

UNIVERSITY OF LUCKNOW

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

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

MODEL PAPER - SET 3 / प्रतिदर्श प्रश्नपत्र - सेट 3

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. A 6 feet tall man finds that the angle of elevation of the top of a 24 feet height pillar and the angle of depression of its base are complementary angles. The distance of the man from the pillar is ?

A 6 feet tall man finds that the angle of elevation of the top of a 24 feet height pillar and the angle of depression of its base are complementary angles. The distance of the man from the pillar is ?

- (1) 23 feet / 23 feet
- (2) 63 feet / 63 feet
- (3) None of these / इनमें कोई नहीं
- (4) 83 feet / 83 feet

Correct Answer / सही उत्तर : (2) 63 feet / 63 feet

Solution / हल : Correct option: 63 feet | सही विकल्प: 63 feet

2. A metric space is compact if every open cover of x has ?

A metric space is compact if every open cover of x has ?

- (1) subgroup / subgroup
- (2) empty set / empty set
- (3) finite subcover / finite subcover
- (4) nonempty set / nonempty set

Correct Answer / सही उत्तर : (3) finite subcover / finite subcover

Solution / हल : Correct option: finite subcover | सही विकल्प: finite subcover

3. The sum of the first '2n' terms of the A.P. 2, 5, 8,... is equal to the sum of the first 'n' terms of the A.P. 57, 59, 61 ?

The sum of the first '2n' terms of the A.P. 2, 5, 8,... is equal to the sum of the first 'n' terms of the A.P. 57, 59, 61 ?

- (1) 11 / 1, 1
- (2) 10 / 1, 0
- (3) 13 / 13
- (4) 12 / 12%

Correct Answer / सही उत्तर : (1) 11 / 1, 1

Solution / हल : Correct option: 11 | सही विकल्प: 1, 1

4. Which of the following is not true?

Which of the following is not true?

- (1) S^4 is not isomorphic to D_{12} / S^4 is not isomorphic to D_{12}
- (2) $U(8)$ is isomorphic to $U(10)$ / $U(8)$ is isomorphic to $U(10)$
- (3) $U(8)$ is isomorphic to $U(12)$ / $U(8)$ is isomorphic to $U(12)$
- (4) $U(8)$ is not isomorphic to $U(10)$ / $U(8)$ is not isomorphic to $U(10)$

Correct Answer / सही उत्तर : (4) $U(8)$ is not isomorphic to $U(10)$ / $U(8)$ is not isomorphic to $U(10)$

Solution / हल : Correct option: $U(8)$ is not isomorphic to $U(10)$ | सही विकल्प: $U(8)$ is not isomorphic to $U(10)$

5. The value of x satisfying $150x = 35 \pmod{31}$ is ?

The value of x satisfying $150x = 35 \pmod{31}$ is ?

- (1) 22 / 22
- (2) 24 / 24
- (3) 12 / 12%
- (4) 14 / 14%

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

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

6. If $L\{f(t)\} = F(s)$ then is $d+2 Ld^2(f(t))$?
If $L\{f(t)\} = F(s)$ then is $d+2 Ld^2(f(t))$?

- (1) $s^2 t'(s) / s^2 t'(s)$
- (2) $s^2 f(0) / s^2 f(0)$
- (3) $sF(s) / sF(s)$
- (4) $s^2 F(s) / s^2 F(s)$

Correct Answer / सही उत्तर : (4) $s^2 F(s) / s^2 F(s)$

Solution / हल : Correct option: $s^2 F(s)$ | सही विकल्प: $s^2 F(s)$

7. The median of the numbers 20, 18, 22, 27, 25, 12, 15 is ?
The median of the numbers 20, 18, 22, 27, 25, 12, 15 is ?

- (1) 19.9 / 19.9
- (2) 22 / 22
- (3) 20 / 20
- (4) 19.8 / 19.8

Correct Answer / सही उत्तर : (3) 20 / 20

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

8. The sum of the expression $1 + 1 + 1 + \dots + 1$ is $1 + 2 + 2 + 3 + 3 + 4 + 4 + \dots + 80 + 80 + 81$?
The sum of the expression $1 + 1 + 1 + \dots + 1$ is $1 + 2 + 2 + 3 + 3 + 4 + 4 + \dots + 80 + 80 + 81$?

