Turn Over

QP CODE: 25013040

B.Sc DEGREE (CBCS) SPECIAL REAPPEARANCE EXAMINATIONS, FEBRUARY 2025

Fifth Semester

CORE COURSE - MM5CRT04 - ENVIRONMENTAL MATHEMATICS & HUMAN RIGHTS

B.Sc Mathematics Model I & B.Sc Mathematics Model II Computer Science

2022 Admission Only

E0B37FD7

Time: 3 Hours

Part A

Answer any **ten** questions. Each question carries **2** marks.

- 1. What do you mean by water conflict?
- 2. What do you mean by food resources?
- 3. What do you mean by alternative energy?
- 4. What is soil pollution?
- 5. What are the characteristics of hazardous solid waste?
- 6. What are the mitigation measures for flood?
- 7. Using Recurrence relation in Fibonacci numbers find F0 and F-1.
- 8. State Lame's theorem.
- 9. Evaluate $lim \frac{L_n}{L_{n+1}}$.
- Let ABC be an equilateral triangle inscribed in a circle and let Q and R be the midpoint of AB and AC respectively. Let P and S be the points where QR meets the circle. If PQ = RS = 1, prove that QR is α.
- 11. Describe how the committee on economic, social and cultural rights functions.
- 12. Describe the human rights available for women in India.

(10×2=20)

Part B

Answer any **six** questions. Each question carries **5** marks.

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Max. Marks : 80

- 13. What are the consequences of over exploitation of forest resources?
- 14. What are minerals? What are its uses?
- 15. What are the sources of air pollution? Explain the effects of air pollution on living organisms?
- 16. What do you mean by water pollution? What are the causes of water pollution.
- 17. Explain the relation between Fibonacci numbers and subsets.
- 18. Express the gcd as a linear combination of 2024 and 1024.
- 19. Explain the Gatteis discovery of Golden ratio.
- 20. Let A and B be two circles tangential at the point O. Let a and b (a > b) be their radii. Prove that $\frac{a}{b}$ satisfies the equation $x^2 - x - 1 = 0$.
- 21. Describe the economic and social council of UN. What are its programmes?

(6×5=30)

Part C

Answer any **two** questions. Each question carries **15** marks.

- 22. Write an essay on climate change its impacts and remedies.
- 23. a) Let γ and δ be the distinct solutions of the equation $x^2 ax b = 0$, where $a, b \in R$ and $b \neq 0$. Then every solution of the LHRRWCC

 $a_n = a a_{n-1} + b a_{n-2}$ where $a_0 = C_0$ and $a_1 = C_1$ is of the form $a_n = A \gamma^n + B \delta^n$ for some constants A and B

b) Solve $a_n = 5 a_{n-1} - 6 a_{n-2}$ with $a_0 = 4$, $a_1 = 7$

- 24. 1. Discuss about Euler's construction of Golden ratio2. Explain Newton's method of generating the Golden ratio
- 25. Describe UDHR. Write the summary of the articles of UDHR.

(2×15=30)