interview. 4
6. (a) Explain the importance of analysis of data. 4
- (b) Explain how you will make selection of method for research you propose to undertake. 7
- (c) Distinguish between primary data and secondary data. 5
7. (a) Explain the various steps involved in report writing. 8
- (b) Explain the measure of central tendency with an example. 8
8. (a) Explain the use of library in the progress of research. 8
- (b) What are the objectives of tabulation and graphical representation of data ? 8

9. (a) State the conditions for validity of Chi-square test. 4
- (b) What is normal distribution and normal curves. 5
- (c) Prove that $P(A') = 1 - P(A)$ where A' is the complementary event of A . 7
10. (a) Discuss the steps involved in hypothesis testing. 9
- (b) Explain the use of F test for equality of variances of two normal populations. 7