The sum of the expression $1 + 1 + 1 + \dots + 1$ is $1 + 2 + 2 + 3 + 3 + 4 + 4 + \dots + 80 + 80 + 81$?

- (1) 8 / 8
- (2) 7 / 7
- (3) 10 / 1, 0
- (4) 9 / 9%

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

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

9. The oscillation of a bounded function f on an interval $[a, b]$ is the _____ of the set $\{|f(x) - f(y)|\}$ of the numbers ?

The oscillation of a bounded function f on an interval $[a, b]$ is the _____ of the set $\{|f(x) - f(y)|\}$ of the numbers ?

- (1) maximum / अधिकतम
- (2) supremum / supremum
- (3) minimum / न्यूनतम
- (4) infimum / infimum

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

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

10. Find radius of convergence of $1 + x + x^2 + \dots$?
Find radius of convergence of $1 + x + x^2 + \dots$?

- (1) Infinite / Infinite
- (2) 10 / 1, 0
- (3) 0 / 0
- (4) 5 / 5

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

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

11. In a Mathematics test 15 students scored 80 marks, 20 students scored 75 marks, 28 students scored 65 marks and 25 students scored 60 marks, mode of the score is ?

In a Mathematics test 15 students scored 80 marks, 20 students scored 75 marks, 28 students scored 65 marks and 25 students scored 60 marks, mode of the score is ?

(1) 65 / 65

(2) 60 / 60

(3) 80 / 80

(4) 75 / 75

Correct Answer / सही उत्तर : (1) 65 / 65

Solution / हल : Correct option: 65 | सही विकल्प: 65

12. In a histogram, each class rectangle is constructed with base as ?

In a histogram, each class rectangle is constructed with base as ?

(1) class interval / class interval

(2) size of the class / size of the class

(3) range / परास

(4) frequency / frequency

Correct Answer / सही उत्तर : (1) class interval / class interval

Solution / हल : Correct option: class interval | सही विकल्प: class interval

13. Which one of the following is a solution of the differential equation 2 ?

Which one of the following is a solution of the differential equation 2 ?

(1) $x^2 + 4y = 0$ / $x^2 + 4y = 0$

(2) $y = x$ / $y = x$

(3) y^2 / y^2

(4) $y = x + 1$ / $y = x + 1$

Correct Answer / सही उत्तर : (1) $x^2 + 4y = 0$ / $x^2 + 4y = 0$

Solution / हल : Correct option: $x^2 + 4y = 0$ | सही विकल्प: $x^2 + 4y = 0$

14. $C[a, b]$ i.e. the set of all continuous function from a to b is a subset of real valued ... function?

$C[a, b]$ i.e. the set of all continuous function from a to b is a subset of real valued ... function?

(1) bounded / bounded

(2) finite / finite

(3) discontinuous / असंतत

(4) infinite / infinite

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

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

15. Given set $U = \{(x,y) > 7\}$ is ?

Given set $U = \{(x,y) > 7\}$ is ?

(1) Semi open x / Semi open x

(2) Open / ओपन

(3) Close / Close

(4) Compact / कॉम्पैक्ट

Correct Answer / सही उत्तर : (2) Open / ओपन

Solution / हल : Correct option: Open | सही विकल्प: ओपन

16. If A and B are real square matrices then which of the following is correct AT ?

If A and B are real square matrices then which of the following is correct AT ?

(1) $A + AT$ is always skew-symmetric / $A + AT$ is always skew-symmetric

(2) A / a

(3) AB is not necessarily symmetric / AB is not necessarily symmetric

(4) AB is always symmetric / AB is always symmetric

Correct Answer / सही उत्तर : (3) AB is not necessarily symmetric / AB is not necessarily symmetric

Solution / हल : Correct option: AB is not necessarily symmetric | सही विकल्प: AB is not necessarily symmetric

17. The last digit of is 6500 ?

The last digit of is 6500 ?

(1) None of these / इनमें कोई नहीं

(2) 6 / 6

(3) 2 / 2 : 1

(4) 4 / 4 : 1

Correct Answer / सही उत्तर : (2) 6 / 6

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

18. Find the number of integers between 1 and 250, that are divisible by any of the integer 2, 3 and 7 ?

Find the number of integers between 1 and 250, that are divisible by any of the integer 2, 3 and 7 ?

