QP CODE: 22100223

Reg No : .....

Name : .....

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

DAED5188

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

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

1. What are the uses of mineral resources?
2. What do you mean by over nutrition?
3. What do you mean by renewable energy resources?
4. What are the causes of environmental pollution?
5. Explain any two causes of thermal pollution.
6. What do you mean by climate change?
7. Define Lucas Numbers and Find the value of L_0.
8. Write the Binet form for the Fibonacci number F_n.
9. 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.
10. Does there exist a differential equation whose solution contains Golden ratio? If yes, give an example.
11. Describe the history and mechanism of UN Human Rights Council.
12. What are the initiatives taken by the goverment of India towards creating the protective environment for children?

(10×2=20)

Part B

*Answer any **six** questions.*

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

13. What are the effects of mining of forest on tribal people?
14. What are the problems of excessive use of ground water?
15. What is sound pollution? Explain the different noise control techniques.
16. Write a short note on climate change.
17. Explain the relation between Fibonacci numbers and reflections.
18. Prove that any two consecutive Fibonacci numbers are relatively prime.
19. Suppose a side of the Great pyramid is 2b. Show that the altitude of it's lateral face is $b\alpha$.
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. What is UDHR? Write any 10 articles of UDHR.

(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. Prove that the number of divisions needed to compute (a . b) by the Euclidean algorithm is no more than five times the number of decimal digits in b , where $a \geq b \geq 2$.
24.
    1. Discuss about Euler's construction of Golden ratio
    2. Explain Newton's method of generating the Golden ratio
25. Describe the human rights co-ordination within UN system.

(2×15=30)