

UNIVERSITY OF LUCKNOW

UNDERGRADUATE ENTRANCE TEST (UGET) - B.Sc. (MATHEMATICS) 2026

लखनऊ विश्वविद्यालय - स्नातक प्रवेश परीक्षा - बी.एस-सी. (गणित) 2026

MODEL PAPER - SET 9 / प्रतिदर्श प्रश्नपत्र - सेट 9

General Instructions: All questions are compulsory. Each question carries 2 marks. Only one option is correct.
सामान्य निर्देश: सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न 2 अंक का है। केवल एक विकल्प सही है।

SECTION A - MATHEMATICS / खण्ड A - गणित

1. The union of two disjoint open intervals on the real line is a space which is ?

The union of two disjoint open intervals on the real line is a space which is ?

- (1) locally connected / locally connected
- (2) connected / connected
- (3) compact / कॉम्पैक्ट
- (4) path connected / path connected

Correct Answer / सही उत्तर : (1) locally connected / locally connected

Solution / हल : Correct option: locally connected | सही विकल्प: locally connected

2. A linear operator define by T in metric space is said to be bounded if?

A linear operator define by T in metric space is said to be bounded if?

- (1) $\|T(x)\|$ exists / $\|T(x)\|$ exists
- (2) $\|T(x)\| < k\|x\|$ / $\|T(x)\| < k\|x\|$
- (3) T(x) is negative / T(x) is negative
- (4) T(x) is positive / T(x) is positive

Correct Answer / सही उत्तर : (2) $\|T(x)\| < k\|x\|$ / $\|T(x)\| < k\|x\|$

Solution / हल : Correct option: $\|T(x)\| < k\|x\|$ | सही विकल्प: $\|T(x)\| < k\|x\|$

3. A group is called Abelian if it satisfies _____ property ?

A group is called Abelian if it satisfies _____ property ?

- (1) commutative property / commutative property
- (2) associative property / associative property
- (3) existence of identity / existence of identity
- (4) existence of inverse / existence of inverse

Correct Answer / सही उत्तर : (1) commutative property / commutative property

Solution / हल : Correct option: commutative property | सही विकल्प: commutative property

4. Mother's age is three times the age of her son. After 5 years, their ages will add to 66 years. What is the present age of the mother?

Mother's age is three times the age of her son. After 5 years, their ages will add to 66 years. What is the present age of the mother?

- (1) 45 years / 45 years
- (2) 55 years / 55 years
- (3) 42 years / 42 years
- (4) 30 years / 30 years

Correct Answer / सही उत्तर : (3) 42 years / 42 years

Solution / हल : Correct option: 42 years | सही विकल्प: 42 years

5. Suppose 300 misprints are distributed randomly throughout a book of 500 pages. What is the probability that a given page contains 2 or more misprints?

Suppose 300 misprints are distributed randomly throughout a book of 500 pages. What is the probability that a given page contains 2 or more misprints?

- (1) 0.549 / 0.549

(2) 0.329 / 0.329

(3) 0.1 / 0, 1

(4) 0.122 / 0.122

Correct Answer / सही उत्तर : (4) 0.122 / 0.122

Solution / हल : Correct option: 0.122 | सही विकल्प: 0.122

6. If the mean of a Poisson distribution is 0.5, then the ratio of $P(x = 3)$ to $(x = 2)$ is ?

If the mean of a Poisson distribution is 0.5, then the ratio of $P(x = 3)$ to $(x = 2)$ is ?

(1) 1 : 6 / 16

(2) 1 : 2 / 12%

(3) 1 : 8 / 18%

(4) 1 : 4 / 14%

Correct Answer / सही उत्तर : (1) 1 : 6 / 16

Solution / हल : Correct option: 1 : 6 | सही विकल्प: 16

7. The largest term in the Binomial expansion of $150(3+2x)$, when $x = \frac{1}{5}$, is: 5 ?

The largest term in the Binomial expansion of $150(3+2x)$, when $x = \frac{1}{5}$, is: 5 ?

(1) sixth term / sixth term

(2) third term / third term

(3) eighth term / eighth term

(4) fifth term / fifth term

Correct Answer / सही उत्तर : (1) sixth term / sixth term

Solution / हल : Correct option: sixth term | सही विकल्प: sixth term

8. Given that, number of points on a circle is n . The number of triangles joining these points is 84. then n is equal to ?

Given that, number of points on a circle is n . The number of triangles joining these points is 84. then n is equal to ?

(1) none of these / इनमें कोई नहीं

(2) 9 / 9%

(3) 8 / 8

(4) 7 / 7

Correct Answer / सही उत्तर : (2) 9 / 9%

Solution / हल : Correct option: 9 | सही विकल्प: 9%

9. Find the number of ways in which 8064 can be resolved as the product of two factors?

Find the number of ways in which 8064 can be resolved as the product of two factors?

(1) 22 / 22

(2) 24 / 24

(3) 20 / 20

(4) 26 / 26

Correct Answer / सही उत्तर : (2) 24 / 24

Solution / हल : Correct option: 24 | सही विकल्प: 24

10. How many subsets of set A occur if $A = \{1, 2, 3, 4\}$?

How many subsets of set A occur if $A = \{1, 2, 3, 4\}$?

(1) 16 / 16

(2) 2 / 2 : 1

(3) 4 / 4 : 1

(4) 8 / 8

Correct Answer / सही उत्तर : (1) 16 / 16

Solution / हल : Correct option: 16 | सही विकल्प: 16

11. For 4 data points of two correlated variables x and y, it is given that ?
For 4 data points of two correlated variables x and y, it is given that ?

- (1) $x = 116$ / $x = 116$
- (2) $x = (103+36y) / 116$ / $x = (103+36y) / 116$
- (3) $y = 116$ / $y = 116$
- (4) $y = (36+103x) / 116$ / $y = (36+103x) / 116$

Correct Answer / सही उत्तर : (3) $y = 116$ / $y = 116$

Solution / हल : Correct option: $y = 116$ | सही विकल्प: $y = 116$

12. What is the third step of process of mathematical model?
What is the third step of process of mathematical model?

- (1) Compute model output / Compute model output
- (2) Construct equation / Construct equation
- (3) Define variables and parameters / Define variables and parameters
- (4) Validate mathematical model / Validate mathematical model

Correct Answer / सही उत्तर : (2) Construct equation / Construct equation

Solution / हल : Correct option: Construct equation | सही विकल्प: Construct equation

13. Consider the subspace $\{(x, y, z) \mid x + y + z = 0\}$?
Consider the subspace $\{(x, y, z) \mid x + y + z = 0\}$?

- (1) 9 / 9%
- (2) 3 / 3 : 1
- (3) 10 / 1, 0
- (4) 2 / 2 : 1

Correct Answer / सही उत्तर : (4) 2 / 2 : 1

Solution / हल : Correct option: 2 | सही विकल्प: 2 : 1

14. The points $(p, q + r)$, $(q, r + p)$ and $(r, p + q)$ are ?
The points $(p, q + r)$, $(q, r + p)$ and $(r, p + q)$ are ?

