QP CODE: 25040153

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Reg No : .....

Name : .....

B.Sc DEGREE (CBCS)REGULAR / REAPPEARANCE/MERCY CHANCE EXAMINATIONS, OCTOBER 2025

Fifth Semester

CORE COURSE - MM5CRT04 - ENVIRONMENTAL MATHEMATICS & HUMAN RIGHTS

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

2017 Admission Onwards

C6E7C1CD

Time: 3 Hours Max. Marks : 80

**Part A**

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. What do you mean by forest resources?
2. What do you mean by water logging?
3. What is a balanced diet?
4. What are primary and secondary pollution?
5. What is soil pollution?
6. What is thermal pollution?
7. Write Recurrence relation in Lucas numbers and find the value of L0.
8. Find the solution of Recurrence Relation $a_n = \gamma\, a_{n-1}$ with $a_0 = c$.
9. What will be ratio between height and distance from navel to the top of the head?
10. Let A and B be two circles tangential at the point O. How are their radii related to golden ration?
11. What do you mean by human rights? Write its characteristics.
12. Describe how the committee on economic, social and cultural rights functions.

(10×2=20)

**Part B**

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. What are the effects of mineral extraction on environment?

14. How can desertification be controlled?

15. What are the mitigation measures of cyclones?

16. What is acid rain? What are its effects?

17. Explain the relation between Fibonacci numbers and subsets.

18. Express ab = $\sum_{i=0}^{n} q_i r_i^2$ where $q_i$ 's are quotients and $r'_i$ s are reminders, If a = 1976 and b = 1776.

19. Let C divide line segment AB in the golden ratio,AC being the larger segment. Let AC=1. Show that $BC = \frac{1}{\alpha}$ and $AB = \alpha$

20. Explain Newton's method of generating the Golden ratio.

21. How do UN manage the criticism and complaints in the maintenance of human rights?

(6×5=30)

## Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. Explain the essentials of Air Prevention and Control of Pollution Act and Water Prevention and Control of Pollution Act.

23. a) Let a and b be any two positive integers with $a \geq b$ . By successive application of the division algorithm prove that ( a b ) = $r_n$ where $r_i$' s are reminders

b) Express the gcd as a linear combination of 4076 and 2076

24.

1. How do we relate golden ration to differential equations?
2. Solve the equation $f^{-1}(x) = f^m(x)$, using Gattei's theory.

25. Describe the human rights co-ordination within UN system.

(2×15=30)