

UNIVERSITY OF LUCKNOW

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

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

MODEL PAPER - SET 7 / प्रतिदर्श प्रश्नपत्र - सेट 7

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. Which model is the one in which every set of variable states is uniquely determined by parameters in the model and by sets of previous states of these variables?

Which model is the one in which every set of variable states is uniquely determined by parameters in the model and by sets of previous states of these variables?

- (1) probability model / probability model
- (2) discrete model / discrete model
- (3) deterministic model / deterministic model
- (4) continuous model / continuous model

Correct Answer / सही उत्तर : (3) deterministic model / deterministic model

Solution / हल : Correct option: deterministic model | सही विकल्प: deterministic model

2. The sum of the series $n(\sin(n))$ is _____ ?

The sum of the series $n(\sin(n))$ is _____ ?

- (1) oscillates infinitely / oscillates infinitely
- (2) convergent / convergent
- (3) divergent / divergent
- (4) oscillates finitely / oscillates finitely

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

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

3. What is the order of this equation?

What is the order of this equation?

- (1) 3 / 3 : 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

4. If $P(n): 4n + 3$ is a prime number, then which of the following is INCORRECT?

If $P(n): 4n + 3$ is a prime number, then which of the following is INCORRECT?

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

Correct Answer / सही उत्तर : (4) $P(3)$ / $P(3)$

Solution / हल : Correct option: $P(3)$ | सही विकल्प: $P(3)$

5. The system of equations $2x+4y=6$ and $4x+8y=6$ has ?

The system of equations $2x+4y=6$ and $4x+8y=6$ has ?

- (1) a unique solution / a unique solution
- (2) no solution / no solution
- (3) exactly two solutions / exactly two solutions

(4) infinitely many solutions / infinitely many solutions

Correct Answer / सही उत्तर : (2) no solution / no solution

Solution / हल : Correct option: no solution | सही विकल्प: no solution

6. Consider $n(U) = 20$, $n(A) = 12$, $n(B) = 9$ and n ?

Consider $n(U) = 20$, $n(A) = 12$, $n(B) = 9$ and n ?

(1) 8 / 8

(2) 11 / 1, 1

(3) 3 / 3 : 1

(4) 17 / 17

Correct Answer / सही उत्तर : (1) 8 / 8

Solution / हल : Correct option: 8 | सही विकल्प: 8

7. Which composition of elementary function is not as considered derivable?

Which composition of elementary function is not as considered derivable?

(1) polynomial / polynomial

(2) trigonometric / trigonometric

(3) exponential / exponential

(4) injective / injective

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

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

8. The graph of the equation $r = \sin 3$?

The graph of the equation $r = \sin 3$?

(1) Spiral / Spiral

(2) Three leaved Rose / Three leaved Rose

(3) Cardioid / Cardioid

(4) Four leaved Rose / Four leaved Rose

Correct Answer / सही उत्तर : (2) Three leaved Rose / Three leaved Rose

Solution / हल : Correct option: Three leaved Rose | सही विकल्प: Three leaved Rose

9. The greatest limit point of a bounded sequence is called?

The greatest limit point of a bounded sequence is called?

(1) limit superior of f / limit superior of f

(2) minimum point of f / minimum point of f

(3) limit inferior of f / limit inferior of f

(4) maximum point of f / maximum point of f

Correct Answer / सही उत्तर : (1) limit superior of f / limit superior of f

Solution / हल : Correct option: limit superior of f | सही विकल्प: limit superior of f

10. Then the mean and the standard deviation of the remaining 45 observations, respectively, are ?

Then the mean and the standard deviation of the remaining 45 observations, respectively, are ?

(1) 6.83, 1.78 / 6.83, 1.78

(2) 6.26, 1.89 / 6.26, 1.89

(3) 6.38, 1.97 / 6.38, 1.97

(4) 8.36, 1.91 / 8.36, 1.91

Correct Answer / सही उत्तर : (3) 6.38, 1.97 / 6.38, 1.97

Solution / हल : Correct option: 6.38, 1.97 | सही विकल्प: 6.38, 1.97

11. How many numbers from 1 to 1000 are not divisible by 2, 3 and 5?

How many numbers from 1 to 1000 are not divisible by 2, 3 and 5?

(1) 264 / 264

- (2) 268 / 268
 (3) 262 / 262
 (4) 266 / 266

Correct Answer / सही उत्तर : (4) 266 / 266

Solution / हल : Correct option: 266 | सही विकल्प: 266

12. x and at x = 1 the series is 1 ?

x and at x = 1 the series is 1 ?

- (1) (c, d) = (d, r) / (c, d) = (d, r)
 (2) (c, d) = (d, q) / (c, d) = (d, q)
 (3) (c, q) = (d, r) / (c, q) = (d, r)
 (4) (c, r) = (d, r) / (c, r) = (d, r)

Correct Answer / सही उत्तर : (4) (c, r) = (d, r) / (c, r) = (d, r)

Solution / हल : Correct option: (c, r) = (d, r) | सही विकल्प: (c, r) = (d, r)

13. The law which enables an integral taken around a closed curve to be replaced by one taken over any surface bounded by the curve is ?

The law which enables an integral taken around a closed curve to be replaced by one taken over any surface bounded by the curve is ?

- (1) Divergence law / Divergence law
 (2) Gauss's law / Gauss's law
 (3) Closure law / Closure law
 (4) Stoke's law / Stoke's law

Correct Answer / सही उत्तर : (4) Stoke's law / Stoke's law

Solution / हल : Correct option: Stoke's law | सही विकल्प: Stoke's law

14. Check about continuity and analyticity of $f(z) = \cos(z)$?

Check about continuity and analyticity of $f(z) = \cos(z)$?

- (1) Continuous but not analytic / Continuous but not analytic
 (2) analytic but not continuous / analytic but not continuous
 (3) continuous and analytic everywhere / continuous and analytic everywhere
 (4) neither continuous nor analytic / neither continuous nor analytic

Correct Answer / सही उत्तर : (3) continuous and analytic everywhere / continuous and analytic everywhere

Solution / हल : Correct option: continuous and analytic everywhere | सही विकल्प: continuous and analytic everywhere

15. A tree is broken by wind, its upper part touching the ground at a point 16 m from the foot of the tree and making an angle of 45 ?

A tree is broken by wind, its upper part touching the ground at a point 16 m from the foot of the tree and making an angle of 45 ?

- (1) $4\sqrt{2} + 1$ m / $4\sqrt{2} + 1$ m
 (2) $16\sqrt{2}$ m / $16\sqrt{2}$ m
 (3) $4\sqrt{2} + 2$ m / $4\sqrt{2} + 2$ m
 (4) $4 + 2\sqrt{2}$ m / $4 + 2\sqrt{2}$ m

Correct Answer / सही उत्तर : (3) $4\sqrt{2} + 2$ m / $4\sqrt{2} + 2$ m

Solution / हल : Correct option: $4\sqrt{2} + 2$ m | सही विकल्प: $4\sqrt{2} + 2$ m

16. The mean deviation about the mean and the standard deviation of the set of numbers 3, 5, 6, 7, 10, 12, 15, 18, respectively, are ?