- (1) vertices of an equilateral triangle / vertices of an equilateral triangle
- (2) collinear / collinear
- (3) concyclic / concyclic
- (4) vertices of a right angled triangle / vertices of a right angled triangle

Correct Answer / सही उत्तर : (2) collinear / collinear

Solution / हल : Correct option: collinear | सही विकल्प: collinear

15. A sequence of real numbers is a real-valued function defined on the set of ?
A sequence of real numbers is a real-valued function defined on the set of ?

- (1) natural number i.e.f: \mathbb{N} / natural number i.e.f: \mathbb{N}
- (2) irrational number / irrational number
- (3) whole number / whole number
- (4) rational number / rational number

Correct Answer / सही उत्तर : (1) natural number i.e.f: \mathbb{N} / natural number i.e.f: \mathbb{N}

Solution / हल : Correct option: natural number i.e.f: \mathbb{N} | सही विकल्प: natural number i.e.f: \mathbb{N}

16. The number of positive divisors of 8 ?
The number of positive divisors of 8 ?

- (1) 80 / 80
- (2) 100 / 100
- (3) 16 / 16
- (4) 20 / 20

Correct Answer / सही उत्तर : (1) 80 / 80

Solution / हल : Correct option: 80 | सही विकल्प: 80

17. $x^3 - 3x - 22$. If $f(x) =$ and $g(x) =$ are two real-valued functions, then the number of solutions of $(g \circ f)(x) = (f \circ g)(x)$ is ?

$x^3 - 3x - 22$. If $f(x) =$ and $g(x) =$ are two real-valued functions, then the number of solutions of $(g \circ f)(x) = (f \circ g)(x)$ is ?

- (1) 0 / 0
- (2) 2 / 2 : 1
- (3) 1 / 1 : 1
- (4) 3 / 3 : 1

Correct Answer / सही उत्तर : (4) 3 / 3 : 1

Solution / हल : Correct option: 3 | सही विकल्प: 3 : 1

18. Every bounded sequence with a unique limit point is _____?

Every bounded sequence with a unique limit point is _____?

- (1) oscillatory / oscillatory
- (2) divergent / divergent
- (3) convergent / convergent
- (4) doesn't exist / doesn't exist

Correct Answer / सही उत्तर : (3) convergent / convergent

Solution / हल : Correct option: convergent | सही विकल्प: convergent

19. If they are 12 persons in a party and if each of them shake hands with each other, then number of in party are ?

If they are 12 persons in a party and if each of them shake hands with each other, then number of in party are ?

- (1) 66 / 66
- (2) 48 / 48
- (3) 72 / 72
- (4) 132 / 132

Correct Answer / सही उत्तर : (1) 66 / 66

Solution / हल : Correct option: 66 | सही विकल्प: 66

20. The sum of the first 51 terms of the arithmetic progression, 2nd term is 2 and 4th term is 8, is : _____?

The sum of the first 51 terms of the arithmetic progression, 2nd term is 2 and 4th term is 8, is : _____?

- (1) 3477 / 3477
- (2) 7548 / 7548
- (3) 3774 / 3774
- (4) 7458 / 7458

Correct Answer / सही उत्तर : (3) 3774 / 3774

Solution / हल : Correct option: 3774 | सही विकल्प: 3774

21. How many integer solutions are there for the equation $x + y + z = 15$, where $x > 0$?

How many integer solutions are there for the equation $x + y + z = 15$, where $x > 0$?

- (1) 6 / 6
- (2) 136 / 136
- (3) 1 / 1 : 1
- (4) 15 / 15%

Correct Answer / सही उत्तर : (2) 136 / 136

Solution / हल : Correct option: 136 | सही विकल्प: 136

22. The probability that they occur simultaneously is 0.14. What is the probability that neither of them occurs?

The probability that they occur simultaneously is 0.14. What is the probability that neither of them occurs?

- (1) 0.61 / 0.61
- (2) 0.39 / 0.39
- (3) 0.28 / 0.28
- (4) 0.72 / 0.72

Correct Answer / सही उत्तर : (2) 0.39 / 0.39

Solution / हल : Correct option: 0.39 | सही विकल्प: 0.39

23. What will we do to make the given differential equation exact?

What will we do to make the given differential equation exact?

- (1) we divide it by its derivatives / we divide it by its derivatives
- (2) we do integration on both sides / we do integration on both sides
- (3) we bipolarate the same / we bipolarate the same
- (4) we multiply it with integrating factor / we multiply it with integrating factor

Correct Answer / सही उत्तर : (4) we multiply it with integrating factor / we multiply it with integrating factor

Solution / हल : Correct option: we multiply it with integrating factor | सही विकल्प: we multiply it with integrating factor

24. Suppose square matrix A is nilpotent then $1 + A$ is ?

Suppose square matrix A is nilpotent then $1 + A$ is ?

- (1) non degenerate / non degenerate
- (2) not / not
- (3) none of these / इनमें कोई नहीं
- (4) invertible / invertible

Correct Answer / सही उत्तर : (4) invertible / invertible

Solution / हल : Correct option: invertible | सही विकल्प: invertible

25. The relation $\sin x + 2 \sin 2x = 3x, 0 ?$

The relation $\sin x + 2 \sin 2x = 3x, 0 ?$

- (1) one solution in the second quadrant / one solution in the second quadrant
- (2) no solution in any quadrant / no solution in any quadrant
- (3) one solution in each quadrant / one solution in each quadrant
- (4) two solutions in the first quadrant / two solutions in the first quadrant

Correct Answer / सही उत्तर : (2) no solution in any quadrant / no solution in any quadrant

Solution / हल : Correct option: no solution in any quadrant | सही विकल्प: no solution in any quadrant

26. What is order of convergence of $\cosh z$?

What is order of convergence of $\cosh z$?

- (1) two / दो (Two)
- (2) 0 / 0
- (3) one / एक
- (4) infinite / infinite

Correct Answer / सही उत्तर : (4) infinite / infinite

Solution / हल : Correct option: infinite | सही विकल्प: infinite

27. Which of the following is used in mathematical modeling in Boolean algebra?

Which of the following is used in mathematical modeling in Boolean algebra?

- (1) constructive solid geometry / constructive solid geometry
- (2) complex analysis / complex analysis
- (3) mines geometry / mines geometry
- (4) lines figure / lines figure

Correct Answer / सही उत्तर : (1) constructive solid geometry / constructive solid geometry

Solution / हल : Correct option: constructive solid geometry | सही विकल्प: constructive solid geometry

28. If is divided by 8 then remainder is ?

If is divided by 8 then remainder is ?

(1) 4 / 4 : 1

(2) 2 / 2 : 1

(3) 1 / 1 : 1

(4) 3 / 3 : 1

Correct Answer / सही उत्तर : (3) 1 / 1 : 1

Solution / हल : Correct option: 1 | सही विकल्प: 1 : 1

29. P (3, 1), Q (6, 5) and R (x, y) are three points such that the angle ?

P (3, 1), Q (6, 5) and R (x, y) are three points such that the angle ?

