AP Calculus AB

Sample Question Paper - 2024

Country: US | Duration: 3h 15m | Max Marks: 5-point scale | Language: English

Negative Marking: No | Total Questions: 45 | QuizVerse AI Tutor

General Instructions:

1. This paper contains 45 questions across 1 section(s): Calculus.
2. Duration: 3h 15m. Maximum marks: 5-point scale.
3. Negative marking: No.
4. Read each question carefully before answering.

Section 1: Calculus (45 Questions)

Q1. The equation of tangent to y = x^2 at x = 3 is:

(A) y = 4x - 11

(B) y = 2x - 4

(C) y = 9x - 4

(D) y = 5x - 19

Q2. The mean of a binomial distribution with n = 48 and p = 0.3 is:

(A) 31.3

(B) 17.9

(C) 17.8

(D) 10.8

Q3. The eccentricity of the ellipse x^2/14 + y^2/12 = 1 is:

(A) 0.60

(B) 0.60

(C) 0.32

(D) 0.43

Q4. The probability of getting exactly 3 heads in 6 tosses of a fair coin is:

(A) 42/32

(B) 11/128

(C) 31/32

(D) 27/64

Q5. The rank of the matrix [[1,2,3],[4,5,6],[7,11,12]] is:

(A) 2

(B) 0

(C) 3

(D) 1

Q6. The area under y = x^2 from x = 0 to x = 3 is:

(A) 192.7

(B) 40.0

(C) 58.9

(D) 151.5

Q7. The value of integral sin^6(x) dx from 0 to pi/2 is:

(A) 11pi/16

(B) 7pi/32

(C) 7pi/16

(D) 10pi/32

Q8. The value of integral sin^2(x) dx from 0 to pi/2 is:

(A) 5pi/8

(B) 4pi/32

(C) 5pi/32

(D) 15pi/32

Q9. The value of integral sin^4(x) dx from 0 to pi/2 is:

(A) 5pi/4

(B) 8pi/8

(C) 8pi/8

(D) 12pi/32

Q10. The distance between parallel lines 2x + 3y = 5 and 3x + 4y = 16 is:

(A) 0.60

(B) 1.72

(C) 3.07

(D) 0.77

Q11. If det(A) = 6 and A is 3x3, then det(2A) =

(A) 10

(B) 5

(C) 45

(D) 90

Q12. The sum of first 44 terms of AP with a = 4, d = 3 is:

(A) 1432

(B) 3604

(C) 4425

(D) 3308

Q13. The equation of tangent to y = x^2 at x = 2 is:

(A) y = 3x - 4

(B) y = 3x - 19

(C) y = 9x - 3

(D) y = 7x - 9

Q14. The derivative of x^2 sin(x) at x = pi is:

(A) -1.55

(B) 17.63

(C) -14.03

(D) -14.17

Q15. If z = 4 + 2i, then |z| =

(A) 3.04

(B) 1.38

(C) 6.05

(D) 5.05

Q16. The area under y = x^2 from x = 0 to x = 5 is:

(A) 65.9

(B) 152.6

(C) 94.0

(D) 37.6

Q17. The eccentricity of the ellipse x^2/18 + y^2/16 = 1 is:

(A) 0.82

(B) 0.68

(C) 0.78

(D) 0.61

Q18. lim(x->0) sin(3x)/x =

(A) 6

(B) 1

(C) 2

(D) 1

Q19. The value of integral sin^2(x) dx from 0 to pi/2 is:

(A) 11pi/8

(B) 3pi/32

(C) 15pi/16

(D) 1pi/8

Q20. The distance between parallel lines 2x + 4y = 4 and 5x + 4y = 15 is:

(A) 3.85

(B) 4.83

(C) 3.63

(D) 4.08

Q21. The distance between parallel lines 2x + 4y = 6 and 5x + 3y = 13 is:

(A) 4.49

(B) 3.80

(C) 2.39

(D) 4.23

Q22. The number of ways to arrange 4 distinct objects in a circle is:

(A) 604

(B) 4210

(C) 4943

(D) 539

Q23. The mean of a binomial distribution with n = 11 and p = 0.6 is:

