

**SCHEME
OF
EXAMINATION**

Under Choice Based Credit System (CBCS)

for

B.Sc. (Hons.) Mathematics - 3 Years

(w.e.f. Session 2019-20)

Revised on July 26, 2019



**UTTARANCHAL UNIVERSITY,
DEHRADUN**

Evaluation Scheme of Examination for B. Sc (Hons.) Mathematics under CBCS

(with effective from session 2019-20)

| Semester – I | | | | | | | | | | |
|---------------------|------------------------------|---|---------------------------|---------------------------|---------------------|--------------|---------------------|--------------|--------------|-------------------------|
| S. No | Code | Paper Title | Period L -T -P | Credit L -T -P | Theory | | Practical | | Total | Total Credit |
| | | | | | End sem. | Sess. | End sem. | Sess. | | |
| 1. | TBHM/ PBHM - 101 | Calculus | 4-0-4 | 4-0-2 | 60 | 40 | 25 | 25 | 150 | 6 |
| 2. | TBHM-102 | Algebra | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 3. | TBHG/ PBHG- 103 | Generic Elective- 1 (GE-1) | 4-0-4 | 4-0-2 | 60 | 40 | 25 | 25 | 150 | 6 |
| 4. | TBEC -104 or TBES -104 | English Communication / Environmental Science | 2-0-0 | 2-0-0 | 60 | 40 | ----- | ----- | 100 | 2 |
| 5. | ADP-105 | Educational Visit/Activities* | 0-0-2 | 0-0-1 | ----- | ----- | ----- | 50 | 50 | 1 |
| | | Total | 15-1-10 | 15-1-5 | | | | | 550 | 21 |

Educational Visit:- Report submit by students.

*Activities:-1. Presentation by students on the topic given by HOD/coordinator of the class
2. Video Lecture

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| Semester – II | | | | | | | | | | |
|----------------------|------------------------------|---|---------------------------|---------------------------|---------------------|--------------|---------------------|--------------|--------------|-------------------------|
| S. No | Code | Paper Title | Period L -T -P | Credit L -T -P | Theory | | Practical | | Total | Total Credit |
| | | | | | End sem. | Sess. | End sem. | Sess. | | |
| 1. | TBHM-201 | Real Analysis | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 2. | TBHM/ PBHM-202 | Differential Equations | 4-0-4 | 4-0-2 | 60 | 40 | 25 | 25 | 150 | 6 |
| 3. | TBHG/ PBHG- 203 | Generic Elective-2 (Concepts of Programming) | 4-0-4 | 4-0-2 | 60 | 40 | 25 | 25 | 150 | 6 |
| 4. | TBEC -204 or TBES -204 | English Communication/ Environmental Science | 2-0-0 | 2-0-0 | 60 | 40 | ----- | ----- | 100 | 2 |
| 5. | TBHE-205 | Human Ethics and Professional Values | 2-0-0 | 2-0-0 | 60 | 40 | ----- | ----- | 100 | 2 |
| | | Total | 17-1-8 | 17-1-4 | | | | | 600 | 22 |
| | | Total for 1 & 2 Sem. | 32-2-18 | 32-2-9 | | | | | 1150 | 43 |

Evaluation Scheme of Examination for B. Sc (Hons.) Mathematics under CBCS

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| Semester - III | | | | | | | | | | |
|-----------------------|--------------------|---|---------------------------|---------------------------|---------------------|--------------|---------------------|--------------|--------------|-------------------------|
| S. No | Code | Paper Title | Period L -T -P | Credit L -T -P | Theory | | Practical | | Total | Total Credit |
| | | | | | End sem. | Sess. | End sem. | Sess. | | |
| 1. | TBHM-301 | Theory of Real Functions | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 2. | TBHM-302 | Group Theory - I | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 3. | TBHM/ PBHM -303 | PDE and Systems Of ODE | 4-0-4 | 4-0-2 | 60 | 40 | 25 | 25 | 150 | 6 |
| 4. | TBHG-304 | Generic Elective- 3 (GE-3) | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 5. | TBHM-305 | Skill Enhancement Course - 1 (SEC-1) | 2-0-0 | 2-0-0 | 60 | 40 | ----- | ----- | 100 | 2 |
| 6 | ADP -306 | Activities*/SWA YAM/NPTEL | 0-0-2 | 0-0-1 | ----- | ----- | ----- | 50 | 50 | 1 |
| | | Total | 21-3-6 | 21-3-3 | | | | | 600 | 27 |
| | | Total for 1, 2 & 3 Sem. | 53-5-24 | 53-5-12 | | | | | 1750 | 70 |

