JEE Advanced

Sample Question Paper - 2026

Country: IN | Duration: 3 hours/paper | Max Marks: 180 | Language: English

Negative Marking: Yes (-1 or -2) | Total Questions: 54 | QuizVerse AI Tutor

General Instructions:

1. This paper contains 54 questions across 3 section(s): Physics, Chemistry, Mathematics.
2. Duration: 3 hours/paper. Maximum marks: 180.
3. Negative marking: Yes (-1 or -2).
4. Read each question carefully before answering.

Section 1: Physics (18 Questions)

Q1. An ideal gas at 295 K is heated at constant pressure to 678 K. The ratio of final to initial volume is:

(A) 2.4
(B) 1.5
(C) 2.3
(D) 1.5

Q2. A radioactive substance has half-life 20 days. The fraction remaining after 14 days is:

(A) 1/4
(B) 1/16
(C) 1/32
(D) 1/16

Q3. A car of mass 1565 kg moving at 25 m/s brakes to rest in 7 s. The braking force is:

(A) 6477 N
(B) 15156 N
(C) 17916 N
(D) 6209 N

Q4. A Carnot engine operates between 765 K and 254 K. Its efficiency is:

(A) 58%
(B) 30%
(C) 52%
(D) 65%

Q5. Two capacitors 9 uF and 9 uF are connected in series. The equivalent capacitance is:

(A) 1.37 uF
(B) 4.96 uF
(C) 3.34 uF
(D) 4.38 uF

Q6. The work function of a metal is 1.6 eV. The threshold frequency is:

(A) 11.96 x 10^14 Hz

(B) 3.11 x 10^14 Hz

(C) 10.62 x 10^14 Hz

(D) 9.14 x 10^14 Hz

Q7. Two masses 7 kg and 11 kg are connected by a string over a frictionless pulley. The acceleration of the system is:

(A) 3.18 m/s^2

(B) 5.61 m/s^2

(C) 2.57 m/s^2

(D) 3.15 m/s^2

Q8. An ideal gas at 292 K is heated at constant pressure to 489 K. The ratio of final to initial volume is:

(A) 2.3

(B) 2.1

(C) 2.1

(D) 2.7

Q9. In photoelectric effect, the stopping potential for light of wavelength 252 nm on a metal with work function 3.7 eV is:

(A) 2.45 V

(B) 1.49 V

(C) 3.59 V

(D) 3.34 V

Q10. A convex lens of focal length 16 cm forms a real image of an object placed 22 cm away. The image distance is:

(A) 45 cm

(B) 51 cm

(C) 15 cm

(D) 25 cm

Q11. An electron moves with velocity 1x10^6 m/s perpendicular to a magnetic field of 0.2 T. The radius of its path is:

(A) 1.26 cm

(B) 1.26 cm

(C) 3.91 cm

(D) 1.43 cm

Q12. A projectile is launched at 45 degrees with initial velocity 36 m/s. The time of flight is approximately:

(A) 2.4 s

(B) 4.3 s

(C) 1.6 s

(D) 2.5 s

Q13. A spring with k = 494 N/m is compressed by 0.17 m. The stored PE is:

(A) 22.76 J

(B) 16.40 J

(C) 20.63 J

(D) 18.25 J

Q14. The current through a 26 ohm resistor connected to a 15 V battery is:

(A) 1.89 A

(B) 2.83 A

(C) 2.36 A

(D) 0.50 A

Q15. The electric field at 3 m from a point charge of 6 uC is:

(A) 7047 N/C

(B) 1784 N/C

(C) 8811 N/C

(D) 672 N/C

Q16. A radioactive substance has half-life 14 days. The fraction remaining after 54 days is:

(A) 1/4

(B) 1/4

(C) 1/8

(D) 1/16

Q17. A car of mass 1593 kg moving at 44 m/s brakes to rest in 9 s. The braking force is:

(A) 3916 N

(B) 15289 N

(C) 4174 N

(D) 16867 N

Q18. The de Broglie wavelength of an electron accelerated through 50 V is approximately:

(A) 1.20 Angstrom

(B) 2.64 Angstrom

(C) 1.53 Angstrom

(D) 2.14 Angstrom

Section 2: Chemistry (18 Questions)

Q19. The IUPAC name of neopentane is:

(A) Pentane

(B) Cyclopentane

(C) 2-Methylbutane

(D) 2,2-Dimethylpropane

Q20. According to Raoult's law, the vapour pressure of a solvent in solution is:

(A) p = RT/V

(B) p = p0 * x_solute

(C) p = p0 / x_solvent

(D) p = p0 * x_solvent

Q21. The rate of reaction doubles when temperature increases by:

(A) 5 K

(B) 50 K

(C) 10 K

(D) 20 K

Q22. The molar conductivity at infinite dilution can be obtained by:

(A) Ohm's law

(B) Faraday's law

(C) Kohlrausch's law

(D) Hess's law

Q23. Which reagent is used for Baeyer-Villiger oxidation?

(A) KMnO4

(B) mCPBA / peracid

(C) NaBH4

(D) LiAlH4

Q24. The ore of aluminium is:

(A) Chalcopyrite

(B) Galena

(C) Bauxite

(D) Haematite

Q25. The pH of a 0.01 M HCl solution is:

(A) 3

(B) 4

(C) 2

(D) 1

Q26. The coordination number in BCC is:

(A) 8

(B) 12

(C) 4

(D) 6

Q27. Which element has the highest electronegativity?