The mean deviation about the mean and the standard deviation of the set of numbers 3, 5, 6, 7, 10, 12, 15, 18, respectively, are ?

- (1) 3.75, $2.575\sqrt{3+5+6+7+10+12+15+18}$ / 3.75, $2.575\sqrt{3+5+6+7+10+12+15+18}$

(2) 4.15, 4.825 / 4.15, 4.825

(3) 4.1, 4.5 / 4.1, 4.5

(4) 4.25, 4.875 / 4.25, 4.875

Correct Answer / सही उत्तर : (4) 4.25, 4.875 / 4.25, 4.875

Solution / हल : Correct option: 4.25, 4.875 | सही विकल्प: 4.25, 4.875

17. Using Rolle's theorem for a function $f(x) = x(x+1)(x+2)(x+3)$, $f'(x) = 0$ has ?

Using Rolle's theorem for a function $f(x) = x(x+1)(x+2)(x+3)$, $f'(x) = 0$ has ?

(1) four real roots / four real roots

(2) three real roots / three real roots

(3) two real roots and a complex root / two real roots and a complex root

(4) two real roots / two real roots

Correct Answer / सही उत्तर : (2) three real roots / three real roots

Solution / हल : Correct option: three real roots | सही विकल्प: three real roots

18. If $x + 2\cos x$ is equal to $x + 10x^5$?

If $x + 2\cos x$ is equal to $x + 10x^5$?

(1) 2 / 2 : 1

(2) 32 these / 32 these

(3) None of / None of

(4) 0 / 0

Correct Answer / सही उत्तर : (4) 0 / 0

Solution / हल : Correct option: 0 | सही विकल्प: 0

19. What are infimum and the supremum of the set ?

What are infimum and the supremum of the set ?

(1) 0, 1 / 0, 1

(2) 1, 0 / 1, 0

(3) 1, 2 / 12%

(4) 2, 1 / 21

Correct Answer / सही उत्तर : (1) 0, 1 / 0, 1

Solution / हल : Correct option: 0, 1 | सही विकल्प: 0, 1

20. What are no. of elements of order 100 of $Z(200)$?

What are no. of elements of order 100 of $Z(200)$?

(1) 160 / 160

(2) 120 / 120

(3) 40 / 40

(4) 80 / 80

Correct Answer / सही उत्तर : (3) 40 / 40

Solution / हल : Correct option: 40 | सही विकल्प: 40

21. The Metric space is both complete and totally bounded is known as ____ ?

The Metric space is both complete and totally bounded is known as ____ ?

(1) Compact / कॉम्पैक्ट

(2) Discrete / Discrete

(3) Complete / Complete

(4) Scalar / Scalar

Correct Answer / सही उत्तर : (1) Compact / कॉम्पैक्ट

Solution / हल : Correct option: Compact | सही विकल्प: कॉम्पैक्ट

22. When per capitrate increases, we take same positive value we get ... growth?

When per capitrate increases, we take same positive value we get ... growth?

- (1) Carrying capacity / धारण क्षमता
- (2) exponential / exponential
- (3) logistic / logistic
- (4) linguistics / linguistics

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

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

23. A topological space is ...if every point x of X has neighbourhood base consisting of compact neighbourhoods ?

A topological space is ...if every point x of X has neighbourhood base consisting of compact neighbourhoods ?

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

Correct Answer / सही उत्तर : (2) locally compact / locally compact

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

24. The positive value of $x = 12 + 12 + 12 + \dots$ up to ?

The positive value of $x = 12 + 12 + 12 + \dots$ up to ?

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

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

Solution / हल : Correct option: 4 | सही विकल्प: 4 : 1

25. The number of basic solution to the system- $efoS\ ieS$?

The number of basic solution to the system- $efoS\ ieS$?

- (1) 9 / 9%
- (2) 4 / 4 : 1
- (3) 12 / 12%
- (4) 6 / 6

Correct Answer / सही उत्तर : (4) 6 / 6

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

26. If u and v are continuous on $[a, b]$ and have equal finite derivatives in $[a, b]$, then u ?

If u and v are continuous on $[a, b]$ and have equal finite derivatives in $[a, b]$, then u ?

- (1) f / f
- (2) $g / G0$
- (3) constant / अचर (constant)
- (4) finite / finite

Correct Answer / सही उत्तर : (3) constant / अचर (constant)

Solution / हल : Correct option: constant | सही विकल्प: अचर (constant)

27. How many real roots are possible for the $x^5 - x^4 - x^3$ equation ?

How many real roots are possible for the $x^5 - x^4 - x^3$ equation ?

- (1) atleast two real roots / atleast two real roots
- (2) no real root / no real root
- (3) at least one real root / at least one real root
- (4) atleast three real roots / atleast three real roots

Correct Answer / सही उत्तर : (3) at least one real root / at least one real root

Solution / हल : Correct option: at least one real root | सही विकल्प: at least one real root

28. If the sum and product of any two distinct complex numbers are 4 and 8 respectively, then the number are ?

If the sum and product of any two distinct complex numbers are 4 and 8 respectively, then the number are ?

- (1) $2 + 3i; 2 / 2 + 3i; 2$
- (2) $3 + 2i; 1 / 3 + 2i; 1$
- (3) $1 + 2i; 3 / 1 + 2i; 3$
- (4) $2 + 2i; 2 / 2 + 2i; 2$

Correct Answer / सही उत्तर : (4) $2 + 2i; 2 / 2 + 2i; 2$

Solution / हल : Correct option: $2 + 2i; 2$ | सही विकल्प: $2 + 2i; 2$

29. Every holomorphic function is ?

Every holomorphic function is ?

- (1) Complex / Complex
- (2) Commutative / Commutative
- (3) Complex vector space / Complex vector space
- (4) analytic / analytic

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

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

30. If the inner product between the vectors vanishes then what will be the angle between them?

If the inner product between the vectors vanishes then what will be the angle between them?

- (1) 0 / 0
- (2) 90 / 90
- (3) 35 / 3.5%
- (4) 45 / 45

Correct Answer / सही उत्तर : (2) 90 / 90

Solution / हल : Correct option: 90 | सही विकल्प: 90

31. The average of all multiples of 10 from 2 to 198 is 2 198 10 ?

The average of all multiples of 10 from 2 to 198 is 2 198 10 ?

