Müəllimin adı: Mütəllim Ramis oğlu Şərifli, dosent, fizika-riyaziyyat elmləri namizədi

Fənnin adı: Linear Algebra and Calculus

Qrupun nömrəsi: 1006 World Economy

Final imtahanının mövzuları:

Mövzu 1: Determinants

1.Expanding of 3rd order determinant in 1st row

2. Expanding of 3rd order determinant in 2nd row

3. Expanding of 3rd order determinant in 3rd row

4. Expanding of 3rd order determinant in 1st column

5. Expanding of 3rd order determinant in 2nd column

6. Expanding of 3rd order determinant in 3rd column

7.Reduction of 3rd order determinant to triangular form with its following evaluation

8.Expanding of 4th order determinant in 1st row

9. Expanding of 4th order determinant in 2nd row

10. Expanding of 4th order determinant in 3rd row

11. Expanding of 4th order determinant in 4th row

12. Expanding of 4th order determinant in 1st column

13. Expanding of 4th order determinant in 2nd column

14. Expanding of 4th order determinant in 3rd column

15. Expanding of 4th order determinant in 4th column

Mövzu 2: Matrices

16.Multiplication of matrices

17.2nd order reciprocal matrix with verification

18.3rd order reciprocal matrix

19.Rank of matrix

Mövzu 3: Systems of linear equations

20.Substitution method

21.Gauss method

22.Jordan method for 2nd order linear system

23.Solving of linear matrix equation

24.Method of determinants for 3rd order linear systems

25.Method of determinants for 2nd order linear system with infinite number of solutions and giving of several integer solutions

Mövzu 4: Limits

26. Evaluate the limit of the given numeric sequence

27. Evaluate the limit of the given function with the application of the quadratic conjugation

28. Evaluate the limit of the given function with the application of the cubic conjugation

29. Evaluate the limit of the given function with the application of the 4th degree conjugation

30. Evaluate the limit of the given function with the application of the 1st remarkable limit and its results

31. Evaluate the limit of the given function with the application of the 2nd remarkable limit and its results

32. Examine the given series for convergence with help of the d’Alembert’s test

33. Examine the given function for asymptotes

Mövzu 5: Derivatives

34. Find the derivative of the given function by the definition

35. Find the derivative of the power functions combination

36. Find the derivative of the simple functions combination

37. Find the derivative of the composite function

38. Find the derivative of the twice composite function

39. Find the derivative of the power functions combination with the application of the logarithmic differentiation

40. Find the derivative of the exponential-power function with the application of the logarithmic differentiation

41. Evaluate the given limit with help of L’Hospital’s rule

42. Evaluate the higher order derivative of the given function at the given point with help of the Leibniz’s formula

Mövzu 6: Applications of derivatives

43. Find the slope angle and the equation of the tangent to the graph of the given function

44. Define the greatest and the least values of the given function in the given segment

45. Find the monotony intervals and the extrema of the given function with help of the 1st derivative

46. Find the extrema of the given function with help of the 2nd derivative

47. Find the convexity intervals and the inflection points of the given function with help of the 2nd derivative

48. Find the inflection points of the given function with help of the 3rd derivative

49. Find the extrema points of the given function with help of the higher derivatives

50. Find the inflection points of the given function with help of the higher derivatives

Mövzu 7: Indefinite integral

51.Integration of simple algebraic function

52.Integration of simple trigonometric function

53.Integration of linear composite function

54.Integration of linear composite function

55.Integration of linear composite function

56.Integration of linear composite function

57.Integral method of sepatation of binomial complete square from quadratic trinomial for arctangent

58. Integral method of sepatation of binomial complete square from quadratic trinomial for arcsine

59.Integral method of indefinite coefficients

60.Integration with application of trigonometric formulas of half argument

61.Integration with application of trigonometric formulas of power reduction

62.Integraion with application of trigonometric formulas of inverse transformation

63.Integration method by parts for natural logarithm

64.Integration method by parts for arcsine

65.Integration method by parts for arctangent

66.Integration method by parts for natural exponential function

67.Integration method by parts for sine

68.Integration method by parts for cosine

Mövzu 8: Definite integral

69.Definite integral of linear composite function

70.Improper integral

71. Evaluation of area of geometric figure

72. Integral test for series convergence

Mövzu 9: Multivariable functions and differential equations

73. Extrema of function with 2 variables

74. Cauchy (initial) problem for simplest differential equation

75. Differential equation with separated variables