(1) 4 / 4 : 1

(2) 2 / 2 : 1

(3) 1 / 1 : 1

(4) 0 / 0

Correct Answer / सही उत्तर : (2) 2 / 2 : 1

Solution / हल : Correct option: 2 | सही विकल्प: 2 : 1

30. If $f(x)=x+[x]$ then which of the following is true ?

If $f(x)=x+[x]$ then which of the following is true ?

(1) differentiable at $x=0$ / differentiable at $x=0$

(2) not continuous at $x=0$ / not continuous at $x=0$

(3) differentiable at any point / differentiable at any point

(4) continuous but not differentiable at $x=0$ / continuous but not differentiable at $x=0$

Correct Answer / सही उत्तर : (2) not continuous at $x=0$ / not continuous at $x=0$

Solution / हल : Correct option: not continuous at $x=0$ | सही विकल्प: not continuous at $x=0$

31. Number of positive integers, which are less than 108 and prime to 108, is ?

Number of positive integers, which are less than 108 and prime to 108, is ?

(1) 18 / 18%

(2) 15 / 15%

(3) 17 / 17

(4) 36 / 36

Correct Answer / सही उत्तर : (4) 36 / 36

Solution / हल : Correct option: 36 | सही विकल्प: 36

32. For any two positive numbers a and x, least a value of $ax+$ is : x ?

For any two positive numbers a and x, least a value of $ax+$ is : x ?

(1) a / a

(2) a^2 / a^2

(3) $2a^2$ / $2a^2$

(4) 2a / 2a

Correct Answer / सही उत्तर : (4) 2a / 2a

Solution / हल : Correct option: 2a | सही विकल्प: 2a

33. If A has 5 elements and B has 7 elements, then the minimum number of elements that A ?

If A has 5 elements and B has 7 elements, then the minimum number of elements that A ?

(1) 2 / 2 : 1

(2) 5 / 5

(3) 7 / 7

(4) 12 / 12%

Correct Answer / सही उत्तर : (3) 7 / 7

Solution / हल : Correct option: 7 | सही विकल्प: 7

34. A number of three digits in scale of 7 when expressed in scale of 9 has its digits reversed in order. Find the number expressed in scale of 10 ?

A number of three digits in scale of 7 when expressed in scale of 9 has its digits reversed in order. Find the number expressed in scale of 10 ?

(1) 246 / 246

(2) 247 / 247

(3) 248 / 248

(4) 245 / 245

Correct Answer / सही उत्तर : (3) 248 / 248

Solution / हल : Correct option: 248 | सही विकल्प: 248

35. Every metric space is ?

Every metric space is ?

(1) Continuous / संतत (Continuous)

(2) Congruent / Congruent

(3) Topological / Topological

(4) Normed space / Normed space

Correct Answer / सही उत्तर : (4) Normed space / Normed space

Solution / हल : Correct option: Normed space | सही विकल्प: Normed space

36. In which case improper integral becomes equal to Riemann integrable?

In which case improper integral becomes equal to Riemann integrable?

(1) never possible / never possible

(2) as a special case of Lebesgue integral / as a special case of Lebesgue integral

(3) occurs somehow / occurs somehow

(4) sometimes differentiable / sometimes differentiable

Correct Answer / सही उत्तर : (2) as a special case of Lebesgue integral / as a special case of Lebesgue integral

Solution / हल : Correct option: as a special case of Lebesgue integral | सही विकल्प: as a special case of Lebesgue integral

37. Find the volume V under the plane $z = 8x + 6y$ over the rectangle $R = [0, 1]$?

Find the volume V under the plane $z = 8x + 6y$ over the rectangle $R = [0, 1]$?

(1) 20 units² / 20 units²

(2) 30 units / 30 units

(3) 10 units / 10 units

(4) 40 units / 40 units

Correct Answer / सही उत्तर : (1) 20 units² / 20 units²

Solution / हल : Correct option: 20 units² | सही विकल्प: 20 units²

38. Which term of the arithmetic progression 21, 42, 63, 84 _____ is 420?

Which term of the arithmetic progression 21, 42, 63, 84 _____ is 420?

(1) 22 / 22

(2) 19 / 19

(3) 21 / 21

(4) 20 / 20

Correct Answer / सही उत्तर : (4) 20 / 20

Solution / हल : Correct option: 20 | सही विकल्प: 20

39. Graph of the curve $y = x+3(x+1)$ is increasing when ?

Graph of the curve $y = x+3(x+1)$ is increasing when ?

- (1) $3 < x < -2$ / $3 < x < -2$
- (2) $x < -3$ or $x > -2$ / $x < -3$ or $x > -2$
- (3) $x < -3$ or $x > -5$ / $x < -3$ or $x > -5$
- (4) $x > -3$ or $x < -y$ / $x > -3$ or $x < -y$

Correct Answer / सही उत्तर : (2) $x < -3$ or $x > -2$ / $x < -3$ or $x > -2$

Solution / हल : Correct option: $x < -3$ or $x > -2$ | सही विकल्प: $x < -3$ or $x > -2$

40. Inner automorphism corresponding to every element of an abelian group is?

Inner automorphism corresponding to every element of an abelian group is?

- (1) trivial / trivial
- (2) non trivial / non trivial
- (3) bounded / bounded
- (4) infinite / infinite

Correct Answer / सही उत्तर : (1) trivial / trivial

Solution / हल : Correct option: trivial | सही विकल्प: trivial

SECTION B - PHYSICS / खण्ड B - भौतिक विज्ञान

41. When a thin transparent plate is introduced in the path of interfering beams, the fringe width will ?

When a thin transparent plate is introduced in the path of interfering beams, the fringe width will ?

- (1) increase / बढ़ती (Increase)
- (2) remains the same / remains the same
- (3) decrease / decrease
- (4) become zero / become zero

Correct Answer / सही उत्तर : (2) remains the same / remains the same

Solution / हल : Correct option: remains the same | सही विकल्प: remains the same

42. The critical angle is maximum when light travels from ?

The critical angle is maximum when light travels from ?

- (1) water to air / water to air
- (2) glass to air / glass to air
- (3) glass to water / glass to water
- (4) air to water / air to water

Correct Answer / सही उत्तर : (3) glass to water / glass to water

Solution / हल : Correct option: glass to water | सही विकल्प: glass to water

43. The packing fraction of Body Centred Cubic Structure (BCC) is ?

The packing fraction of Body Centred Cubic Structure (BCC) is ?

- (1) 0.72 / 0.72
- (2) 0.68 / 0.68
- (3) 0.34 / 0.34
- (4) 0.84 / 0.84

Correct Answer / सही उत्तर : (2) 0.68 / 0.68

Solution / हल : Correct option: 0.68 | सही विकल्प: 0.68

44. A paramagnetic material is placed in a magnetic field. The magnetic field is increased till magnetization becomes constant. Now temperature is decreased, the magnetization will ?

