

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SCIENCE AND ENGINEERING

DEPARTMENT: BIOLOGICAL SCIENCES

PROGRAMME: HBScBioTec

APR 2025

COURSE CODES: BTEC426 (2): NARRATION: NANOBIO TECHNOLOGY

DURATION: 2 HOURS

TOTAL MARKS: 100

INSTRUCTIONS

Answer FOUR questions. You MUST answer QUESTION 1 (Section A) and any THREE questions from Section B. Each question carries 25 MARKS. Where a question contains subdivisions, the mark value of each subdivision is given in brackets. Illustrate your answers, where appropriate, with large, clearly labelled diagrams. You should not spend more than thirty minutes on each question.

SECTION A (COMPULSORY)

1. Describe the procedures used to characterize plant based nanoparticles using UV-Vis Spectroscopy.

SECTION B

2. Illustrate the various theranostic mechanisms in cancer treatment.

3. a) Describe any THREE properties of bioreceptors. (15 marks)

b) Explain briefly DNA based biosensors and diagnostics. (10 marks)

4. Discuss the application of DNA analysis in forensic sciences.

5. Discuss on the concept of good manufacturing practice.

6. Discuss on the different mechanisms involved in nanotoxicology .

END OF EXAMINATION QUESTION PAPER