AEEE Mathematics – 30 Most Repeated Questions

□ Calculus (Highest Weightage)

1. Find the **limit** of a given function involving rational or trigonometric expressions.
2. Check **continuity and differentiability** of a function at a given point.
3. Find the **derivative** of a composite function using chain rule.
4. Find **maxima and minima** of a function.
5. Find the **equation of tangent or normal** at a given point.
6. Evaluate a **definite integral** using properties of integrals.
7. Find the **area bounded by curves**.
8. Solve a **differential equation** of first order and first degree.
9. Find the **general solution** of a differential equation.
10. Evaluate an **indefinite integral** using substitution or partial fractions.

□ Algebra (Very High Repetition)

11. Find the **determinant** of a 3×3 matrix.
12. Find the **inverse of a matrix** using adjoint method.
13. Solve a system of **linear equations using matrices**.
14. Find the **roots of a quadratic equation** and verify relations.
15. Questions based on **Complex Numbers** – modulus or argument.
16. Find the **real and imaginary parts** of a complex expression.
17. Find the **value of nCr or nPr** using identities.

18. Find the **general term** of an arithmetic or geometric progression.
19. Find the **sum of n terms** of an AP or GP.
20. Solve problems based on **Binomial Theorem** (middle term / coefficient).

Coordinate Geometry

21. Find the **equation of a straight line** given conditions.
22. Find the **distance between two points** or point-line distance.
23. Find the **equation of a circle** with given centre and radius.
24. Find the **length of tangent** from an external point to a circle.
25. Find the **equation of a parabola / ellipse / hyperbola**.
26. Find the **focus, directrix, or latus rectum** of a conic section.

Trigonometry

27. Prove a **trigonometric identity**.
28. Find the **general solution of a trigonometric equation**.
29. Find the **value of trigonometric expressions** using standard identities.
30. Questions based on **heights and distances**.