A paramagnetic material is placed in a magnetic field. The magnetic field is increased till magnetization becomes constant. Now temperature is decreased, the magnetization will ?

- (1) None of these / इनमें कोई नहीं

- (2) Increase / बढ़ती (Increase)
- (3) Decrease / Decrease
- (4) Remain constant / Remain constant

Correct Answer / सही उत्तर : (4) Remain constant / Remain constant

Solution / हल : Correct option: Remain constant | सही विकल्प: Remain constant

45. The peak voltage in a 240V A.C. source is ?
The peak voltage in a 240V A.C. source is ?

- (1) 300 V / 300 V
- (2) 340 V / 340 V
- (3) 380 V / 380 V
- (4) 240 V / 240 V

Correct Answer / सही उत्तर : (2) 340 V / 340 V

Solution / हल : Correct option: 340 V | सही विकल्प: 340 V

46. The given circuit diagram is equivalent to ?
The given circuit diagram is equivalent to ?

- (1) JK Flip-flop / JK Flip-flop
- (2) T Flip-flop / T Flip-flop
- (3) D Flip-flop / D Flip-flop
- (4) Clocked RS Flip-flop / Clocked RS Flip-flop

Correct Answer / सही उत्तर : (3) D Flip-flop / D Flip-flop

Solution / हल : Correct option: D Flip-flop | सही विकल्प: D Flip-flop

47. A conductor has a positive charge of 19.2×10^{19} Coulombs. How many electrons are in short on the conductor ?

A conductor has a positive charge of 19.2×10^{19} Coulombs. How many electrons are in short on the conductor ?

- (1) 20 / 20
- (2) 12 / 12%
- (3) 16 / 16
- (4) 18 / 18%

Correct Answer / सही उत्तर : (2) 12 / 12%

Solution / हल : Correct option: 12 | सही विकल्प: 12%

48. A capacitor of capacitance $6 \mu\text{F}$ is changed upto 100 volt. The energy stored in the capacitor is ?

A capacitor of capacitance $6 \mu\text{F}$ is changed upto 100 volt. The energy stored in the capacitor is ?

- (1) 0.6 J / 0.6 J
- (2) 0.3 J / 0.3 J
- (3) 0.06 H / 0.06 H
- (4) 0.03 J / 0.03 J

Correct Answer / सही उत्तर : (4) 0.03 J / 0.03 J

Solution / हल : Correct option: 0.03 J | सही विकल्प: 0.03 J

49. One mole of an ideal gas is allowed to expand isothermally at 27°C such that its volume increases 2.718 times. The work done in this process: ($R = 8.3 \times \text{J/moleK}^\circ$) ?

One mole of an ideal gas is allowed to expand isothermally at 27°C such that its volume increases 2.718 times. The work done in this process: ($R = 8.3 \times \text{J/moleK}^\circ$) ?

- (1) $2.8 \times \text{J}$ / $2.8 \times \text{J}$
- (2) cannot be calculated from data given / cannot be calculated from data given
- (3) $3.05 \times 10^3 \text{ J}$ / $3.05 \times 10^3 \text{ J}$
- (4) $24.9 \times 10^5 \text{ J}$ / $24.9 \times 10^5 \text{ J}$

Correct Answer / सही उत्तर : (4) $24.9 \times 105 \text{ J}$ / $24.9 \times 105 \text{ J}$

Solution / हल : Correct option: $24.9 \times 105 \text{ J}$ | सही विकल्प: $24.9 \times 105 \text{ J}$

50. The phase difference between driving force and displacement of driven harmonic oscillator inc high driving frequency condition is ?

The phase difference between driving force and displacement of driven harmonic oscillator inc high driving frequency condition is ?

(1) 180 / 180

(2) 270 / 270

(3) 0 / 0

(4) 90 / 90

Correct Answer / सही उत्तर : (1) 180 / 180

Solution / हल : Correct option: 180 | सही विकल्प: 180

51. For which one of the following concave mirror is not used?

For which one of the following concave mirror is not used?

(1) Rear-view mirror in cars / Rear-view mirror in cars

(2) Shaving glass / Shaving glass

(3) Inspection internal pasts of ear / Inspection internal pasts of ear

(4) Reflector in search lights / Reflector in search lights

Correct Answer / सही उत्तर : (1) Rear-view mirror in cars / Rear-view mirror in cars

Solution / हल : Correct option: Rear-view mirror in cars | सही विकल्प: Rear-view mirror in cars

52. A projectile has a maximum range of 16 km. At the highest point of its motion, it explodes into two equal masses. One mass drops vertically The horizontal distance covered by the other mass from the time of explosion will be ?

A projectile has a maximum range of 16 km. At the highest point of its motion, it explodes into two equal masses. One mass drops vertically The horizontal distance covered by the other mass from the time of explosion will be ?

(1) 24 km / 24 km

(2) 32 km / 32 km

(3) 8 km / 8 km

(4) 16 km / 16 km

Correct Answer / सही उत्तर : (4) 16 km / 16 km

Solution / हल : Correct option: 16 km | सही विकल्प: 16 km

53. Fraunhofer spectrum is ?

Fraunhofer spectrum is ?

(1) Band emission spectrum / Band emission spectrum

(2) Band absorption spectrum / Band absorption spectrum

(3) Line absorption spectrum / Line absorption spectrum

(4) Line emission spectrum / Line emission spectrum

Correct Answer / सही उत्तर : (3) Line absorption spectrum / Line absorption spectrum

Solution / हल : Correct option: Line absorption spectrum | सही विकल्प: Line absorption spectrum

54. Anderson's Bridge is used for measurement of ?

Anderson's Bridge is used for measurement of ?

(1) Capacitance / Capacitance

(2) Resistance / Resistance

(3) Frequency of AC supply / Frequency of AC supply

(4) Self-inductance / Self-inductance

Correct Answer / सही उत्तर : (4) Self-inductance / Self-inductance

Solution / हल : Correct option: Self-inductance | सही विकल्प: Self-inductance

55. The minimum distance between an object and its real image formed by a convex lens is ?
The minimum distance between an object and its real image formed by a convex lens is ?

- (1) f / f
- (2) $f/2 / f/2$
- (3) $2f / 2f$
- (4) $4f / 4f$

Correct Answer / सही उत्तर : (4) $4f / 4f$

Solution / हल : Correct option: $4f$ | सही विकल्प: $4f$

56. The ratio of light intensity scattered by two $^{\circ}$ colours of wavelengths 4000A and 6000A is ?
The ratio of light intensity scattered by two $^{\circ}$ colours of wavelengths 4000A and 6000A is ?

- (1) $2 / 2 : 1$
- (2) $5 / 5$
- (3) $7 / 7$
- (4) $1 / 1 : 1$

Correct Answer / सही उत्तर : (2) $5 / 5$

Solution / हल : Correct option: 5 | सही विकल्प: 5

57. In a transverse progressive wave of amplitude A, the maximum particle velocity is four times of wave velocity. The wavelength of wave is A A ?
In a transverse progressive wave of amplitude A, the maximum particle velocity is four times of wave velocity. The wavelength of wave is A A ?

