

UG-139

CCE

U.G. DEGREE EXAMINATION —
JUNE, 2018.

Second Year

Functional Tamil

ENVIRONMENTAL STUDIES

Time : 3 hours

Maximum marks : 75

PART A — (3 × 5 = 15 marks)

Answer any THREE questions.

Each answer should not exceed 2 pages.

1. What is meant by environmental studies? Why is it important?

சுற்றுச்சூழல் ஆய்வுகள் என்றால் என்ன? அதன் முக்கியத்துவம் என்ன?

2. What are ecological pyramids?

சூழியல் பிரமிடுகள் என்றால் என்ன?

3. Explain the term 'disaster management'.

'பேரிடர் மேலாண்மை' - விளக்கவும்.

4. What are the causes of air pollution?

காற்று மாசுபாட்டின் காரணங்கள் என்ன?

5. Briefly write about rain water harvesting.

மழைநீர் அறுவடை பற்றி சுருக்கமாக எழுது.

PART B — (4 × 15 = 60 marks)

Answer any FOUR questions.

Each answer should not exceed 5 pages.

6. How to create awareness about environmental protection?

சுற்றுச்சூழல் விழிப்புணர்வு எப்படி உருவாக்க வேண்டும்?

7. Give an account on Mineral resources.

கனிம வளங்கள் - விளக்கவும்.

8. Write the functional aspects of ecosystem.

சுற்றுச்சூழலின் செயல்பாட்டு அம்சங்களை விளக்கவும்.

9. Write the importance of biodiversity.

பல்லுயிரியலின் முக்கியத்துவத்தை விளக்கவும்.

10. What is nuclear hazard? Explain.

அணுசக்தி ஆபத்து என்றால் என்ன? விளக்கவும்.

11. Write an account on environment protection laws.

சுற்றுச்சூழல் பாதுகாப்பு சட்டங்களை விளக்கவும்.

12. Give an account on Value Education in Environment.

சுற்றுச்சூழல் கல்வி - விளக்கவும்.

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BMC-21

B.A. DEGREE EXAMINATION — JUNE 2018.

Second Year

GROUPS AND RINGS

Time : 3 hours

Maximum marks : 75

SECTION A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Define relations and types of relations.
2. State principle of Induction.
3. Define a group and give examples.
4. Prove that $(\mathbb{Z}, +)$ is a sub group of $(\mathbb{R}, +)$.
5. Define normal subgroup.
6. Define Integral Domain.

7. Let I be an ideal of ring R . Then prove that if R is commutative $\Rightarrow R/I$ is commutative.
8. Prove that every Euclidean ring is a ring with units.

SECTION B — ($5 \times 10 = 50$ marks)

Answer any FIVE questions.

9. Explain functions and types of functions with examples.
10. Prove that if every element of a group G has its own inverse then G is abelian.
11. State and prove Lagrange's Theorem.
12. State and prove Cayley's Theorem.
13. Prove that every finite integral domain is a field.

14. Show that the set of all matrices of the form $\begin{pmatrix} 0 & x \\ 0 & y \end{pmatrix}, x, y \in Q$ is a non-commutative ring without unity with respect to addition and multiplication of matrices.
15. Let R be a ring with identity. Then prove that every ideal $I \neq R$ is contained in a maximal ideal.
16. Let I, J be ideals of rings R with $J \subseteq I$. Then prove that $R/I \simeq \frac{(R/J)}{(I/J)}$.
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UG-669

BMC-22

**B.Sc. DEGREE EXAMINATION —
JUNE, 2018.**

Second Year

Mathematics with Computer Applications

**CLASSICAL ALGEBRA AND NUMERICAL
METHODS**

Time : 3 hours

Maximum marks : 75

SECTION A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Find the sum to infinity of
$$1 - \frac{1}{4} + \frac{1.3}{4.8} - \frac{1.3.5}{4.8.12} + \dots + \infty.$$
2. Prove that $\log_2 - \frac{1}{2!}(\log_2)^2 + \frac{1}{3!}(\log_2)^3 - \dots = \frac{1}{2}.$
3. Solve : $x^3 - 19x^2 + 114x - 216 = 0$ given that the roots are in geometric progression.

4. If α, β, γ are the roots of $x^3 - 14x + 8 = 0$ find (a) $\Sigma \alpha^2$ (b) $\Sigma \alpha^3$.
5. Remove the second term in $x^4 - 12x^3 + 48x^2 - 72x + 35 = 0$ and hence solve it.
6. Write the procedure for finding the approximate root of $f(x) = 0$ by Bisection method.
7. State Newton's forward formula for interpolation.
8. Compute the value of the definite integral $\int_1^2 \frac{dx}{x}$ using trapezoidal rule by taking the range of integral as 5 equal parts.

SECTION B — (5 × 10 = 50 marks)

Answer any FIVE questions.

9. Show that $\frac{15}{16} + \frac{15 \cdot 21}{16 \cdot 24} + \frac{15 \cdot 21 \cdot 27}{16 \cdot 24 \cdot 32} + \dots \infty = \frac{47}{9}$.
10. Increase by 2 the roots of $x^4 - x^3 - 10x^2 + 4x + 24 = 0$ and hence solve the resultant equation.
11. Solve $6x^5 + 11x^4 - 33x^3 - 33x^2 + 11x + 6 = 0$.

12. Find the positive root of $2x^3 - 3x - 6 = 0$ by Newton's Raphson method correct to 3 decimal places.

13. Use Lagrange's interpolation formula to find the value of u_4 of a function u_x , given that $u_1 = 10$, $u_2 = 15$ $u_5 = 42$.

x :	1	2	5
$f(x)$:	10	15	42

14. Find the approximate value of the root of the equation $x^3 + x - 1 = 0$ using the method of false position correct to two decimal places.

15. From the following table of values x and y obtain

$\frac{dy}{dx}$ at 1.2

x :	1.0	1.2	1.4	1.6	1.8	2.0	2.2
y :	2.72	3.32	4.06	4.96	6.05	7.39	9.02

16. Suppose the following data were obtained from an experiment.

x :	3.0	3.25	3.50	3.75	4.0	4.25	4.50	4.75	5.0
y :	6.7	7.4	8.2	9.2	10.4	11.6	12.5	13.3	14.0

Use Simpson's 1/3rd rule to approximate $\int_3^5 y dx$.

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BMC-23

**B.Sc. DEGREE EXAMINATION —
JUNE 2018.**

Third Year

Maths with Computer Applications

PROGRAMMING IN C AND C++

Time : 3 hours

Maximum marks : 75

SECTION A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Explain about switch statement.
2. Write a program in C to find the area of a square.
3. Write a short note on string handling functions in C.
4. Define structures and unions in C.
5. What are the types of operators used in C-language?
6. Explain while loop.

7. Define scanf() and printf () functions in C.
8. Write a C-program to calculate simple interest.

SECTION B — (5 × 10 = 50 marks)

Answer any FIVE questions.

9. Write a C-program to convert Centigrade to Fahrenheit.
10. Write a note on the concept of pointers in C.
11. Write a C-program to find the biggest number among three numbers.
12. Write a brief note on if-else statement with example.
13. Write a C-program to find the area and circumference of the circle.
14. Explain about file concept in C.
15. Explain arrays in C.
16. Explain multiple inheritance with suitable example.