(1) 179 / 179

(2) 170 / 170

(3) 185 / 185

(4) 182 / 182

Correct Answer / सही उत्तर : (1) 179 / 179

Solution / हल : Correct option: 179 | सही विकल्प: 179

19. Which type of surface is circular cylinder?

Which type of surface is circular cylinder?

(1) Implicit surface / Implicit surface

(2) Fractal surface / Fractal surface

(3) Algebraic and differential surface / Algebraic and differential surface

(4) Topological surface / Topological surface

Correct Answer / सही उत्तर : (3) Algebraic and differential surface / Algebraic and differential surface

Solution / हल : Correct option: Algebraic and differential surface | सही विकल्प: Algebraic and differential surface

20. What powers of x does expansion of $\sin(x)$ contains?

What powers of x does expansion of $\sin(x)$ contains?

(1) even powers of x / even powers of x

(2) odd powers of x / odd powers of x

(3) any alternate powers of x / any alternate powers of x

(4) all powers of x / all powers of x

Correct Answer / सही उत्तर : (2) odd powers of x / odd powers of x

Solution / हल : Correct option: odd powers of x | सही विकल्प: odd powers of x

21. In metric space, if the function f is continuous, then ?

In metric space, if the function f is continuous, then ?

(1) f is sequentially continuous / f is sequentially continuous

(2) f is uniformly continuous / f is uniformly continuous

(3) f is differentiable / f is differentiable

(4) f is onto / f is onto

Correct Answer / सही उत्तर : (1) f is sequentially continuous / f is sequentially continuous

Solution / हल : Correct option: f is sequentially continuous | सही विकल्प: f is sequentially continuous

22. The half-life of radium is 1600 years, i.e. it 1600 years for half of any quantity to decay. If a sample initially contains 50 g, how long will it be until it contains 45 g ?

The half-life of radium is 1600 years, i.e. it 1600 years for half of any quantity to decay. If a sample initially contains 50 g, how long will it be until it contains 45 g ?

- (1) 212.3 years / 212.3 years
- (2) 282.4 years / 282.4 years
- (3) 243.2 years / 243.2 years
- (4) 344.3 years / 344.3 years

Correct Answer / सही उत्तर : (3) 243.2 years / 243.2 years

Solution / हल : Correct option: 243.2 years | सही विकल्प: 243.2 years

23. Using the Fundamental theorem, determine the x^2 value of the integral ?

Using the Fundamental theorem, determine the x^2 value of the integral ?

- (1) $3x \cos x^2 / 3x \cos x^2$
- (2) $2x \cos x^2 / 2x \cos x^2$
- (3) $2x \cos x / 2x \cos x$
- (4) $x \cos x^2 / x \cos x^2$

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

Solution / हल : Correct option: $2x \cos x^2$ | सही विकल्प: $2x \cos x^2$

24. What is the solution of this differential (d^2y) (dx^2) equation ?

What is the solution of this differential (d^2y) (dx^2) equation ?

- (1) $y(x) = a \cos(x) + b \sin x / y(x) = a \cos(x) + b \sin x$
- (2) $y(x) = a \sin(x) / y(x) = a \sin(x)$
- (3) $y(x) = \tan(x) / y(x) = \tan(x)$
- (4) $y(x) = \cot(x) / y(x) = \cot(x)$

Correct Answer / सही उत्तर : (1) $y(x) = a \cos(x) + b \sin x / y(x) = a \cos(x) + b \sin x$

Solution / हल : Correct option: $y(x) = a \cos(x) + b \sin x$ | सही विकल्प: $y(x) = a \cos(x) + b \sin x$

25. Is the derivability of a function possible?

Is the derivability of a function possible?

- (1) yes $0 < x < 1$ / yes $0 < x < 1$
- (2) no / NO
- (3) yes at $x = 0$ / yes at $x = 0$
- (4) yes at $x = 1$ / yes at $x = 1$

Correct Answer / सही उत्तर : (3) yes at $x = 0$ / yes at $x = 0$

Solution / हल : Correct option: yes at $x = 0$ | सही विकल्प: yes at $x = 0$

26. Therefore, by rank- nullity theorem $\text{Rank}(T) = \dim(\mathbb{R}^3)$?

Therefore, by rank- nullity theorem $\text{Rank}(T) = \dim(\mathbb{R}^3)$?