- (1) $\pi A / \pi A$
- (2) π / π
- (3) $2\pi A / 2\pi A$
- (4) $\pi 4 / \pi 4$

Correct Answer / सही उत्तर : (4) $\pi 4 / \pi 4$

Solution / हल : Correct option: $\pi 4$ | सही विकल्प: $\pi 4$

58. The expansion of a string, obeying Hooke's law is x. The velocity of sound in this expanded string is v. If the expansion is increased to 1.5x, then the velocity of sound in the string will be ?
The expansion of a string, obeying Hooke's law is x. The velocity of sound in this expanded string is v. If the expansion is increased to 1.5x, then the velocity of sound in the string will be ?

- (1) $0.61v / 0.61v$
- (2) $1.50v / 1.50v$
- (3) $1.22v / 1.22v$
- (4) $0.75v / 0.75v$

Correct Answer / सही उत्तर : (3) $1.22v / 1.22v$

Solution / हल : Correct option: $1.22v$ | सही विकल्प: $1.22v$

59. A person hears an explosion 17.7 s after it took place. If the atmospheric temperature is C, the approximate distance of the place of explosion from the person is ?
A person hears an explosion 17.7 s after it took place. If the atmospheric temperature is C, the approximate distance of the place of explosion from the person is ?

- (1) 4.0 km / 4.0 km
- (2) 3.0 km / 3.0 km
- (3) 2.0 km / 2.0 km
- (4) 6.0 km / 60 किमी

Correct Answer / सही उत्तर : (4) 6.0 km / 60 किमी

Solution / हल : Correct option: 6.0 km | सही विकल्प: 60 किमी

60. Two yellow sodium lines of wavelengths 5890\AA and 5896\AA are just resolved by a prism. The resolving power of the prism is ?
Two yellow sodium lines of wavelengths 5890\AA and 5896\AA are just resolved by a prism. The resolving power of the prism is ?

- (1) 0.102 / 0.102
- (2) 6 / 6
- (3) 981.16 / 981.16
- (4) 5893 / 5893

Correct Answer / सही उत्तर : (3) 981.16 / 981.16

Solution / हल : Correct option: 981.16 | सही विकल्प: 981.16

SECTION C - CHEMISTRY / खण्ड C - रसायन विज्ञान

61. The complex $[\text{Rh}(\text{CO})(\text{Cl})(\text{PPh}_3)_2]$ has a 3 2 _____ ?
 $[\text{Rh}(\text{CO})(\text{Cl})(\text{PPh}_3)_2]$ संकुल की संरचना कैसी है ?

- (1) Tetrahedral / चतुष्फलकीय
- (2) Square planar / वर्ग समतलीय
- (3) Distorted square planar / विकृत वर्ग समतलीय
- (4) Octahedral / अष्टफलकीय

Correct Answer / सही उत्तर : (2) Square planar / वर्ग समतलीय

Solution / हल : $[\text{Rh}(\text{CO})(\text{Cl})(\text{PPh}_3)_2]$ is square planar. | $[\text{Rh}(\text{CO})(\text{Cl})(\text{PPh}_3)_2]$ वर्ग समतलीय है।

62. Polluting strength of water is given by ?
Polluting strength of water is given by ?

- (1) Amount of phosphates and carbonates in water / जल में फॉस्फेट व कार्बोनेट
- (2) Saline content in water / जल में लवणता
- (3) BOD in water / जल में BOD
- (4) COD in water / जल में COD

Correct Answer / सही उत्तर : (3) BOD in water / जल में BOD

Solution / हल : Correct option: BOD in water | सही विकल्प: जल में BOD

63. Which of the following types of catalysis can be explained by the adsorption theory?
निम्नलिखित में किस प्रकार का उत्प्रेरण अधिशोषण सिद्धांत से समझाया जाता है ?

- (1) Homogeneous catalysis / समांगी उत्प्रेरण
- (2) Autocatalysis / स्वउत्प्रेरण
- (3) Enzyme catalysis / एंजाइम उत्प्रेरण
- (4) Heterogeneous catalysis / विषमांगी उत्प्रेरण

Correct Answer / सही उत्तर : (4) Heterogeneous catalysis / विषमांगी उत्प्रेरण

Solution / हल : Heterogeneous catalysis is explained by adsorption theory. | विषमांगी उत्प्रेरण अधिशोषण सिद्धांत से समझाया जाता है।

64. The anode mud in the electrolytic refining of silver contains ?
चाँदी के विद्युत-अपघटनी परिष्करण में एनोड मड में क्या होता है ?

- (1) Au / Au
- (2) Zn, Sn, Au / Zn, Sn, Au
- (3) Zn, Cu, Au / Zn, Cu, Au
- (4) Au, Pb / Au, Pb

Correct Answer / सही उत्तर : (1) Au / Au

Solution / हल : Anode mud in electrolytic refining of silver contains Au (gold). | चाँदी के परिष्करण में एनोड मड में Au (स्वर्ण) होता है।

65. The instrument that use of the current due to electrons that tunnel between the surface and the tip is called _____ ?

The instrument that use of the current due to electrons that tunnel between the surface and the tip is called _____ ?

- (1) Transmission electron microscopy / ट्रांसमिशन इलेक्ट्रॉन सूक्ष्मदर्शी
- (2) Scanning tunnelling microscopy / स्कैनिंग टनलिंग सूक्ष्मदर्शी
- (3) Scanning electron microscopy / स्कैनिंग इलेक्ट्रॉन सूक्ष्मदर्शी
- (4) Atomic force microscopy / परमाणु बल सूक्ष्मदर्शी

Correct Answer / सही उत्तर : (2) Scanning tunnelling microscopy / स्कैनिंग टनलिंग सूक्ष्मदर्शी

Solution / हल : Correct option: Scanning tunnelling microscopy | सही विकल्प: स्कैनिंग टनलिंग सूक्ष्मदर्शी

66. The product formed in Bischler-Napieralski reaction ?

बिश्लर-नापिएराल्स्की अभिक्रिया में बनने वाला उत्पाद क्या है ?

- (1) Nitrile / नाइट्राइल
- (2) Amine / ऐमीन
- (3) Aldehyde / एल्डिहाइड
- (4) Cyclic imine / चक्रीय इमीन

Correct Answer / सही उत्तर : (4) Cyclic imine / चक्रीय इमीन

Solution / हल : Bischler-Napieralski reaction gives a cyclic imine. | बिश्लर-नापिएराल्स्की अभिक्रिया चक्रीय इमीन देती है।

67. The equilibrium constant of a reaction is not affected by the presence of ?

अभिक्रिया का साम्य स्थिरांक किसकी उपस्थिति से प्रभावित नहीं होता ?

- (1) Catalyst / उत्प्रेरक (Catalyst)
- (2) pH =4 / pH=4
- (3) Temperature / ताप
- (4) Pressure / दाब

Correct Answer / सही उत्तर : (1) Catalyst / उत्प्रेरक (Catalyst)

Solution / हल : The equilibrium constant is not affected by a catalyst. | साम्य स्थिरांक उत्प्रेरक से प्रभावित नहीं होता।

68. Dow's process is used for the preparation of : mes ?

Dow's process is used for the preparation of : mes ?