- (1) 90 / 90
- (2) 100 / 100
- (3) 110 / 110
- (4) 120 / 120

Correct Answer / सही उत्तर : (2) 100 / 100

Solution / हल : Correct option: 100 | सही विकल्प: 100

32. The product of an even permutation and an odd permutation is ?

The product of an even permutation and an odd permutation is ?

- (1) zero / शून्य
- (2) Odd / Odd
- (3) not define / not define
- (4) Even / Even

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

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

33. If $nC = 28$, the value of n is: n ?

If $nC = 28$, the value of n is: n ?

- (1) 6 / 6
- (2) 9 / 9%

(3) 8 / 8

(4) 7 / 7

Correct Answer / सही उत्तर : (3) 8 / 8

Solution / हल : Correct option: 8 | सही विकल्प: 8

34. If $f(-x) = f(x)$ for all x in the domain, then $f(x)$ is __, even and symmetric about the y axis ?
If $f(-x) = f(x)$ for all x in the domain, then $f(x)$ is __, even and symmetric about the y axis ?

(1) irrational / irrational

(2) odd / odd

(3) even / even

(4) rational / rational

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

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

35. A sequence is a convergent sequence if and only if it is a ?
A sequence is a convergent sequence if and only if it is a ?

(1) bounded sequence / bounded sequence

(2) Cauchy sequence / Cauchy sequence

(3) non - decreasing sequence / non - decreasing sequence

(4) subsequence / subsequence

Correct Answer / सही उत्तर : (2) Cauchy sequence / Cauchy sequence

Solution / हल : Correct option: Cauchy sequence | सही विकल्प: Cauchy sequence

36. If LCM and HCF of two quadratic are x ?
If LCM and HCF of two quadratic are x ?

(1) and x^2 / and x^2

(2) x^2 / x^2

(3) and x^3+2x^2 / and x^3+2x^2

(4) and x^2+3x+2 x^2+x+2 / and x^2+3x+2 x^2+x+2

Correct Answer / सही उत्तर : (4) and x^2+3x+2 x^2+x+2 / and x^2+3x+2 x^2+x+2

Solution / हल : Correct option: and x^2+3x+2 x^2+x+2 | सही विकल्प: and x^2+3x+2 x^2+x+2

37. What should be filled at the places of 1, 2 and 3 to make the statement correct?
What should be filled at the places of 1, 2 and 3 to make the statement correct?

(1) triangles; areas; item size / triangles; areas; item size

(2) triangles; parameters; frequencies / triangles; parameters; frequencies

(3) rectangles; parameters; item size / rectangles; parameters; item size

(4) rectangles; areas; frequencies / rectangles; areas; frequencies

Correct Answer / सही उत्तर : (4) rectangles; areas; frequencies / rectangles; areas; frequencies

Solution / हल : Correct option: rectangles; areas; frequencies | सही विकल्प: rectangles; areas; frequencies

38. Let G be a multiplicative group defined by $T(x) x^2 =$ then T satisfies which of the following property?
Let G be a multiplicative group defined by $T(x) x^2 =$ then T satisfies which of the following property?

(1) all of the three options / all of the three options

(2) Homomorphism / Homomorphism

(3) isomorphism / isomorphism

(4) automorphism / automorphism

Correct Answer / सही उत्तर : (1) all of the three options / all of the three options

Solution / हल : Correct option: all of the three options | सही विकल्प: all of the three options

39. Integration of $(\sin(x) + \cos(x)) e^x$ is ___ ?
Integration of $(\sin(x) + \cos(x)) e^x$ is ___ ?

- (1) $\tan(x) / \tan(x)$
- (2) $\sin(x) / \sin(x)$
- (3) $(\sin(x) + \cos(x)) / (\sin(x) + \cos(x))$
- (4) $\cos(x) / \cos(x)$

Correct Answer / सही उत्तर : (2) $\sin(x) / \sin(x)$

Solution / हल : Correct option: $\sin(x) / \sin(x)$ | सही विकल्प: $\sin(x) / \sin(x)$

40. The sum of a convergent series is?

The sum of a convergent series is?

- (1) unique / unique
- (2) conditional / conditional
- (3) bounded / bounded
- (4) integral / integral

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

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

SECTION B - PHYSICS / खण्ड B - भौतिक विज्ञान

41. A 500-watt heating unit is designed to operate on 115-volt line. If the line voltage drops to 110-volt line, the percentage drop in heat output will be ?

A 500-watt heating unit is designed to operate on 115-volt line. If the line voltage drops to 110-volt line, the percentage drop in heat output will be ?

- (1) 8.5% / 8.5%
- (2) 10.2% / 10.2%
- (3) 7.6% / 7.6%
- (4) 8.1% / 8.1%

Correct Answer / सही उत्तर : (1) 8.5% / 8.5%

Solution / हल : Correct option: 8.5% | सही विकल्प: 8.5%

42. Zone plate is a device to study diffraction. The radii of its zones are proportional to ?

Zone plate is a device to study diffraction. The radii of its zones are proportional to ?

- (1) natural numbers / natural numbers
- (2) square root of natural numbers / square root of natural numbers
- (3) square of natural numbers / square of natural numbers
- (4) inverse of natural numbers / inverse of natural numbers

Correct Answer / सही उत्तर : (2) square root of natural numbers / square root of natural numbers

Solution / हल : Correct option: square root of natural numbers | सही विकल्प: square root of natural numbers

43. Newton's law of cooling is also applicable on one to the following ?

Newton's law of cooling is also applicable on one to the following ?

- (1) Convection losses / Convection losses
- (2) None of the above / इनमें कोई नहीं
- (3) Natural convection losses / Natural convection losses
- (4) Forced convection losses / Forced convection losses

Correct Answer / सही उत्तर : (3) Natural convection losses / Natural convection losses

Solution / हल : Correct option: Natural convection losses | सही विकल्प: Natural convection losses

44. When applied to solar radiation, Planck's law reduces to Wien's law in following region ?

When applied to solar radiation, Planck's law reduces to Wien's law in following region ?

- (1) microwave / microwave
- (2) infrared / infrared
- (3) visible / visible
- (4) ultraviolet / ultraviolet

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

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

45. Internal resistance of a cell depends on ?

Internal resistance of a cell depends on ?

- (1) Distance between electrode / Distance between electrode
- (2) All of these / ये सभी
- (3) Nature of electrode / Nature of electrode
- (4) Area of the electrode / Area of the electrode

Correct Answer / सही उत्तर : (2) All of these / ये सभी

Solution / हल : Correct option: All of these | सही विकल्प: ये सभी

46. Rotation of plane polarised light can be measured by ?

Rotation of plane polarised light can be measured by ?

- (1) Manometer / Manometer
- (2) Polarimeter / Polarimeter
- (3) Galvanometer / Galvanometer
- (4) Viscometer / Viscometer

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

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

47. The speed of wave in a medium is 960 m/s. If 3600 waves are passing through a point in one minute, the wavelength will be ?

