Qn.Code: MEDC34(3)

N.V.K.S.D. COLLEGE OF EDUCATION

(AUTONOMOUS)

M.Ed. Degree Third Semester Examination, December 2025

(For the candidates admitted during the academic year 2024-2025)

Specialization based on Discipline: ADVANCED METHODOLOGY IN SCIENCE EDUCATION

Course code: MED3SD003

Time: 3 Hours **Maximum Marks: 70**

SECTION A (10 x 1 = 10 marks)

Answer ALL the questions by selecting the appropriate answers.

1. The international goal of science education emphasizes the relationship among
   a) Science and Arts b) Science and Technology
   c) Science, Technology and Society d) Science and Culture
2. Choose the option that is not an example of constructivist strategy
   a) Mind Mapping b) Lecture Method
   c) Problem-Based Learning d) Concept Mapping
3. A rubric is best described as
   a) A list of test questions
   b) A scoring guide with criteria and performance levels
   c) A checklist of activities
   d) A standardized achievement test
4. A science teacher uses a diagnostic test before beginning a unit on "Light and Reflection. The primary purpose of this assessment is to
   a) Assign final grades for the previous unit
   b) Identify students' misconceptions and prior knowledge to inform instruction
   c) Fulfill administrative requirements for continuous assessment
   d) Compare students' performance with national benchmarks
5. TPCK stands for
   a) Technical Pedagogical Content Knowledge
   b) Techno Pedagogic Content Knowledge
   c) Theoretical Pedagogical Cognitive Knowledge
   d) Technological Pedagogical Cognitive Knowledge
6. Case study as a research method is mainly used to
   a) Collect numerical data b) Conduct experiments
   c) Compare multiple groups d) Study a single situation in depth

7. The term Scientific Literacy primarily refers to
   a) Memorization of scientific facts
   b) Ability to perform laboratory experiments
   c) Understanding and applying science in everyday life
   d) Reading scientific journals
8. Continuing Education for teachers includes
   a) Orientation and refresher courses b) Textbook writing
   c) Classroom observation only d) Research publication only
9. Identify from the following the process skill in Science
   a) Introspection b) Classification
   c) Explanation d) Justification
10. The concept of Reflective Practice in professional development was introduced by
    a) Jerome Bruner b) Donald Schön
    c) Jean Piaget d) Lev Vygotsky

SECTION B (5 x 2 = 10 marks)
Answer all the FIVE questions in about 100 words each.

11. State the national goals of Science education as outlined in the National Education Policy (NEP) 2020.
12. Distinguish between mind mapping and concept mapping
13. Explain the concept of e-Twinning and its role in promoting international collaboration in education through digital platforms.
14. Examine the significance of professionalism in Science teaching.
15. Discuss the need for research in Science Education for enhancing the quality and relevance of science education.

SECTION C (6 x 5 = 30 marks)
Answer any SIX questions in about 200 words each.

16. Discuss the relevance of revised Blooms Taxonomy (1990) in Science Education.
17. Describe any three strategies for fostering thinking skills.
18. Illustrate STEAM Education with its significance in the present day context.
19. How would you design a Science e-lesson that incorporates pedagogical soundness and real-world connections?
20. Explain the role of National and State level agencies in providing professional development.
21. How does interacting with social network helpful in the professional development of teachers?

22. Compare the secondary stage science curriculum of Australia and Finland.
23. As a science teacher, how will you identify and solve a classroom problem by action research?

SECTION D (2 x 10 = 20 marks)

Answer BOTH the questions in about 500 words each.

24. a) Analyse the contributions of Skinner, Piaget and Bruner to science education.

(Or)

b) How can a Science teacher use the results of a diagnostic test to plan remedial activities for students? Give your answer with suitable examples.

25. a) How do ICT-based resources support teaching and learning of Science and analyse the advantages and limitations of different ICT-based resources?

(Or)

b) Critically evaluate the status of research in Science Education in India and abroad.