- (1) Alcohols / एल्कोहल
- (2) Phenol / फिनॉल
- (3) Ethers / ईथर
- (4) Alkyl halides / ऐल्किल हैलाइड

Correct Answer / सही उत्तर : (2) Phenol / फिनॉल

Solution / हल : Correct option: Phenol | सही विकल्प: फिनॉल

69. A metalloprotein have Fe central metal and functions in electron transfer is _____ ?

Fe केंद्रीय धातु वाला व इलेक्ट्रॉन स्थानांतरण में कार्यरत धातुप्रोटीन कौन-सा है ?

- (1) Ferredoxin / फेरिडॉक्सिन
- (2) Catalase / कैटालेज़
- (3) Cytochrome / साइटोक्रोम
- (4) Haemoglobin / हीमोग्लोबिन

Correct Answer / सही उत्तर : (3) Cytochrome / साइटोक्रोम

Solution / हल : Cytochrome is an Fe metalloprotein for electron transfer. | साइटोक्रोम Fe धातुप्रोटीन है जो इलेक्ट्रॉन स्थानांतरण करता है।

70. Salt bridge used in the construction of voltaic cells is prepared by using the salt ueJeCe ?

वोल्टीय सेल में प्रयुक्त लवण सेतु किस लवण से बनाया जाता है ?

- (1) Platinum chloride / प्लैटिनम क्लोराइड
- (2) Calcium chloride / कैल्शियम क्लोराइड
- (3) Magnesium nitrate / मैग्नीशियम नाइट्रेट
- (4) Potassium nitrate / पोटैशियम नाइट्रेट

Correct Answer / सही उत्तर : (4) Potassium nitrate / पोटैशियम नाइट्रेट

Solution / हल : The salt bridge is made using potassium nitrate. | लवण सेतु पोटैशियम नाइट्रेट से बनाया जाता है।

71. The correct biological function of magnesium is ?

The correct biological function of magnesium is ?

- (1) Important in nerve functioning in animals / प्राणियों में तंत्रिका कार्य में महत्वपूर्ण
- (2) Electrochemical and enzyme-activating functions / विद्युतरासायनिक व एंजाइम-सक्रियक कार्य
- (3) Important constituent of DNA and RNA / DNA व RNA का महत्वपूर्ण घटक
- (4) Important in tertiary structure of protein / प्रोटीन की तृतीयक संरचना में महत्वपूर्ण

Correct Answer / सही उत्तर : (2) Electrochemical and enzyme-activating functions / विद्युतरासायनिक व एंजाइम-सक्रियक कार्य

Solution / हल : Correct option: Electrochemical and enzyme-activating functions | सही विकल्प: विद्युतरासायनिक व एंजाइम-सक्रियक कार्य

72. In polymerization process of Ethylene, it is heated at high pressure in presence of oxygen or a peroxide. This process is known as _____ ?

एथिलीन के बहुलकन में ऑक्सीजन/पराक्साइड की उपस्थिति में उच्च दाब पर गर्म करने की प्रक्रिया क्या कहलाती है ?

- (1) Coordination polymerization / उपसहसंयोजन बहुलकन
- (2) Free radical polymerization / मुक्त मूलक बहुलकन
- (3) Cationic polymerization / धनायनिक बहुलकन
- (4) Anionic polymerization / ऋणायनिक बहुलकन

Correct Answer / सही उत्तर : (2) Free radical polymerization / मुक्त मूलक बहुलकन

Solution / हल : Heating ethylene under pressure with peroxide is free-radical polymerization. | पराक्साइड सहित उच्च दाब पर एथिलीन गर्म करना मुक्त मूलक बहुलकन है।

73. Which of the following is NOT a greenhouse gas?

निम्नलिखित में कौन हरितगृह गैस (greenhouse gas) नहीं है ?

- (1) CO / CO
- (2) Methane derivatives / मेथेन व्युत्पन्न
- (3) CH₄ / CH₄
- (4) Helium / हीलियम

Correct Answer / सही उत्तर : (4) Helium / हीलियम

Solution / हल : Helium (a noble gas) is not a greenhouse gas. | हीलियम (अक्रिय गैस) हरितगृह गैस नहीं है।

74. Rhodium dimer [Cp*Rh(CO)]₂ has _____ ?

रोडियम डाइमर [Cp*Rh(CO)]₂ में क्या होता है ?

- (1) Only 2 bridging groups / केवल 2 सेतु समूह
- (2) 4 bridging and 2 terminal groups / 4 सेतु व 2 टर्मिनल समूह
- (3) 2 bridging and 2 terminal groups / 2 सेतु व 2 टर्मिनल समूह
- (4) 2 bridging and 4 terminal groups / 2 सेतु व 4 टर्मिनल समूह

Correct Answer / सही उत्तर : (3) 2 bridging and 2 terminal groups / 2 सेतु व 2 टर्मिनल समूह

Solution / हल : [Cp*Rh(CO)]₂ has 2 bridging and 2 terminal CO groups. | [Cp*Rh(CO)]₂ में 2 सेतु व 2 टर्मिनल CO समूह होते हैं।

75. Phosphorus pentachloride does not react readily with ?
फॉस्फोरस पेंटाक्लोराइड किसके साथ आसानी से अभिक्रिया नहीं करता ?

- (1) methanol / मेथेनॉल
- (2) diethyl ether / डाइएथिल ईथर
- (3) aniline / एनिलीन
- (4) acetone / एसीटोन

Correct Answer / सही उत्तर : (3) aniline / एनिलीन

Solution / हल : PCl_5 does not react readily with aniline (here). | PCl_5 एनिलीन के साथ आसानी से अभिक्रिया नहीं करता (यहाँ)।

76. Which of the following is independent of temperature ?
निम्नलिखित में कौन ताप से स्वतंत्र है ?

- (1) Molarity / मोलरता
- (2) Molality / मोललता
- (3) Formality / फॉर्मलता
- (4) Normality / नॉर्मलता

Correct Answer / सही उत्तर : (2) Molality / मोललता

Solution / हल : Molality is independent of temperature. | मोललता ताप से स्वतंत्र है।

77. The process by which ketones are formed by the hydrolysis of salts of secondary nitro compounds is known ?

द्वितीयक नाइट्रो यौगिकों के लवणों के जल-अपघटन से कीटोन बनने की प्रक्रिया क्या है ?

- (1) Fukuyama coupling / फुकुयामा युग्मन
- (2) Dakin-West reaction / डाकिन-वेस्ट अभिक्रिया
- (3) Friedel craft's / फ्रीडल-क्राफ्ट
- (4) Nef Reaction / नेफ अभिक्रिया (Nef Reaction)

Correct Answer / सही उत्तर : (4) Nef Reaction / नेफ अभिक्रिया (Nef Reaction)

Solution / हल : Ketones from secondary nitro salt hydrolysis is the Nef reaction. | द्वितीयक नाइट्रो लवण जल-अपघटन से कीटोन नेफ अभिक्रिया है।

78. Major cation in the intracellular fluid in animals is: heMegDeeW Deblejeke ?

Major cation in the intracellular fluid in animals is: heMegDeeW Deblejeke ?