The speed of wave in a medium is 960 m/s. If 3600 waves are passing through a point in one minute, the wavelength will be ?

- (1) 64 m / 64 m
- (2) 14 m / 14 m
- (3) 32 m / 32 m
- (4) 16 m / 16 m

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

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

48. Two tuning forks when sounded simultaneously give one beat each in 0.25 s. The difference of their frequencies is ?

Two tuning forks when sounded simultaneously give one beat each in 0.25 s. The difference of their frequencies is ?

- (1) 4 / 4 : 1
- (2) 2 / 2 : 1
- (3) 8 / 8
- (4) 6 / 6

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

Solution / हल : Correct option: 4 | सही विकल्प: 4 : 1

49. In a mixture of ideal gas which one of the following is same for all molecules ?

In a mixture of ideal gas which one of the following is same for all molecules ?

- (1) Speed / Speed
- (2) Mean translational kinetic energy / Mean translational kinetic energy
- (3) Root mean square momentum / Root mean square momentum
- (4) Root mean square speed / Root mean square speed

Correct Answer / सही उत्तर : (4) Root mean square speed / Root mean square speed

Solution / हल : Correct option: Root mean square speed | सही विकल्प: Root mean square speed

50. The phenomenon of adiabatic demagnetization is used to ?

The phenomenon of adiabatic demagnetization is used to ?

- (1) Produce very low temperature / Produce very low temperature
- (2) Demagnetize a magnet / Demagnetize a magnet
- (3) Purify a gas i / Purify a gas i
- (4) Generate electricity / Generate electricity

Correct Answer / सही उत्तर : (1) Produce very low temperature / Produce very low temperature

Solution / हल : Correct option: Produce very low temperature | सही विकल्प: Produce very low temperature

51. An iron plate 2 cm thick has a cross-section of cm². 5000 Its one side is at 110°C and the other side is at 100°C. If thermal conductivity of iron is 0.115 cal/s-cm-°C, the rate of heat flow through the plate is ?

An iron plate 2 cm thick has a cross-section of cm². 5000 Its one side is at 110°C and the other side is at 100°C. If thermal conductivity of iron is 0.115 cal/s-cm-°C, the rate of heat flow through the plate is ?

- (1) 2875 cal/s / 2875 cal/s
- (2) 2375 cal/s / 2375 cal/s
- (3) 5750 cal/s / 5750 cal/s
- (4) 4750 cal/s / 4750 cal/s

Correct Answer / सही उत्तर : (1) 2875 cal/s / 2875 cal/s

Solution / हल : Correct option: 2875 cal/s | सही विकल्प: 2875 cal/s

52. The thermal conductivities of brick and pine wood are respectively 0.6 and 0.13W/(m0C). What thickness of brick has the same insulating ability at 5 cm of pine ?

The thermal conductivities of brick and pine wood are respectively 0.6 and 0.13W/(m0C). What thickness of brick has the same insulating ability at 5 cm of pine ?

- (1) 30 cm / 30 cm
- (2) 5 cm / 5 cm
- (3) 4.6 cm / 4.6 cm
- (4) 23 cm / 23 cm

Correct Answer / सही उत्तर : (4) 23 cm / 23 cm

Solution / हल : Correct option: 23 cm | सही विकल्प: 23 cm

53. A soap film appears colored in white light because of ?

A soap film appears colored in white light because of ?

- (1) interference / interference
- (2) diffraction / विवर्तन
- (3) reflection / reflection
- (4) dispersion / परिक्षेपण

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

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

54. Fraunhofer spectrum is a ?

Fraunhofer spectrum is a ?

- (1) Line absorption spectrum / Line absorption spectrum
- (2) Line emission spectrum / Line emission spectrum
- (3) Band absorption spectrum / Band absorption spectrum
- (4) Band emission spectrum / Band emission spectrum

Correct Answer / सही उत्तर : (1) Line absorption spectrum / Line absorption spectrum

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

55. An electron and a proton are about m apart. Their relative motion is chiefly determined by ?

An electron and a proton are about m apart. Their relative motion is chiefly determined by ?

- (1) nuclear forces / nuclear forces
- (2) magnetic forces / magnetic forces

- (3) electrical forces / electrical forces
- (4) gravitational forces / gravitational forces

Correct Answer / सही उत्तर : (3) electrical forces / electrical forces

Solution / हल : Correct option: electrical forces | सही विकल्प: electrical forces

56. In an isothermal reversible expansion of a perfect gas at temperature T , heat Q enters the system. The statement which is true is ?

In an isothermal reversible expansion of a perfect gas at temperature T , heat Q enters the system. The statement which is true is ?

- (1) No part of heat Q is converted to work / No part of heat Q is converted to work
- (2) All the heat Q is converted to work / All the heat Q is converted to work
- (3) Part of Q increases the internal energy / Part of Q increases the internal energy
- (4) Part of heat Q is converted to work / Part of heat Q is converted to work

Correct Answer / सही उत्तर : (2) All the heat Q is converted to work / All the heat Q is converted to work

Solution / हल : Correct option: All the heat Q is converted to work | सही विकल्प: All the heat Q is converted to work

57. In He-Ne laser, population inversion is achieved in ?

In He-Ne laser, population inversion is achieved in ?

- (1) He atoms / He atoms
- (2) Ne atoms / Ne atoms
- (3) none of these atoms / none of these atoms
- (4) Both the atoms / Both the atoms

Correct Answer / सही उत्तर : (2) Ne atoms / Ne atoms

Solution / हल : Correct option: Ne atoms | सही विकल्प: Ne atoms

58. What is the percentage change in time period of a simple pendulum, if the length of simple pendulum increase by 3%?

What is the percentage change in time period of a simple pendulum, if the length of simple pendulum increase by 3%?

- (1) 3% / 3 : 1
- (2) 6% / 6
- (3) 3.5% / 3.5%
- (4) 1.5% / 15%

Correct Answer / सही उत्तर : (4) 1.5% / 15%

Solution / हल : Correct option: 1.5% | सही विकल्प: 15%

59. Which of the following is conservative force?

Which of the following is conservative force?

- (1) Frictional force / Frictional force
- (2) Gravitational Force / Gravitational Force
- (3) None of the above / इनमें कोई नहीं
- (4) Viscous force / Viscous force

Correct Answer / सही उत्तर : (2) Gravitational Force / Gravitational Force

Solution / हल : Correct option: Gravitational Force | सही विकल्प: Gravitational Force

60. Which thermometer is for rapidly changing temperature ?

Which thermometer is for rapidly changing temperature ?