- (1) None of these / इनमें कोई नहीं
- (2) Skew symmetric / Skew symmetric
- (3) Null / Null
- (4) Symmetric matrix / Symmetric matrix

Correct Answer / सही उत्तर : (2) Skew symmetric / Skew symmetric

Solution / हल : Correct option: Skew symmetric | सही विकल्प: Skew symmetric

27. A five digit number is formed by using the digits 1,2,3,4,5 in a random order without repetitions. Then the probability that the number is divisible by 4 is Debke ?

A five digit number is formed by using the digits 1,2,3,4,5 in a random order without repetitions. Then the probability that the number is divisible by 4 is Debke ?

- (1) 6 / 6
- (2) 8 / 8

(3) 3 / 3 : 1

(4) 1 / 1 : 1

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

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

28. If a, b, c are positive real numbers and all are not equal, and $a+b+c = 1$ then the least value of $2^2 2^2 2^2$?
If a, b, c are positive real numbers and all are not equal, and $a+b+c = 1$ then the least value of $2^2 2^2 2^2$?

(1) 64 / 64

(2) 80 / 80

(3) 16 / 16

(4) 32 / 32

Correct Answer / सही उत्तर : (1) 64 / 64

Solution / हल : Correct option: 64 | सही विकल्प: 64

29. Therefore the required limit is $x+1$?

Therefore the required limit is $x+1$?

(1) None of these / इनमें कोई नहीं

(2) 2 / 2 : 1

(3) 2 1 / 2 1

(4) 1 / 1 : 1

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

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

30. How many different words can be formed using all the letters of the word ORDINATE so that the vowels occupy odd places?

How many different words can be formed using all the letters of the word ORDINATE so that the vowels occupy odd places?

(1) 576 / 576

(2) 441 / 441

(3) 484 / 484

(4) 400 / 400

Correct Answer / सही उत्तर : (1) 576 / 576

Solution / हल : Correct option: 576 | सही विकल्प: 576

31. It three positive integers a, b, c are in GP then $\log a, \log b, \log c$ are in ?

It three positive integers a, b, c are in GP then $\log a, \log b, \log c$ are in ?

(1) A. P / A. P

(2) None of these / इनमें कोई नहीं

(3) G. P / G. P

(4) Both A.P. and G.P / Both A.P. and G.P

Correct Answer / सही उत्तर : (1) A. P / A. P

Solution / हल : Correct option: A. P | सही विकल्प: A. P

32. Surface integral of the curl of a function over a surface bounded by a closed surface is equal to the line integral of the particular vector function around that surface." Which theorem is this?

Surface integral of the curl of a function over a surface bounded by a closed surface is equal to the line integral of the particular vector function around that surface." Which theorem is this?

(1) Stoke's theorem / Stoke's theorem

(2) Livouille's theorem / Livouille's theorem

(3) Gauss Divergence theorem / Gauss Divergence theorem

(4) Green's theorem / Green's theorem

Correct Answer / सही उत्तर : (1) Stoke's theorem / Stoke's theorem

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

33. The equation $x^2 - y^2 = 1, r < 1$ represents: 1-r 1+r ?

The equation $x^2 - y^2 = 1, r < 1$ represents: 1-r 1+r ?

- (1) a pair of straight lines / a pair of straight lines
- (2) a hyperbola / a hyperbola
- (3) an ellipse / an ellipse
- (4) a circle / a circle

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

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

34. What is the representation of an open disk R^2 ?

What is the representation of an open disk R^2 ?

- (1) $D = \{(x,y) | r\}$ / $D = \{(x,y) | r\}$
- (2) $D = \{(x,y) | x^2 + y^2 < r^2\}$ / $D = \{(x,y) | x^2 + y^2 < r^2\}$
- (3) $D = \{(x,y) | x^2 + y^2 > r^2\}$ / $D = \{(x,y) | x^2 + y^2 > r^2\}$
- (4) $D = \{(x,y) | x^2 + y^2 < r^2\}$ / $D = \{(x,y) | x^2 + y^2 < r^2\}$

Correct Answer / सही उत्तर : (2) $D = \{(x,y) | x^2 + y^2 < r^2\}$ / $D = \{(x,y) | x^2 + y^2 < r^2\}$

Solution / हल : Correct option: $D = \{(x,y) | x^2 + y^2 < r^2\}$ | सही विकल्प: $D = \{(x,y) | x^2 + y^2 < r^2\}$

35. Do C-R equations are necessary and sufficient for a function to be analytic?

Do C-R equations are necessary and sufficient for a function to be analytic?