- (1) Sodium / सोडियम
- (2) Magnesium / मैग्नीशियम
- (3) Potassium / पोटैशियम
- (4) Calcium / कैल्शियम

Correct Answer / सही उत्तर : (3) Potassium / पोटैशियम

Solution / हल : Correct option: Potassium | सही विकल्प: पोटैशियम

79. Which of the following ions have minimum value of flocculating power?

निम्नलिखित में किस आयन का स्कंदन सामर्थ्य (flocculating power) न्यूनतम है ?

- (1) Phosphate ions / फॉस्फेट आयन
- (2) Nitrate ions / नाइट्रेट आयन
- (3) Sulphate ions / सल्फेट आयन
- (4) Sulphite ions / सल्फाइट आयन

Correct Answer / सही उत्तर : (1) Phosphate ions / फॉस्फेट आयन

Solution / हल : Phosphate ions have the minimum flocculating power (here) among the set. | दिए गए में फॉस्फेट आयन का स्कंदन सामर्थ्य न्यूनतम है।

80. When ethyl benzoate is refluxed with dilute sodium hydroxide, it undergoes hydrolysis. The mechanism involves ?

एथिल बेन्जोएट को तनु NaOH के साथ रिफ्लक्स करने पर जल-अपघटन का तंत्र क्या है ?

- (1) Acyl oxygen bond cleavage, bimolecular / एसाइल-ऑक्सीजन बंध विदलन, द्विअण्विक
- (2) Acyl oxygen bond cleavage, unimolecular / एसाइल-ऑक्सीजन बंध विदलन, एकाण्विक
- (3) Alkyl oxygen bond cleavage, bimolecular / ऐल्किल-ऑक्सीजन बंध विदलन, द्विअण्विक
- (4) Alkyl oxygen bond cleavage, unimolecular / ऐल्किल-ऑक्सीजन बंध विदलन, एकाण्विक

Correct Answer / सही उत्तर : (1) Acyl oxygen bond cleavage, bimolecular / एसाइल-ऑक्सीजन बंध विदलन, द्विअण्विक

Solution / हल : Alkaline hydrolysis of ethyl benzoate is acyl-oxygen cleavage, bimolecular (BAC2). | एथिल बेन्जोएट का क्षारीय जल-अपघटन एसाइल-ऑक्सीजन विदलन, द्विअण्विक (BAC2) है।

81. Which compound has magnetic susceptibility?

किस यौगिक में चुंबकीय प्रवृत्ति होती है ?

- (1) Naphthalene / नैफथलीन
- (2) Anthracene / एन्थ्रेसीन
- (3) Benzene / बेन्जीन
- (4) Azulene / ऐज़ुलीन

Correct Answer / सही उत्तर : (2) Anthracene / एन्थ्रेसीन

Solution / हल : Anthracene shows magnetic susceptibility (aromatic). | एन्थ्रेसीन में चुंबकीय प्रवृत्ति होती है (एरोमैटिक)।

82. A common method used to grow a single crystal where the non-solvent is layered on the top of crystallisation solvent is called _____ ?

एकल क्रिस्टल उगाने की वह विधि जहाँ अविलायक को क्रिस्टलन विलायक के ऊपर परत में रखा जाता है ?

- (1) Vapour diffusion / वाष्प विसरण
- (2) Interfacial method / अंतरापृष्ठ विधि
- (3) X-ray diffraction / X-किरण विवर्तन
- (4) Sublimation / ऊर्ध्वपातन

Correct Answer / सही उत्तर : (1) Vapour diffusion / वाष्प विसरण

Solution / हल : Layering non-solvent over crystallisation solvent is vapour diffusion. | अविलायक को क्रिस्टलन विलायक के ऊपर रखना वाष्प विसरण है।

83. Phosphorus shows an oxidation number of +3 ?

फॉस्फोरस +3 ऑक्सीकरण संख्या किसमें दर्शाता है ?

- (1) orthophosphorous acid / ऑर्थोफॉस्फोरस अम्ल
- (2) orthophosphoric acid / ऑर्थोफॉस्फोरिक अम्ल
- (3) metaphosphoric acid / मेटाफॉस्फोरिक अम्ल
- (4) pyrophosphoric acid / पायरोफॉस्फोरिक अम्ल

Correct Answer / सही उत्तर : (1) orthophosphorous acid / ऑर्थोफॉस्फोरस अम्ल

Solution / हल : Phosphorus shows +3 oxidation state in orthophosphorous acid (H₃PO₃). | फॉस्फोरस +3 अवस्था ऑर्थोफॉस्फोरस अम्ल (H₃PO₃) में दर्शाता है।

84. Which of the following pair of compounds precipitates readily when their aqueous solutions are mixed together?

निम्नलिखित में किन यौगिकों के जलीय विलयन मिलाने पर शीघ्र अवक्षेप बनता है ?

- (1) Cu(NO₃) and NH₄Cl / Cu(NO₃) and NH₄Cl
- (2) AlCl₃ and ZnSO₄ / AlCl₃ व ZnSO₄
- (3) NaF and AgNO₃ / NaF व AgNO₃
- (4) FeSO₄ and BaCl₂ / FeSO₄ व BaCl₂

Correct Answer / सही उत्तर : (4) FeSO₄ and BaCl₂ / FeSO₄ व BaCl₂

Solution / हल : FeSO₄ and BaCl₂ give a ready precipitate (BaSO₄). | FeSO₄ व BaCl₂ शीघ्र अवक्षेप (BaSO₄) देते हैं।

85. Hybridization of XeF₄ is represented by : 4 XeF ?

XeF₄ का संकरण क्या है ?

- (1) sp³ / sp³
- (2) sp² / sp²
- (3) sp³d² / sp³d²
- (4) sp³d / sp³d

Correct Answer / सही उत्तर : (3) sp³d² / sp³d²

Solution / हल : XeF₄ has sp³d² hybridisation. | XeF₄ का संकरण sp³d² है।

SECTION D - COMPUTER / खण्ड D - कंप्यूटर

86. Which of the following translates a program written in high-level language into machine code?

निम्नलिखित में कौन उच्च-स्तरीय भाषा के प्रोग्राम को मशीन कोड में अनुवाद करता है ?

- (1) Compiler / कंपाइलर
- (2) Translator / ट्रांसलेटर
- (3) Converter / कन्वर्टर
- (4) Assembler / असेम्बलर

Correct Answer / सही उत्तर : (1) Compiler / कंपाइलर

Solution / हल : A compiler translates a high-level program into machine code. | कंपाइलर उच्च-स्तरीय प्रोग्राम को मशीन कोड में अनुवाद करता है।

87. What type of device is a computer printer?

What type of device is a computer printer?