(A) Fluorine

(B) Nitrogen

(C) Oxygen

(D) Chlorine

Q28. d-block elements show variable oxidation states because:

(A) Low ionization energy

(B) Large atomic size

(C) Filled d orbitals

(D) Close energy of (n-1)d and ns orbitals

Q29. The cell potential for Zn|Zn2+||Cu2+|Cu cell is:

(A) -0.76 V

(B) 1.10 V

(C) 0.76 V

(D) 0.34 V

Q30. Colligative properties depend on:

(A) Number of solute particles

(B) Nature of solvent

(C) Nature of solute

(D) Molar mass of solute

Q31. VSEPR theory predicts the shape of SF6 as:

(A) Tetrahedral

(B) Square planar

(C) Trigonal bipyramidal

(D) Octahedral

Q32. For an ideal gas, Cp - Cv equals:

(A) 0

(B) 2R

(C) R/2

(D) R (8.314 J/mol K)

Q33. The magnetic moment of Fe2+ (d6) in weak field is:

(A) 4.9 BM (4 unpaired)

(B) 0 BM

(C) 2.83 BM

(D) 5.9 BM

Q34. Which metal is extracted by thermite process?

(A) Iron

(B) Sodium

(C) Chromium

(D) Aluminium

Q35. Which test distinguishes aldehydes from ketones?

(A) Tollens' test (silver mirror)

(B) Beilstein test

(C) Lucas test

(D) Lassaigne test

Q36. The order of ionic radius: Na+ vs Mg2+ vs Al3+ is:

(A) Al3+ > Mg2+ > Na+

(B) Na+ > Mg2+ > Al3+

(C) All equal

(D) Mg2+ > Na+ > Al3+

Section 3: Mathematics (18 Questions)

Q37. The number of ways to arrange 3 distinct objects in a circle is:

(A) 621

(B) 1188

(C) 2236

(D) 4624

Q38. The derivative of x^6 sin(x) at x = pi is:

(A) -18.08

(B) -1.45

(C) 18.32

(D) -17.63

Q39. The rank of the matrix [[1,2,3],[4,5,6],[8,10,11]] is:

(A) 2

(B) 3

(C) 1

(D) 0

Q40. The rank of the matrix [[1,2,3],[4,5,6],[7,9,13]] is:

(A) 1

(B) 0

(C) 2

(D) 3

Q41. The area under y = x^3 from x = 0 to x = 2 is:

(A) 170.4

(B) 27.6

(C) 73.8

(D) 76.4

Q42. The area under y = x^2 from x = 0 to x = 4 is:

(A) 73.5

(B) 164.8

(C) 155.7

(D) 46.0

Q43. The mean of a binomial distribution with n = 19 and p = 0.5 is:

(A) 8.7

(B) 10.8

(C) 17.5

(D) 24.6

Q44. The derivative of x^5 sin(x) at x = pi is:

(A) -17.43

(B) 17.80

(C) 11.55

(D) -0.65

Q45. The mean of a binomial distribution with n = 41 and p = 0.6 is:

(A) 15.7

(B) 25.0

(C) 3.9

(D) 25.1

Q46. The probability of getting exactly 4 heads in 5 tosses of a fair coin is:

(A) 20/256

(B) 43/32

(C) 14/32

(D) 36/64

Q47. Integral of (x^1 + 6) dx from 0 to 5 equals:

(A) 63

(B) 75

(C) 65

(D) 81

Q48. The sum of first 40 terms of AP with a = 5, d = 1 is:

(A) 4410

(B) 3946

(C) 3093

(D) 3958

Q49. The sum of first 22 terms of AP with a = 1, d = 1 is:

(A) 1919

(B) 218

(C) 4913

(D) 4744

Q50. The number of ways to arrange 5 distinct objects in a circle is:

(A) 833

(B) 2295

(C) 297

(D) 410

Q51. The number of ways to arrange 7 distinct objects in a circle is:

(A) 570

(B) 3909

(C) 1166

(D) 4480

Q52. If det(A) = 7 and A is 3x3, then det(2A) =

(A) 92

(B) 8

(C) 34

(D) 71

Q53. The eccentricity of the ellipse x^2/4 + y^2/6 = 1 is:

(A) 0.38

(B) 0.69

(C) 0.59

(D) 0.55

Q54. The derivative of x^2 sin(x) at x = pi is:

(A) 11.37

(B) 5.37

(C) -10.70

(D) 16.30

Answer Key

Q1: (B)	Q2: (C)	Q3: (C)	Q4: (C)	Q5: (D)
Q6: (A)	Q7: (A)	Q8: (D)	Q9: (B)	Q10: (C)
Q11: (A)	Q12: (A)	Q13: (B)	Q14: (C)	Q15: (D)
Q16: (C)	Q17: (C)	Q18: (C)	Q19: (D)	Q20: (D)
Q21: (C)	Q22: (C)	Q23: (B)	Q24: (C)	Q25: (A)
Q26: (A)	Q27: (A)	Q28: (D)	Q29: (B)	Q30: (A)
Q31: (D)	Q32: (D)	Q33: (A)	Q34: (C)	Q35: (A)
Q36: (B)	Q37: (A)	Q38: (C)	Q39: (A)	Q40: (C)
Q41: (B)	Q42: (B)	Q43: (A)	Q44: (D)	Q45: (D)
Q46: (A)	Q47: (C)	Q48: (B)	Q49: (C)	Q50: (B)
Q51: (C)	Q52: (B)	Q53: (D)	Q54: (A)	