- (1) can't say about nature of equations / can't say about nature of equations
- (2) FALSE / असत्य
- (3) TRUE / सत्य
- (4) depend on range of functions / depend on range of functions

Correct Answer / सही उत्तर : (2) FALSE / असत्य

Solution / हल : Correct option: FALSE | सही विकल्प: असत्य

36. What should be the value of k so that the linear equation in two variables x and y, $31x + 124y = k$ has integer valued solutions?

What should be the value of k so that the linear equation in two variables x and y, $31x + 124y = k$ has integer valued solutions?

- (1) 72 / 72
- (2) 134 / 134
- (3) 103 / 103
- (4) 155 / 155

Correct Answer / सही उत्तर : (4) 155 / 155

Solution / हल : Correct option: 155 | सही विकल्प: 155

37. Green's theorem is used to?

Green's theorem is used to?

- (1) solve 2-D flow equation / solve 2-D flow equation
- (2) volume of plane figures / volume of plane figures
- (3) bipolarate the same / bipolarate the same
- (4) parameter of plan figures / parameter of plan figures

Correct Answer / सही उत्तर : (1) solve 2-D flow equation / solve 2-D flow equation

Solution / हल : Correct option: solve 2-D flow equation | सही विकल्प: solve 2-D flow equation

38. Calculate the number of asymptotes for the (x^2) function $f(x) = (x^2)$?

Calculate the number of asymptotes for the (x^2) function $f(x) = (x^2)$?

- (1) 3 / 3 : 1

(2) 1 / 1 : 1

(3) 0 / 0

(4) 2 / 2 : 1

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

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

39. The area of the circle having its centre at (3, 4) and touching the line $5x + 2y = 0$?

The area of the circle having its centre at (3, 4) and touching the line $5x + 2y = 0$?

(1) 25 / $< 2, 5 >$

(2) 12 / 12%

(3) 4 / 4 : 1

(4) 16 / 16

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

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

40. The sides of a triangle are in the ratio 1 : 3:2 then the angles of the triangle are in the ratio ?

The sides of a triangle are in the ratio 1 : 3:2 then the angles of the triangle are in the ratio ?

(1) 1 : 3 : 5 / 1 : 3 : 5

(2) 3 : 2 : 1 / 3 : 2 : 1

(3) 1 : 2 : 3 / $< 1, 2, 3, \dots >$

(4) 2 : 3 : 4 / 2 : 3 : 4

Correct Answer / सही उत्तर : (3) 1 : 2 : 3 / $< 1, 2, 3, \dots >$

Solution / हल : Correct option: 1 : 2 : 3 | सही विकल्प: $< 1, 2, 3, \dots >$

SECTION B - PHYSICS / खण्ड B - भौतिक विज्ञान

41. The negative electrode in lead acid battery is ?

The negative electrode in lead acid battery is ?

(1) Carbon / कार्बन

(2) Lead / सीसा

(3) Silver / चाँदी

(4) Iron / आयरन (लोहा)

Correct Answer / सही उत्तर : (2) Lead / सीसा

Solution / हल : Correct option: Lead | सही विकल्प: सीसा

42. If ϕ is a scalar function and A is any vector function then which of the following quantity is non-vanishing?

If ϕ is a scalar function and A is any vector function then which of the following quantity is non-vanishing?

(1) none of the above / इनमें कोई नहीं

(2) $\text{div grad } \phi$ / $\text{div grad } \phi$

(3) $\text{curl grad } \phi$ / $\text{curl grad } \phi$

(4) $\text{div curl } A$ / $\text{div curl } A$

Correct Answer / सही उत्तर : (2) $\text{div grad } \phi$ / $\text{div grad } \phi$

Solution / हल : Correct option: $\text{div grad } \phi$ | सही विकल्प: $\text{div grad } \phi$

43. The second law of thermodynamics may be written, in usual symbols, as ?

The second law of thermodynamics may be written, in usual symbols, as ?

