09/01/2024

B.Sc. DEGREE EXAMINATION, DECEMBER 2023/JANUARY 2024.

FIRST SEMESTER

COURSE II – ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES

Time : Three hours

Maximum : 70 marks

(No additional sheet will be supplied)

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PART A — (5 × 4 = 20 marks)

Answer any FIVE questions.

Each question carries 4 marks.

1. Explain derivative of a function.

2. Write short notes on quotient rule.

3. Explain Quantum dots.

4. Write short notes on Quantum Communication.

5. Write short notes on Chemical Pollutants.

6. Define and explain Chemical biology.

7. Write short notes on Grid integration.

8. Discuss application of biophysics.

9. Write short notes on Multiplexing.

10. Explain error detection and correction.

PART B — (5 × 10 = 50 marks)

Answer ALL the following questions.

11. (a) Explain the reduction of general equation into various forms.

Or

(b) Explain scalar multiple of a matrix.

12. (a) Write a brief note on recent advances in medical physics.

Or

(b) Discuss energy – efficient materials and devices.

13. (a) What are chemical pollutants and give their effect on ecosystem and human health?

Or

(b) Give an account of different methods of dyes removal.

14. (a) Write a brief note on Water treatment.

Or

(b) Write a brief note on Mathematical modelling to applications of renewable energy.

15. (a) Give a brief account of Signals – Analog.

Or

(b) Write a brief note on Repeater, hub, bridge and switch.

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