- (1) Resistance thermometer / Resistance thermometer
- (2) Gas thermometer / Gas thermometer
- (3) Thermo couple thermometer / Thermo couple thermometer
- (4) Liquid in glass / Liquid in glass

Correct Answer / सही उत्तर : (3) Thermo couple thermometer / Thermo couple thermometer

Solution / हल : Correct option: Thermo couple thermometer | सही विकल्प: Thermo couple thermometer

SECTION C - CHEMISTRY / खण्ड C - रसायन विज्ञान

61. Under the similar conditions of temperature and pressure, two gases have the same number of molecules. Then, they must ?

समान ताप व दाब पर दो गैसों में अणुओं की संख्या समान है, तो उनके पास अवश्य होगा ?

- (1) have equal number of atoms / समान परमाणु संख्या
- (2) have equal volumes / समान आयतन
- (3) be noble gases / अक्रिय गैसों
- (4) have a volume of 22.4 dm³ each / प्रत्येक का आयतन 22.4 dm³

Correct Answer / सही उत्तर : (2) have equal volumes / समान आयतन

Solution / हल : Equal molecules at same T,P means equal volumes (Avogadro). | समान T,P पर समान अणु => समान आयतन (अवोगाद्रो)।

62. Water and 95% ethanol are most used solvent in UV-spectroscopy because _____ ?

UV-स्पेक्ट्रोस्कोपी में जल व 95% एथेनॉल सर्वाधिक प्रयुक्त विलायक क्यों हैं ?

- (1) They are highly polar compounds / वे अत्यधिक ध्रुवीय यौगिक हैं
- (2) They are transparent in UV-spectrum / वे UV-स्पेक्ट्रम में पारदर्शी हैं
- (3) They are H-bonded solvents / वे H-बंधित विलायक हैं
- (4) They dissolve non-polar compounds / वे अध्रुवीय यौगिक घोलते हैं

Correct Answer / सही उत्तर : (2) They are transparent in UV-spectrum / वे UV-स्पेक्ट्रम में पारदर्शी हैं

Solution / हल : Water and ethanol are used in UV as they are transparent in UV. | जल व एथेनॉल UV में पारदर्शी होने से प्रयुक्त होते हैं।

63. Manganin is an alloy containing ?

मैंगनिन किसका मिश्रधातु है ?

- (1) Cu, Mn, Ni / Cu, Mn, Ni
- (2) Ni, Mn, Zn / Ni, Mn, Zn
- (3) Zn, Cu, Mn / Zn, Cu, Mn
- (4) Mn, CO, Fe / Mn, Co, Fe

Correct Answer / सही उत्तर : (1) Cu, Mn, Ni / Cu, Mn, Ni

Solution / हल : Manganin is an alloy of copper, manganese and nickel (Cu, Mn, Ni). | मैंगनिन कॉपर, मैंगनीज व निकल (Cu, Mn, Ni) का मिश्रधातु है।

64. A solution of Gallic acid in ethanol was made by dissolving 0.05 mg in 250 mL of ethanol(w ?

0.05 mg गैलिक अम्ल को 250 mL एथेनॉल में घोलकर बने विलयन की सांद्रता क्या है ?

- (1) 0.2 ppm / 0.2 ppm
- (2) 0.05 ppm / 0.05 ppm
- (3) 0.5 ppm / 0.5 ppm
- (4) 1 ppm / 1 ppm

Correct Answer / सही उत्तर : (1) 0.2 ppm / 0.2 ppm

Solution / हल : 0.05 mg in 250 mL gives a concentration of 0.2 ppm. | 250 mL में 0.05 mg => सांद्रता 0.2 ppm।

65. Which of the following compounds will give only monosubstituted product upon further substitution reaction?

निम्नलिखित में कौन-सा यौगिक आगे प्रतिस्थापन पर केवल एकप्रतिस्थापित उत्पाद देगा ?

- (1) m-Dinitrobenzene / m-डाइनाइट्रोबेन्जीन
- (2) o-Dinitrobenzene / o-डाइनाइट्रोबेन्जीन
- (3) None of the above / इनमें कोई नहीं
- (4) p-Dinitrobenzene / p-डाइनाइट्रोबेन्जीन

Correct Answer / सही उत्तर : (4) p-Dinitrobenzene / p-डाइनाइट्रोबेन्जीन

Solution / हल : p-Dinitrobenzene gives only a mono-substituted product (symmetry). | p-डाइनाइट्रोबेन्जीन केवल एकप्रतिस्थापित उत्पाद देता है (सममिति)।

66. PS I and PS II consists of _____ ?

PS I व PS II में क्या होता है ?

- (1) Mn²⁺ / Mn²⁺
- (2) Ca²⁺ / Ca²⁺
- (3) Fe²⁺ / Fe²⁺
- (4) Fe³⁺ / Fe³⁺

Correct Answer / सही उत्तर : (1) Mn²⁺ / Mn²⁺

Solution / हल : PS I and PS II contain Mn²⁺ (manganese cluster). | PS I व PS II में Mn²⁺ (मैंगनीज क्लस्टर) होता है।

67. Which of the following reaction is not possible during catalytic reforming of petrol in petroleum industry? Which of the following reaction is not possible during catalytic reforming of petrol in petroleum industry?

- (1) n-Heptane / n-Heptane
- (2) Methycyclohexane / Methycyclohexane
- (3) n-Octane / n-Octane
- (4) CH (CH) CH / CH (CH) CH

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

Solution / हल : Correct option: CH (CH) CH | सही विकल्प: CH (CH) CH

68. The pK of an aqueous solution is 13.54 at w 50 ?

जलीय विलयन का pK_w 50°C पर 13.54 है — विलयन कैसा है ?

- (1) acidic / अम्लीय
- (2) neutral / उदासीन
- (3) cannot be predicted / अनुमान नहीं
- (4) alkaline / क्षारीय

Correct Answer / सही उत्तर : (4) alkaline / क्षारीय

Solution / हल : pK_w 13.54 at 50C => the solution is alkaline. | 50°C पर pK_w 13.54 => विलयन क्षारीय है।

69. Morphine consists ?

मॉर्फिन में क्या होता है ?

- (1) Quaternary carbon / चतुष्क कार्बन
- (2) Tertiary amine and quaternary carbon / तृतीयक ऐमीन व चतुष्क कार्बन
- (3) Tertiary carbon / तृतीयक कार्बन
- (4) Tertiary amine / तृतीयक ऐमीन

Correct Answer / सही उत्तर : (2) Tertiary amine and quaternary carbon / तृतीयक ऐमीन व चतुष्क कार्बन

Solution / हल : Morphine has a tertiary amine and a quaternary carbon. | मॉर्फिन में तृतीयक ऐमीन व चतुष्क कार्बन होते हैं।

70. The IUPAC name of [Pt(NH) (NO)(Cl)]SO is 3 4 2 4 [Pt(NH) (NO) ?

[Pt(NH₃)₄(NO₂)(Cl)]SO₄ का IUPAC नाम क्या है ?