(1) $dU = dQ + PdV$ / $dU = dQ + PdV$

(2) $dQ = dU + dW$ / $dQ = dU + dW$

(3) $dQ = TdS$ / $dQ = TdS$

(4) $dS = TdQ$ / $dS = TdQ$

Correct Answer / सही उत्तर : (3) $dQ = TdS$ / $dQ = TdS$

Solution / हल : Correct option: $dQ = TdS$ | सही विकल्प: $dQ = TdS$

44. The laser material in He-Ne laser is activated by ?
The laser material in He-Ne laser is activated by ?

- (1) chemical reaction / chemical reaction
- (2) electrical discharge / electrical discharge
- (3) optical pumping / optical pumping
- (4) supersonic gas explosion / supersonic gas explosion

Correct Answer / सही उत्तर : (2) electrical discharge / electrical discharge

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

45. A gas is kept in a rigid container. Heat equal to 500 J is supplied to the gas. Change in the internal energy of the gas is ?

A gas is kept in a rigid container. Heat equal to 500 J is supplied to the gas. Change in the internal energy of the gas is ?

- (1) 50 J / 50 J
- (2) 23.8 J / 23.8 J
- (3) 500 J / 500 J
- (4) 11.9 J / 11.9 J

Correct Answer / सही उत्तर : (3) 500 J / 500 J

Solution / हल : Correct option: 500 J | सही विकल्प: 500 J

46. For a diatomic gas the root mean square velocity at room temperature is 1930 m/s. The gas will be ?
For a diatomic gas the root mean square velocity at room temperature is 1930 m/s. The gas will be ?

- (1) H / H
- (2) O / O
- (3) F₂ / F₂
- (4) Cl₂ / Cl₂

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

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

47. A bullet of mass 2 gm is having a charge of $2\mu\text{C}$. Through what potential difference must it be accelerated, starting from rest, to acquire a speed of 10 m/s ?

A bullet of mass 2 gm is having a charge of $2\mu\text{C}$. Through what potential difference must it be accelerated, starting from rest, to acquire a speed of 10 m/s ?

- (1) 50 V / 50 V
- (2) 5 V / 5 V
- (3) 50 kV / 50 kV
- (4) 5 kV / 5 kV

Correct Answer / सही उत्तर : (3) 50 kV / 50 kV

Solution / हल : Correct option: 50 kV | सही विकल्प: 50 kV

48. The energy of an excited hydrogen atom is 3.4 eV. According to Bohr's Theory, the angular momentum of the electron shall be 1034 ?

The energy of an excited hydrogen atom is 3.4 eV. According to Bohr's Theory, the angular momentum of the electron shall be 1034 ?

- (1) $1.2 \times \text{J.s } 1024$ / $1.2 \times \text{J.s } 1024$
- (2) $1.2 \times 1024 \text{ J.s}$ / $1.2 \times 1024 \text{ J.s}$
- (3) $2.1 \times \text{J.s}$ / $2.1 \times \text{J.s}$
- (4) $2.1 \times \text{J.s } 1034$ / $2.1 \times \text{J.s } 1034$

Correct Answer / सही उत्तर : (4) $2.1 \times \text{J.s } 1034$ / $2.1 \times \text{J.s } 1034$

Solution / हल : Correct option: $2.1 \times \text{J.s } 1034$ | सही विकल्प: $2.1 \times \text{J.s } 1034$

49. The increase in the relativistic mass of a particle of rest mass 1 gm when it is moving with 0.8 c velocity is ?

The increase in the relativistic mass of a particle of rest mass 1 gm when it is moving with 0.8 c velocity is ?

- (1) 1 gm / 1 gm
- (2) 0.667 gm / 0.667 gm
- (3) zero / शून्य
- (4) 1.667 gm / 1.667 gm

Correct Answer / सही उत्तर : (4) 1.667 gm / 1.667 gm

Solution / हल : Correct option: 1.667 gm | सही विकल्प: 1.667 gm

50. If density of earth increased by 2% and radius by 1% the acceleration due to gravity g will change as follows ?

If density of earth increased by 2% and radius by 1% the acceleration due to gravity g will change as follows ?

- (1) Decrease 5% / Decrease 5%
- (2) Increase 5% / Increase 5%
- (3) Decrease 3% / Decrease 3%
- (4) Increase 3% / Increase 3%

Correct Answer / सही उत्तर : (4) Increase 3% / Increase 3%

Solution / हल : Correct option: Increase 3% | सही विकल्प: Increase 3%

51. Which of the following parameters is the same for hydrogen-like atoms and ions in ground states?

Which of the following parameters is the same for hydrogen-like atoms and ions in ground states?

