

Mid-West University
Examinations Management Office

Surkhet, Nepal

End Semester Examination-2082

Level: M.Ed. / II Semester

Sub: History of Mathematics (MATH 524)

Roll No.

Group "A"

10 × 1 = 10

Tick (✓) the best answer.

1. Which ancient Egyptian document contains 87 mathematical problems, including arithmetic and geometry?
a. Berlin Papyrus
b. Kahun Papyrus
c. Rhind Mathematical Papyrus
d. Plimpton 322
2. Which of the following number system was used by Mesopotamian?
a. Base 60
b. Base 10
c. Base 5
d. Base 100
3. Who is credited with proving that there are infinitely many prime numbers in the *Elements*?
a. Archimedes
b. Euclid
c. Thales
d. Zeno
4. Who is known for calculating π accurately and contributed to geometric measurement during the Renaissance?
a. Omar Khayyam
b. Liu Hui
c. Leonardo da Vinci
d. Boethius
5. Who developed the Cartesian coordinate system?
a. Newton
b. Fermat
c. Pascal
d. René Descartes
6. Who introduced the graph theory and contributed to complex analysis?
a. Gauss
b. Euler
c. Fourier
d. Taylor
7. Who introduced the rigorous epsilon-delta definition of limits?
a. Riemann
b. Gauss
c. Cauchy
d. Lagrange
8. Who proved that general polynomial equations of degree five or higher cannot be solved using radicals?
a. Niels Henrik Abel
b. Cayley
c. Gauss
d. Pascal
9. What is William Rowan Hamilton best known for in algebra?
a. Boolean algebra
b. Ring theory
c. Theory of groups
d. Discovery of quaternions
10. Who introduced the concept of different sizes of infinity and developed the diagonal argument?
a. Russell
b. Peano
c. Georg Cantor
d. Whitehead

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Time: 3.00 hrs.

FM: 60

PM: 30

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Candidates are required to give their answers in their own words as far as practicable.

Attempt all the questions.

Group "B"

6×5 = 30

1. Explain how the Rhind and Moscow Mathematical Papyri reflect the practical nature of Egyptian mathematics.
2. Describe the significance of Thales' contributions to geometry and how his work marked a shift in mathematical thinking.
3. Discuss two main challenges faced by mathematicians during the Renaissance and their impact on mathematical development.

Or

Compare the contributions of Newton and Leibniz to the development of calculus.

4. What is non-Euclidean geometry? Name any two mathematicians associated with the development of non-Euclidean Geometry.
5. Define the epsilon-delta definition of a limit and explain its importance in mathematical analysis.
6. What were Évariste Galois' contributions to abstract algebra, and why are they considered foundational?

Or

What is Russell's Paradox and how did it influence the development of modern set theory?

Group "C"

2 × 10 = 20

7. Discuss the key features and contributions of Egyptian mathematics, highlighting how their number system, arithmetic, geometry, and applications in daily life demonstrate a practical and empirical approach to mathematics. Illustrate your answer with examples from Rhind or Moscow Mathematical Papyri.
8. Explain the development and significance of non-Euclidean geometry in modern mathematics. Include the contributions of at least two mathematicians involved in its evolution, and describe how it differs from Euclidean geometry in terms of the parallel postulate and geometrical interpretations.

Or

Evaluate the contributions of Évariste Galois and Niels Henrik Abel to the rise of abstract algebra. How did their work change the approach to solving polynomial equations and lay the foundation for group theory and modern algebraic structures?

THE END