- (1) tetramminechloronitroplatinum (IV) sulphate / टेट्राऐमीनक्लोरोनाइट्रोप्लैटिनम (IV) सल्फेट
- (2) tetramminechloronitroplatinum (II) sulphate / टेट्राऐमीनक्लोरोनाइट्रोप्लैटिनम (II) सल्फेट
- (3) chloronitrotetrammineplatinum (IV) sulphate / क्लोरोनाइट्रोटेट्राऐमीनप्लैटिनम (IV) सल्फेट
- (4) chlorotetramminenitroplatinum (IV) sulphate / क्लोरोटेट्राऐमीननाइट्रोप्लैटिनम (IV) सल्फेट

Correct Answer / सही उत्तर : (1) tetramminechloronitroplatinum (IV) sulphate /

टेट्राऐमीनक्लोरोनाइट्रोप्लैटिनम (IV) सल्फेट

Solution / हल : The IUPAC name is tetramminechloronitroplatinum(IV) sulphate. | IUPAC नाम टेट्राएमीनक्लोरोनाइट्रोप्लैटिनम(IV) सल्फेट है।

71. Conversion between polymorphs can be observed by ____ ?

बहु रूपों के बीच रूपांतरण किससे देखा जा सकता है ?

(1) NMR / NMR

(2) Differential scanning calorimeter / विभेदी स्कैनिंग कैलोरीमीटर

(3) Tensiometer / टेंसियोमीटर

(4) Gravimetric analysis / गुरुत्वमितीय विश्लेषण

Correct Answer / सही उत्तर : (2) Differential scanning calorimeter / विभेदी स्कैनिंग कैलोरीमीटर

Solution / हल : Conversion between polymorphs is observed by differential scanning calorimeter. | बहु रूपों के बीच रूपांतरण विभेदी स्कैनिंग कैलोरीमीटर से देखा जाता है।

72. Which d-block elements has highest oxidation state?

किस d-ब्लॉक तत्व की ऑक्सीकरण अवस्था सर्वाधिक है ?

(1) Pd / Pd

(2) Nb / Nb

(3) Os / Os

(4) Mn / Mn

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

Solution / हल : Osmium (Os) shows the highest oxidation state (+8). | ऑस्मियम (Os) की ऑक्सीकरण अवस्था सर्वाधिक (+8) है।

73. What is the limiting reactant, and what amount of Ni(OH)₂ is formed when 25.9g of NiCl₂ reacts with 10 g of NaOH?

25.9g NiCl₂ की 10g NaOH से अभिक्रिया में सीमांत अभिकारक क्या है और कितना Ni(OH)₂ बनता है ?

(1) NaOH and 11.6g of Ni(OH)₂ / NaOH and 11.6g of Ni(OH)₂

(2) NaOH and 5.8 g of Ni(OH)₂ / NaOH and 5.8 g of Ni(OH)₂

(3) NiCl₂ and 11.6g of Ni(OH)₂ / NiCl₂ and 11.6g of Ni(OH)₂

(4) NiCl₂ and 5.8g of Ni(OH)₂ / NiCl₂ and 5.8g of Ni(OH)₂

Correct Answer / सही उत्तर : (1) NaOH and 11.6g of Ni(OH)₂ / NaOH and 11.6g of Ni(OH)₂

Solution / हल : NaOH is the limiting reactant; 11.6 g of Ni(OH)₂ is formed. | NaOH सीमांत अभिकारक है; 11.6 g Ni(OH)₂ बनता है।

74. Orthophosphorous acid is DeeleexHe ?

ऑर्थोफॉस्फोरस अम्ल किस प्रकार का है ?

(1) tribasic / त्रिक्षारकीय

(2) monobasic / एकक्षारकीय

(3) neutral / उदासीन

(4) dibasic / द्विक्षारकीय

Correct Answer / सही उत्तर : (4) dibasic / द्विक्षारकीय

Solution / हल : Orthophosphorous acid (H₃PO₃) is dibasic. | ऑर्थोफॉस्फोरस अम्ल (H₃PO₃) द्विक्षारकीय है।

75. Which one of the following conditions would cause the largest deviation from the van der Waal equation for real gases?

वास्तविक गैसों हेतु वान डर वाल समीकरण से सबसे बड़ा विचलन किस दशा में होगा ?

(1) Low pressure and low temperature / निम्न दाब व निम्न ताप

(2) High pressure and low temperature / उच्च दाब व निम्न ताप

(3) Low pressure and high temperature / निम्न दाब व उच्च ताप

(4) High pressure and high temperature / उच्च दाब व उच्च ताप

Correct Answer / सही उत्तर : (2) High pressure and low temperature / उच्च दाब व निम्न ताप

Solution / हल : High pressure and low temperature cause the largest deviation. | उच्च दाब व निम्न ताप पर सबसे बड़ा विचलन होता है।

76. Isoniazid is an ?

Isoniazid is an ?

- (1) Analgesic / पीड़ाहारी
- (2) Antihistamine / प्रतिहिस्टामिन
- (3) Anti-TB drug / टीबी-रोधी औषधि
- (4) Antipyretic / ज्वररोधी

Correct Answer / सही उत्तर : (3) Anti-TB drug / टीबी-रोधी औषधि

Solution / हल : Correct option: Anti-TB drug | सही विकल्प: टीबी-रोधी औषधि

77. Antiulcer agents among the following ?

निम्नलिखित में प्रतिअल्सर एजेंट कौन-सा है ?

- (1) Paracetamol / पैरासिटामोल
- (2) Tolbutamide / टॉलब्यूटामाइड
- (3) Zantac / जैंटक
- (4) Both Paracetamol and Zantac / पैरासिटामोल व जैंटक दोनों

Correct Answer / सही उत्तर : (3) Zantac / जैंटक

Solution / हल : Zantac (ranitidine) is an antiulcer agent. | जैंटक (रैनिटिडीन) प्रतिअल्सर एजेंट है।

78. In thin-layer chromatography, the stationary phase used is _____ ?

पतली परत वर्णलेखन (TLC) में स्थिर प्रावस्था क्या होती है ?

- (1) Silica packed aluminium plate / सिलिका लगी ऐलुमिनियम प्लेट
- (2) Glass beads / काँच मनके
- (3) Copper plate / कॉपर प्लेट
- (4) Carbon / कार्बन

Correct Answer / सही उत्तर : (3) Copper plate / कॉपर प्लेट

Solution / हल : In TLC the stationary phase is a silica-coated plate (copper plate marked). | TLC में स्थिर प्रावस्था सिलिका-लेपित प्लेट है (कॉपर प्लेट अंकित)।

79. The change in optical rotation with time is called: mece ?

समय के साथ प्रकाशिक घूर्णन में परिवर्तन क्या कहलाता है ?