- (1) Energy of the atom / Energy of the atom
- (2) Speed of the electron / Speed of the electron
- (3) Orbital angular momentum of the electron / Orbital angular momentum of the electron
- (4) Radius of the orbit / Radius of the orbit

Correct Answer / सही उत्तर : (3) Orbital angular momentum of the electron / Orbital angular momentum of the electron

Solution / हल : Correct option: Orbital angular momentum of the electron | सही विकल्प: Orbital angular momentum of the electron

52. In Bohr model of the hydrogen atom, the 2.2×10^6 electron travels with speed m/s in a circle ($r = 5.3 \times 10^{-11}$ m) about the nucleus. The value of B at the nucleus due to electron's motion, is ?

In Bohr model of the hydrogen atom, the 2.2×10^6 electron travels with speed m/s in a circle ($r = 5.3 \times 10^{-11}$ m) about the nucleus. The value of B at the nucleus due to electron's motion, is ?

- (1) 40.0 T / 40.0 T
- (2) 30.0 T / 30.0 T
- (3) 25.0 T / 25.0 T
- (4) 12.5 T / 12.5 T

Correct Answer / सही उत्तर : (4) 12.5 T / 12.5 T

Solution / हल : Correct option: 12.5 T | सही विकल्प: 12.5 T

53. Unit of surface tension is ?

Unit of surface tension is ?

- (1) Dyne cm⁻¹ / Dyne cm⁻¹
- (2) Dyne cm⁻² / Dyne cm⁻²
- (3) Dyne cm / Dyne cm
- (4) None of these / इनमें कोई नहीं

Correct Answer / सही उत्तर : (1) Dyne cm-1 / Dyne cm-1

Solution / हल : Correct option: Dyne cm-1 | सही विकल्प: Dyne cm-1

54. For a particle moving under a central force, it's motion will be ?
For a particle moving under a central force, it's motion will be ?

- (1) None of the above / इनमें कोई नहीं
- (2) in a plane / in a plane
- (3) along the helix / along the helix
- (4) in space / in space

Correct Answer / सही उत्तर : (2) in a plane / in a plane

Solution / हल : Correct option: in a plane | सही विकल्प: in a plane

55. An ideal gas is taken through a series of changes represented in the figure below: The net work done by the gas at the end of the cycle is equal to ?

An ideal gas is taken through a series of changes represented in the figure below: The net work done by the gas at the end of the cycle is equal to ?

- (1) zero / शून्य
- (2) 2PV / 2PV
- (3) 5 PV / 5 PV
- (4) 3 PV / 3 PV

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

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

56. In a driven series LCR circuit, the resonant frequency f is given by r ?
In a driven series LCR circuit, the resonant frequency f is given by r ?

- (1) $f = 2\pi LC$ / $f = 2\pi LC$
- (2) $f = 2\pi r C r L$ / $f = 2\pi r C r L$
- (3) $f = 2\pi$ / $f = 2\pi$
- (4) $f =$ / $f =$

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

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

57. Two long parallel wires are 4 cm apart and carry currents of 2A and 6A in the same direction. The force between the wires is UPPCS Pre 2008 N 6×10^5 ?
Two long parallel wires are 4 cm apart and carry currents of 2A and 6A in the same direction. The force between the wires is UPPCS Pre 2008 N 6×10^5 ?

- (1) ,attraction m N 3×10^5 / ,attraction m N 3×10^5
- (2) ,repulsion m N 3×10^5 / ,repulsion m N 3×10^5
- (3) ,attraction m N 6×10^5 / ,attraction m N 6×10^5
- (4) ,repulsion m / ,repulsion m

Correct Answer / सही उत्तर : (1) ,attraction m N 3×10^5 / ,attraction m N 3×10^5

Solution / हल : Correct option: ,attraction m N 3×10^5 | सही विकल्प: ,attraction m N 3×10^5

58. Critical velocity of a liquid may not possible be related to ?
Critical velocity of a liquid may not possible be related to ?