* Activities will be based on department allotted by the class Coordinator/HOD.

1. Presentation by students on the topic provided by HOD/ class coordinator.
2. Any social activities
3. Presentation on mathematical Model

Evaluation Scheme of Examination for B. Sc (Hons.) Mathematics under CBCS

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| Semester – IV | | | | | | | | | | |
|----------------------|-------------------|--|---------------------------|---------------------------|---------------------|--------------|---------------------|--------------|--------------|-------------------------|
| S. No | Code | Paper Title | Period L -T -P | Credit L -T -P | Theory | | Practical | | Total | Total Credit |
| | | | | | End sem. | Sess. | End sem. | Sess. | | |
| 1. | TBHM/ PBHM-401 | Numerical Methods | 4-0-4 | 4-0-2 | 60 | 40 | 25 | 25 | 150 | 6 |
| 2. | TBHM-402 | Riemann Integration and Series of Functions | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 3. | TBHM-403 | Ring Theory & Linear Algebra - I | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 4. | TBHG-404 | Generic Elective- 4 (GE-4) | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 5. | TBHM-405 | Skill Enhancement Course – 2 (SEC-2) | 2-0-0 | 2-0-0 | 60 | 40 | ----- | ----- | 100 | 2 |
| 6. | ADP-406 | Personality Development Program* | 2-0-0 | 0-0-0 | ----- | ----- | ----- | 50 | 50 | ----- |
| | | Total | 23-3-4 | 21-3-2 | | | | | 600 | 26 |
| | | Total for 1,2,3 & 4 Sem. | 76-8-28 | 74-8-14 | | | | | 2350 | 96 |

*It is compulsory to qualify PDP paper (Non-Credit) to attend the degree of the course the qualifying marks are 50%.

Evaluation Scheme of Examination for B. Sc (Hons.) Mathematics under CBCS

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| Semester – V | | | | | | | | | | |
|---------------------|-------------|--|-----------------------|-----------------------|-----------------|-------------|------------------|-------------|--------------|---------------------|
| S. No | Code | Paper Title | Period L -T -P | Credit L -T -P | Theory | | Practical | | Total | Total Credit |
| | | | | | End sem. | Sess | End sem. | Sess | | |
| 1. | TBHM-501 | Multivariate Calculus | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 2. | TBHM-502 | Group Theory – II | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 3. | TBHM-503 | Discipline Specific Elective – 1 (DSE-1) | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 4. | TBHM -504 | Discipline Specific Elective – 2 (DSE-2) | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 5. | ADP-505 | Reasoning Skills | 2-0-0 | 2-0-0 | ----- | 50 | ----- | ----- | 50 | 2 |
| | | Total | 22-4-0 | 22-4-0 | | | | | 450 | 26 |
| | | Total for 1,2,3,4 & 5 Sem. | 98-12-28 | 98-12-14 | | | | | 2800 | 122 |