- (1) Flipping / फ्लिपिंग
- (2) Optical activity / प्रकाशिक सक्रियता
- (3) Muta rotation / म्यूटारोटेशन
- (4) Internal rotation / आंतरिक घूर्णन

Correct Answer / सही उत्तर : (3) Muta rotation / म्यूटारोटेशन

Solution / हल : Change of optical rotation with time is mutarotation. | समय के साथ प्रकाशिक घूर्णन परिवर्तन म्यूटारोटेशन है।

80. Valinomycin consists of ?

वैलिनोमाइसिन किससे बना होता है ?

- (1) Na⁺ / Na⁺
- (2) K⁺ / K⁺
- (3) Ca²⁺ / Ca²⁺
- (4) Mg²⁺ / Mg²⁺

Correct Answer / सही उत्तर : (2) K⁺ / K⁺

Solution / हल : Valinomycin is a K⁺ (potassium) ionophore. | वैलिनोमाइसिन K⁺ (पोटैशियम) आयनोफोर है।

81. Which of the following is not a method for the commercial production of dihydrogen?

निम्नलिखित में डाइहाइड्रोजन के व्यावसायिक उत्पादन की विधि कौन-सी नहीं है ?

- (1) Bosch's process / बॉश प्रक्रिया
- (2) Electrolysis of water / जल का विद्युत-अपघटन
- (3) Action of water on metals / धातुओं पर जल की क्रिया
- (4) Lane's process / लेन प्रक्रिया

Correct Answer / सही उत्तर : (3) Action of water on metals / धातुओं पर जल की क्रिया

Solution / हल : Action of water on metals is not a commercial method for H₂. | धातुओं पर जल की क्रिया H₂ की व्यावसायिक विधि नहीं है।

82. Amines act as : Deceerve ?

ऐमीन किस रूप में कार्य करते हैं ?

- (1) Good nucleophiles / अच्छे नाभिकरागी
- (2) Both good nucleophiles & lewis bases / अच्छे नाभिकरागी व लूइस क्षार दोनों
- (3) Good electrophiles / अच्छे इलेक्ट्रॉनरागी
- (4) Lewis bases / लूइस क्षार

Correct Answer / सही उत्तर : (2) Both good nucleophiles & lewis bases / अच्छे नाभिकरागी व लूइस क्षार दोनों

Solution / हल : Amines act as both good nucleophiles and Lewis bases. | ऐमीन अच्छे नाभिकरागी व लूइस क्षार दोनों हैं।

83. Cerium can be separated from lanthanide mixture quite easily because _____ ?

सीरियम को लैंथेनाइड मिश्रण से आसानी से क्यों अलग किया जा सकता है ?

- (1) It has higher mass / इसका द्रव्यमान अधिक है
- (2) It has Ln³⁺ ion structure in aqueous solution / जलीय विलयन में Ln³⁺ आयन संरचना
- (3) It is inert in nature / यह अक्रिय है
- (4) It has Ln⁴⁺ structure in aqueous solution / जलीय विलयन में Ln⁴⁺ संरचना

Correct Answer / सही उत्तर : (4) It has Ln⁴⁺ structure in aqueous solution / जलीय विलयन में Ln⁴⁺ संरचना

Solution / हल : Cerium separates easily as it forms a stable Ln⁴⁺ (Ce⁴⁺) in solution. | सीरियम आसानी से अलग होता है क्योंकि यह विलयन में स्थायी Ln⁴⁺ (Ce⁴⁺) बनाता है।

84. Which of the following is an antibiotic?

निम्नलिखित में कौन प्रतिजैविक है ?

- (1) Dolo / डोलो
- (2) Rantidin / रैनिटिडीन
- (3) Furosemide / फ्युरोसेमाइड
- (4) Amoxycillin / एमॉक्सीसिलिन

Correct Answer / सही उत्तर : (4) Amoxycillin / एमॉक्सीसिलिन

Solution / हल : Amoxycillin is an antibiotic. | एमॉक्सीसिलिन एक प्रतिजैविक है।

85. Which of the following is a co-polymer?

निम्नलिखित में कौन सहबहुलक (co-polymer) है ?

- (1) Bakelite / बैकेलाइट
- (2) PVC / PVC
- (3) Polyethylene / पॉलिएथिलीन
- (4) Melamine / मेलामाइन

Correct Answer / सही उत्तर : (1) Bakelite / बैकेलाइट

Solution / हल : Bakelite is a co-polymer (phenol-formaldehyde). | बैकेलाइट सहबहुलक (फिनॉल-फॉर्मोल्डिहाइड) है।

SECTION D - COMPUTER / खण्ड D - कंप्यूटर

86. Information on a computer is stored as ?
कंप्यूटर में सूचना किस रूप में संग्रहीत होती है ?

- (1) longitudinal data / अनुदैर्घ्य डेटा
- (2) digital data / डिजिटल डेटा
- (3) analogue data / एनालॉग डेटा
- (4) tabular data / सारणीबद्ध डेटा

Correct Answer / सही उत्तर : (2) digital data / डिजिटल डेटा

Solution / हल : Information on a computer is stored as digital data. | कंप्यूटर में सूचना डिजिटल डेटा के रूप में संग्रहीत होती है।

87. In computer terminology, one terabyte is equal to ?
In computer terminology, one terabyte is equal to ?

- (1) 1024 megabytes / 1024 megabytes
- (2) 1024 bits / 1024 bits
- (3) 1024 gigabytes / 1024 gigabytes
- (4) 1024 petabytes / 1024 petabytes

Correct Answer / सही उत्तर : (3) 1024 gigabytes / 1024 gigabytes

Solution / हल : Correct option: 1024 gigabytes | सही विकल्प: 1024 gigabytes

88. Which of the following commands is used to remove privileges from a specific user or role?
किसी विशिष्ट उपयोगकर्ता/भूमिका से विशेषाधिकार हटाने हेतु कौन-सा कमांड प्रयोग होता है ?

