QP CODE: 22103576

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Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) REGULAR / REAPPEARANCE EXAMINATIONS, NOVEMBER 2022

Fifth Semester

CORE COURSE - MM5CRT04 - ENVIRONMENTAL MATHEMATICS & HUMAN RIGHTS

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

2017 Admission Onwards

C9039E1F

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

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

1. What do you mean by exploitation of mineral resources?
2. What is under nourishment?
3. What do you mean by alternative energy?
4. What are the causes of environmental pollution?
5. What do you mean by ground water pollution?
6. Explain any two causes of thermal pollution.
7. Find (1024, 1000)
8. Write an example of 2^{nd} order LHRRWCC.
9. Write Newton's recurssive formula. If $f(x) = x^2 - x - 2$, how is the recurssive formula for x_n related to Fibonacci numbers?
10. Define centroid of a circle
11. Describe the universality of human rights? What are the challenges against this?
12. What is the role of human rights committee in the maintenance of human rights?

(10×2=20)

Part B

*Answer any **six** questions.*

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

13. What are the features of natural resources?

14. What are the problems of excessive use of ground water?

15. What do you mean by a landslides? What are the mitigation measures?

16. What is consumerism? What are its consequences?

17. Define triangular numbers. Write triangular Fibonacci numbers and triangular Lucas numbers.

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 the line segment AB in the Golden ratio, where AB = 1 and AC = t. Find the quadratic equation satisfied by t and solve.

20. The points A and C on the axes are each one unit away from the origin . The point B lies one unit away from both axes in the first quadrant. Find the value of x such that the y-axis bisects the area ABCD, where D is the point (-x,x) and $x > 0$.

21. Write some examples for violation of economic, social or cultural rights?

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. Explain in detail Forest Conservation Act.

23. a) Explain the relation between Fibonacci numbers and Compositions of positive interers expressing as a sum of 1s and 2s

b) Prove that number of distinct compositions C_n of a positive integer n in terms of 1s and 2s is F_{n+1} where $n \geq 1$

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 fundamental rights included in the constitution of India.

(2×15=30)