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| Semester - VI | | | | | | | | | | |
|----------------------|-------------|---|-----------------------|-----------------------|-----------------|--------------|------------------|---------------|--------------|---------------------|
| S. No | Code | Paper Title | Period L -T -P | Credit L -T -P | Theory | | Practical | | Total | Total Credit |
| | | | | | End sem. | Ses s | End sem | Sess . | | |
| 1. | TBHM-601 | Metric Spaces And Complex Analysis | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 2. | TBHM-602 | Ring Theory And Linear Algebra - II | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 3. | TBHM-603 | Discipline Specific Elective - 3 (DSE-3) | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 4. | TBHM-604 | Discipline Specific Elective - 4 (DSE-4) (Viva/ Dissertation) | 5-1-0 | 5-1-0 | 60 | 40 | ----- | ----- | 100 | 6 |
| 5. | ADP-605 | Seminar/Presentation/Workshop* | 0-0-2 | 0-0-1 | ----- | ----- | 25 | 25 | 50 | 1 |
| | | Total | 20-4-2 | 20-4-1 | | | | | 450 | 25 |
| | | Total for 1,2,3,4,5 & 6 Sem. | 118-16-30 | 118-16-15 | | | | | 3250 | 147 |

* Seminar/Presentation/Workshop:-

1. Participation/ paper presentation in the national /international conference/ seminar

OR

2. Presentation on the subject specific topic by the student (Topic is given by HOD/ class coordinator)

- **Generic Electives: (GE)**

Choices for GE-1 (choose one) TBHG/PBHG- 103(1)-(2)

1. Fundamentals of Computers (P)
2. Object Oriented Programming in C++ (P)

Choices for GE-2 (choose one) TBHG/PBHG- 203(1)-(2)

1. Concepts of Programming (P)
2. DBMS and Networking Concepts (P)

Choices for GE-3 (choose one) TBHG/PBHG- 304(1)-(4)

1. Total Quality Management
2. Intellectual Property Rights
3. Statics
4. Integral Transforms

Choices for GE-4 (choose one) TBHG/PBHG- 404(1)-(3)

1. Non-Conventional Energy Resources
2. Data Structure
3. Dynamics

*** (P) denotes Practical in that subject.**

- **Skill Enhancement Courses: (SEC)**

Choices for SEC-1 (choose one) TBHM-305(1)-(2)

1. Logic and Sets
2. Computer Graphics

Choices for SEC-2 (choose one) TBHM-405(1)-(3)

1. Graph Theory
2. Combinatorial Mathematics
3. Applications of Algebra

- **Discipline Specific Electives: (DSE)**

Choices for DSE-1 (choose one) TBHM-503(1)-(3)

1. Portfolio Optimization
2. Number Theory
3. Boolean Algebra and Automata Theory

Choices for DSE-2 (choose one) TBHM -504(1)-(3)

1. Mechanics
2. Analytical Geometry

3. Probability and Statistics

Choices for DSE-3 (choose one) TBHM-603(1)-(3)

1. Industrial Mathematics
2. Bio-Mathematics
3. Linear Programming

Choices for DSE-4 (choose one) TBHM-604(1)-(3)

1. Mathematical Modeling
2. Theory of Equations
3. Differential Geometry

Generic elective paper (GE) (Minor-Mathematics) for the other departments:

| S. No. | Paper Title | S. No. | Paper Title |
|--------|---|--------|-------------------------------------|
| 1 | Calculus | 17 | Logic And Sets |
| 2 | Algebra | 18 | Graph Theory |
| 3 | Real Analysis | 19 | Combinatorial Mathematics |
| 4 | Differential Equations (P) | 20 | Applications Of Algebra |
| 5 | Theory Of Real Functions | 21 | Boolean Algebra And Automata Theory |
| 6 | Group Theory – I | 22 | Number Theory |
| 7 | Numerical Methods (P) | 23 | Theory of Equations |
| 8 | Riemann Integration And Series of Functions | 24 | Analytical Geometry |
| 9 | Group Theory – II | 25 | Probability And Statistics |
| 10 | Metric Spaces And Complex Analysis | 26 | Bio-Mathematics |
| 11 | Basic Mathematics And Statistics | 27 | Linear Programming |
| 12 | Basic Algebra | 28 | Mathematical Modeling |
| 13 | Multivariate Calculus | 29 | PDE and System of ODE |
| 15 | Algebraic Mathematics | | |
| 16 | Mechanics | | |