- (1) Reserve / रिज़र्व
- (2) Revoke / रिवोक (Revoke)
- (3) Remove / रिमूव
- (4) Reassign / रीअसाइन

Correct Answer / सही उत्तर : (2) Revoke / रिवोक (Revoke)

Solution / हल : REVOKE removes privileges from a user/role. | REVOKE उपयोगकर्ता/भूमिका से विशेषाधिकार हटाता है।

89. Convert decimal number 106 to mebk ?
Convert decimal number 106 to mebk ?

- (1) 1110000 / 1110000
- (2) 1101000 / 1101000
- (3) 1101010 / 1101010
- (4) 1100110 / 1100110

Correct Answer / सही उत्तर : (3) 1101010 / 1101010

Solution / हल : Correct option: 1101010 | सही विकल्प: 1101010

90. Arithmometer was invented ?
एरिथमोमीटर का आविष्कार किसने किया ?

- (1) Edward Teller / एडवर्ड टेलर
- (2) Gustav Tauschek / गुस्ताव टॉशेक
- (3) Charles Xavier Thomas / चार्ल्स ज़ेवियर थॉमस
- (4) Evangelista Torricelli / एवेंजेलिस्ता टोरिचेली

Correct Answer / सही उत्तर : (3) Charles Xavier Thomas / चार्ल्स ज़ेवियर थॉमस

Solution / हल : The arithmometer was invented by Charles Xavier Thomas. | एरिथमोमीटर का आविष्कार चार्ल्स ज़ेवियर थॉमस ने किया।

91. Consider the following statements about components of a computer:
कंप्यूटर के घटकों के बारे में दिए कथनों पर विचार करें — सही कौन-से हैं ?

- (1) 1, 2, 3 and / 1, 2, 3 व

(2) 1, 2 and / 1, 2 व

(3) 4 only / केवल 4

(4) 1 and / 1 व

Correct Answer / सही उत्तर : (1) 1, 2, 3 and / 1, 2, 3 व

Solution / हल : Statements 1, 2 and 3 about components are correct. | घटकों पर कथन 1, 2 व 3 सही हैं।

92. How many output ports are there in peripheral I ?

How many output ports are there in peripheral I ?

(1) 264 / 264

(2) 512 / 512

(3) 24 / 24

(4) 256 / 256

Correct Answer / सही उत्तर : (4) 256 / 256

Solution / हल : Correct option: 256 | सही विकल्प: 256

93. Which of the following basic operations is ?

निम्नलिखित में कौन-सी मूल संक्रियाएँ हैं ?

(1) Logical operation / तार्किक संक्रिया

(2) All of these / ये सभी

(3) Storage and / भंडारण व

(4) Arithmetic / अंकगणितीय

Correct Answer / सही उत्तर : (2) All of these / ये सभी

Solution / हल : Storage, arithmetic and logic — all of these are basic operations. | भंडारण, अंकगणितीय व तार्किक — ये सभी मूल संक्रियाएँ हैं।

94. Which among the programming language is bits?

Which among the programming language is bits?

(1) High level / High level

(2) BASIC / BASIC

(3) Machine language / मशीन भाषा

(4) Assembly language / Assembly language

Correct Answer / सही उत्तर : (1) High level / High level

Solution / हल : Correct option: High level | सही विकल्प: High level

95. Which one works as an output and input device?

कौन-सा निर्गत (output) और निवेश (input) दोनों उपकरण के रूप में कार्य करता है ?

(1) Modem / मोडेम

(2) Monitor / मॉनिटर

(3) Scanner / स्कैनर

(4) Mouse / माउस

Correct Answer / सही उत्तर : (1) Modem / मोडेम

Solution / हल : A modem works as both input and output device. | मोडेम निवेश व निर्गत दोनों उपकरण है।

SECTION E - MENTAL ABILITY / खण्ड E - मानसिक योग्यता

96. adds 12% of his salary in PPF. 3/8 of the remaining salary is spent in clothes. Difference between PPF and clothes expenses is Rs 10500. Remaining in house rent and others. If house rent expenses is Rs. 1500 less than expenses in others, then what is the house rent expense? (?

adds 12% of his salary in PPF. 3/8 of the remaining salary is spent in clothes. Difference between PPF and clothes expenses is Rs 10500. Remaining in house rent and others. If house rent expenses is Rs. 1500 less than expenses in others, then what is the house rent expense? (?

- (1) 17000 / 17000
- (2) 10000 / 10000
- (3) 13000 / 13000
- (4) 9000 / 9000

Correct Answer / सही उत्तर : (3) 13000 / 13000

Solution / हल : Correct option: 13000 | सही विकल्प: 13000

97. Niraj incurred a loss of 55 per cent on selling an article for Rs. 9,549. What was the cost price of the article?

Niraj incurred a loss of 55 per cent on selling an article for Rs. 9,549. What was the cost price of the article?

- (1) Rs. 25,600 / Rs. 25,600
- (2) Rs. 29,000 / Rs. 29,000
- (3) Rs. 27,700 / Rs. 27,700
- (4) Rs. 21,220 / Rs. 21,220

Correct Answer / सही उत्तर : (4) Rs. 21,220 / Rs. 21,220

Solution / हल : Correct option: Rs. 21,220 | सही विकल्प: Rs. 21,220

98. If one man or three women or five boys can do a piece of work in 46 days then how many days will one man, one woman and one boy together take to complete the same piece of work?

If one man or three women or five boys can do a piece of work in 46 days then how many days will one man, one woman and one boy together take to complete the same piece of work?

- (1) 35 days / 35 days
- (2) 30 days / 30 days
- (3) 32 days / 32 days
- (4) 40 days / 40 days

Correct Answer / सही उत्तर : (2) 30 days / 30 days

Solution / हल : Correct option: 30 days | सही विकल्प: 30 days

99. Ms. Pooja Pushpan invests 13% of her monthly salary, i.e. Rs., 8554 in Mediclaim Policies, Later she invests 23% of her monthly salary on Child. Education Policies; also she invests another 8% of her monthly salary on Mutual Funds. What is the total annual amount invested by Ms. Pooja Pushpan?

सुश्री पूजा अपने मासिक वेतन का 13% (₹8554) मेडिकलेम में, 23% शिक्षा पॉलिसी में व 8% म्यूचुअल फंड में निवेश करती हैं। कुल वार्षिक निवेश राशि क्या है ?

- (1) Rs.28952 / ₹28952
- (2) Rs.43428 / ₹43428
- (3) Rs.347424 / ₹347424
- (4) Rs.173712 / ₹173712

Correct Answer / सही उत्तर : (3) Rs.347424 / ₹347424

Solution / हल : Salary=8554/0.13=65800; total invest=44%/yr => Rs.3,47,424 annually. | वेतन=8554/0.13=65800; कुल निवेश 44%/वर्ष => ₹3,47,424 वार्षिक।

100. If they had invested additional amount at the end of each quarter in same ratio as they had invested after end of the first quarter then find the profit of B at the end of one year if the total profit at the end of the year is 125000 ?

यदि वे पहली तिमाही के बाद के अनुपात में हर तिमाही अतिरिक्त निवेश करें, तो कुल ₹125000 लाभ पर B का लाभ क्या होगा ?

- (1) Rs. 37500 / ₹37500
- (2) Rs. 62500 / ₹62500
- (3) Rs. 125000 / ₹125000
- (4) Rs. 75000 / ₹75000

Correct Answer / सही उत्तर : (2) Rs. 62500 / ₹62500

Solution / हल : B's profit at year end is Rs.62500. | वर्षांत पर B का लाभ ₹62500 है।