(A) 18.4

(B) 22.2

(C) 35.1

(D) 4.1

Q24. If det(A) = 4 and A is 3x3, then det(2A) =

(A) 94

(B) 95

(C) 64

(D) 73

Q25. Integral of (x^4 + 6) dx from 0 to 4 equals:

(A) 91

(B) 69

(C) 29

(D) 65

Q26. The mean of a binomial distribution with n = 14 and p = 0.3 is:

(A) 32.5

(B) 26.0

(C) 32.7

(D) 8.9

Q27. The probability of getting exactly 2 heads in 8 tosses of a fair coin is:

(A) 23/64

(B) 31/32

(C) 33/256

(D) 35/256

Q28. The distance between parallel lines 5x + 3y = 5 and 4x + 4y = 18 is:

(A) 4.57

(B) 2.71

(C) 2.24

(D) 1.82

Q29. The equation of tangent to y = x^4 at x = 1 is:

(A) y = 12x - 9

(B) y = 10x - 4

(C) y = 10x - 15

(D) y = 4x - 4

Q30. The derivative of x^5 sin(x) at x = pi is:

(A) 6.95

(B) -5.82

(C) 15.08

(D) -2.38

Q31. If det(A) = 9 and A is 3x3, then det(2A) =

(A) 72

(B) 99

(C) 34

(D) 3

Q32. The distance between parallel lines 5x + 5y = 6 and 3x + 3y = 14 is:

(A) 1.34

(B) 1.40

(C) 2.17

(D) 2.03

Q33. lim(x->0) sin(3x)/x =

(A) 3

(B) 5

(C) 2

(D) 1

Q34. Integral of (x^2 + 6) dx from 0 to 5 equals:

(A) 60

(B) 38

(C) 57

(D) 37

Q35. The rank of the matrix [[1,2,3],[4,5,6],[8,11,10]] is:

(A) 1

(B) 0

(C) 2

(D) 3

Q36. The distance between parallel lines 4x + 5y = 7 and 5x + 5y = 19 is:

(A) 2.72

(B) 1.20

(C) 2.30

(D) 2.89

Q37. The value of integral sin^2(x) dx from 0 to pi/2 is:

(A) 11pi/16

(B) 5pi/8

(C) 10pi/4

(D) 6pi/32

Q38. The equation of tangent to y = x^4 at x = 1 is:

(A) y = 12x - 3

(B) y = 11x - 17

(C) y = 4x - 14

(D) y = 5x - 20

Q39. The derivative of x^5 sin(x) at x = pi is:

(A) -2.13

(B) -1.72

(C) 4.53

(D) -19.42

Q40. The area under y = x^4 from x = 0 to x = 2 is:

(A) 192.3

(B) 49.6

(C) 125.1

(D) 132.1

Q41. The mean of a binomial distribution with n = 39 and p = 0.8 is:

(A) 7.0

(B) 6.0

(C) 26.7

(D) 12.3

Q42. The rank of the matrix [[1,2,3],[4,5,6],[9,8,12]] is:

(A) 3

(B) 1

(C) 2

(D) 0

Q43. lim(x->0) sin(7x)/x =

(A) 6

(B) 3

(C) 7

(D) 3

Q44. The sum of first 30 terms of AP with a = 5, d = 4 is:

(A) 418

(B) 595

(C) 4044

(D) 4193

Q45. The eccentricity of the ellipse x^2/16 + y^2/12 = 1 is:

(A) 0.45

(B) 0.81

(C) 0.82

(D) 0.40

Answer Key

Q1: (C)	Q2: (A)	Q3: (D)	Q4: (C)	Q5: (A)
Q6: (C)	Q7: (D)	Q8: (C)	Q9: (A)	Q10: (A)
Q11: (C)	Q12: (B)	Q13: (C)	Q14: (C)	Q15: (C)
Q16: (A)	Q17: (B)	Q18: (A)	Q19: (B)	Q20: (D)
Q21: (D)	Q22: (D)	Q23: (B)	Q24: (A)	Q25: (C)
Q26: (B)	Q27: (B)	Q28: (C)	Q29: (B)	Q30: (C)
Q31: (C)	Q32: (B)	Q33: (A)	Q34: (A)	Q35: (C)
Q36: (A)	Q37: (D)	Q38: (B)	Q39: (D)	Q40: (B)
Q41: (C)	Q42: (C)	Q43: (C)	Q44: (C)	Q45: (D)