- (1) Storage / भंडारण
- (2) Output / Output
- (3) Input / इनपुट
- (4) None of these / इनमें कोई नहीं

Correct Answer / सही उत्तर : (2) Output / Output

Solution / हल : Correct option: Output | सही विकल्प: Output

88. The word 'computer' was derived from which of the following languages?

'computer' शब्द किस भाषा से लिया गया है ?

- (1) Latin / लैटिन
- (2) German / जर्मन
- (3) French / फ्रेंच
- (4) Spanish / स्पेनिश

Correct Answer / सही उत्तर : (1) Latin / लैटिन

Solution / हल : 'Computer' is derived from Latin. | 'Computer' लैटिन से लिया गया है।

89. A single transistor can be used to build which of the following logic gates ?

A single transistor can be used to build which of the following logic gates ?

- (1) NOR / NOR
- (2) AND / और
- (3) OR / OR
- (4) NOT / NOT

Correct Answer / सही उत्तर : (4) NOT / NOT

Solution / हल : Correct option: NOT | सही विकल्प: NOT

90. Convert 11010 to Octal ?

11010 को अष्टक (Octal) में बदलिए ?

- (1) 32 / 32
- (2) 26 / 26
- (3) 46 / 46
- (4) 36 / 36

Correct Answer / सही उत्तर : (1) 32 / 32

Solution / हल : 11010 (binary) = 32 in octal. | 11010 (बाइनरी) = 32 (अष्टक)|

91. In which generation were computers bulky, vacuum based and costly?

In which generation were computers bulky, vacuum based and costly?

- (1) Fifth generation / Fifth generation
- (2) Fourth / Fourth
- (3) Third generation / Third generation
- (4) First generation / First generation

Correct Answer / सही उत्तर : (4) First generation / First generation

Solution / हल : Correct option: First generation | सही विकल्प: First generation

92. Which of the following devices is capable of producing large-format drawings like graphs and construction drawings?

Which of the following devices is capable of producing large-format drawings like graphs and construction drawings?

- (1) Laser printer / लेज़र प्रिंटर
- (2) Inkjet printer / Inkjet printer
- (3) Dot matrix printer / डॉट मैट्रिक्स प्रिंटर
- (4) Flat-bed printer / Flat-bed printer

Correct Answer / सही उत्तर : (4) Flat-bed printer / Flat-bed printer

Solution / हल : Correct option: Flat-bed printer | सही विकल्प: Flat-bed printer

93. Which of the following is not a super computer?

Which of the following is not a super computer?

- (1) EKA / EKA
- (2) Cray-3 / Cray-3
- (3) PDA / PDA
- (4) PARAM / PARAM

Correct Answer / सही उत्तर : (3) PDA / PDA

Solution / हल : Correct option: PDA | सही विकल्प: PDA

94. Which of the following is a primary storage device?

Which of the following is a primary storage device?

- (1) Flash drive / फ्लैश ड्राइव
- (2) Pen / Pen
- (3) DRAM / DRAM
- (4) Compact / कॉम्पैक्ट

Correct Answer / सही उत्तर : (3) DRAM / DRAM

Solution / हल : Correct option: DRAM | सही विकल्प: DRAM

95. Which of the following devices can be used to enter handwritten signatures?

हस्तलिखित हस्ताक्षर दर्ज करने के लिए कौन-सा उपकरण प्रयोग होता है ?

- (1) Joystick / जॉयस्टिक
- (2) Mouse / माउस
- (3) Graphics / ग्राफिक्स
- (4) Plotter / प्लॉटर

Correct Answer / सही उत्तर : (3) Graphics / ग्राफिक्स

Solution / हल : A graphics tablet is used to enter handwritten signatures. | हस्तलिखित हस्ताक्षर हेतु ग्राफिक्स टैबलेट प्रयोग होता है।

SECTION E - MENTAL ABILITY / खण्ड E - मानसिक योग्यता

96. The product of 5% of a positive number and 2% of the same number is 211.6. What is half of that number?

The product of 5% of a positive number and 2% of the same number is 211.6. What is half of that number?

- (1) 115 / 115
- (2) 230 / 230
- (3) 460 / 460
- (4) 920 / 920

Correct Answer / सही उत्तर : (2) 230 / 230

Solution / हल : Correct option: 230 | सही विकल्प: 230

97. A train crossed a platform in 43 seconds. The length of the train is 170 metres. What is the speed of the train?

एक रेलगाड़ी प्लेटफॉर्म 43 सेकंड में पार करती है। रेल की लंबाई 170 मीटर है। रेल की चाल क्या है ?

- (1) 243 km./hr / 243 किमी/घं
- (2) 265 km./hr / 265 किमी/घं
- (3) 233 km./hr / 233 किमी/घं
- (4) Cannot be determined / निर्धारित नहीं

Correct Answer / सही उत्तर : (4) Cannot be determined / निर्धारित नहीं

Solution / हल : Speed cannot be determined (platform length not given). | चाल निर्धारित नहीं की जा सकती (प्लेटफॉर्म लंबाई नहीं दी)।

98. A wheel of a motorbike has radius 35 cm. How many revolutions per minute must the wheel make so that the speed of the bike is 33 km/hr?

A wheel of a motorbike has radius 35 cm. How many revolutions per minute must the wheel make so that the speed of the bike is 33 km/hr?

- (1) 200 / 200
- (2) 220 / 220
- (3) 300 / 300
- (4) 250 / 250

Correct Answer / सही उत्तर : (4) 250 / 250

Solution / हल : Correct option: 250 | सही विकल्प: 250

99. The cost price of goods is 20% below the marked price. He sold half he stock at the marked price. One quarter at a discount of 10% on the marked price and rest at a discount of 30% on the marked price. His total gain is : (?

वस्तु का लागत मूल्य अंकित मूल्य से 20% कम है। आधा स्टॉक अंकित पर, चौथाई 10% छूट पर व शेष 30% छूट पर बेचा — कुल लाभ कितना ?

- (1) 7.5% / 7.5%
- (2) 12.5% / 12.5%
- (3) 10.5% / 10.5%
- (4) 9% / 9%

Correct Answer / सही उत्तर : (2) 12.5% / 12.5%

Solution / हल : With given discounts and 20% margin, total gain = 12.5%. | दी गई छूट व 20% मार्जिन पर कुल लाभ 12.5% है।

100. If the smaller number is increased by 20% and the bigger one is decreased by 25%, the new ratio of numbers (smaller: bigger) will be (SBI Clerk Main-2018)

If the smaller number is increased by 20% and the bigger one is decreased by 25%, the new ratio of numbers (smaller: bigger) will be (SBI Clerk Main-2018)

(1) 23 : 24 / 23 : 24

(2) 24 : 23 / 24 : 23

(3) 24 : 25 / 24 : 25

(4) 25 : 24 / 25 : 24

Correct Answer / सही उत्तर : (4) 25 : 24 / 25 : 24

Solution / हल : Correct option: 25 : 24 | सही विकल्प: 25 : 24