- (1) density of liquid / density of liquid
- (2) radius of tube / radius of tube
- (3) coefficient of viscosity / coefficient of viscosity
- (4) mass of liquid / mass of liquid

Correct Answer / सही उत्तर : (4) mass of liquid / mass of liquid

Solution / हल : Correct option: mass of liquid | सही विकल्प: mass of liquid

59. The dimensions of the quantity ρ are ρ equivalent to those of ?

The dimensions of the quantity ρ are equivalent to those of ?

- (1) Force / Force
- (2) Current / धारा (Current)
- (3) Momentum / Momentum
- (4) Resistance / Resistance

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

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

60. If for any two non-null vectors the magnitude of the sum of these vectors is equal to the magnitude of the difference of these vectors, then the angle between these vectors is ?

If for any two non-null vectors the magnitude of the sum of these vectors is equal to the magnitude of the difference of these vectors, then the angle between these vectors is ?

- (1) 0° / 0
- (2) 90° / 90°
- (3) 60° / 60
- (4) 180° / 180°

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

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

SECTION C - CHEMISTRY / खण्ड C - रसायन विज्ञान

61. Half-filled f-shell of lanthanide ion is: $ueWLeeveeF[Dee$?

Half-filled f-shell of lanthanide ion is: $ueWLeeveeF[Dee$?

- (1) Tb^{4+} / Tb^{4+}
- (2) Yb^{2+} / Yb^{2+}
- (3) Eu^{3+} / Eu^{3+}
- (4) Ce^{4+} / Ce^{4+}

Correct Answer / सही उत्तर : (1) Tb^{4+} / Tb^{4+}

Solution / हल : Correct option: Tb^{4+} | सही विकल्प: Tb^{4+}

62. During photochemical reaction of alkenes having cis and trans isomer, photolysis causes generation of _____ ?

सिस-ट्रांस समावयव वाले एल्कीन की प्रकाश-रासायनिक अभिक्रिया में फोटोलिसिस से क्या बनता है ?

- (1) Mixture containing only trans isomer / केवल ट्रांस वाला मिश्रण
- (2) Mixture richer in cis isomer / सिस-समृद्ध मिश्रण
- (3) Mixture containing only cis isomer / केवल सिस वाला मिश्रण
- (4) Mixture richer in trans isomer / ट्रांस-समृद्ध मिश्रण

Correct Answer / सही उत्तर : (2) Mixture richer in cis isomer / सिस-समृद्ध मिश्रण

Solution / हल : Photolysis of cis/trans alkenes gives a cis-rich mixture. | सिस/ट्रांस एल्कीन का फोटोलिसिस सिस-समृद्ध मिश्रण देता है।

63. A Friedel-Craft's reaction of benzene with dichloromethane in presence of anhydrous $AlCl_3$ produces ?
बेन्जीन की डाइक्लोरोमेथेन के साथ निर्जल $AlCl_3$ की उपस्थिति में फ्रीडल-क्राफ्ट अभिक्रिया क्या बनाती है ?

- (1) Benzal chloride / बेन्जाल क्लोराइड
- (2) Triphenylmethane / ट्राइफेनिलमेथेन
- (3) Diphenylmethane / डाइफेनिलमेथेन
- (4) Benzyl chloride / बेन्जिल क्लोराइड

Correct Answer / सही उत्तर : (3) Diphenylmethane / डाइफेनिलमेथेन

Solution / हल : Friedel-Crafts of benzene with dichloromethane gives diphenylmethane. | बेन्जीन व डाइक्लोरोमेथेन की फ्रीडल-क्राफ्ट से डाइफेनिलमेथेन बनता है।

64. The structure of $(NH)_3CrO$ is: $3\ 3\ 4\ (NH)_3CrO$?

(NH₄)₃CrO₈ की संरचना क्या है ?

- (1) Trigonal bipyramidal / त्रिकोणीय द्विपिरामिडीय
- (2) Tetrahedral / चतुष्फलकीय
- (3) Pentagonal bipyramidal / पंचकोणीय द्विपिरामिडीय
- (4) Octahedral / अष्टफलकीय

Correct Answer / सही उत्तर : (3) Pentagonal bipyramidal / पंचकोणीय द्विपिरामिडीय

Solution / हल : (NH₄)₃CrO₈ has a pentagonal bipyramidal structure. | (NH₄)₃CrO₈ पंचकोणीय द्विपिरामिडीय है।

65. Which statement about Miller notation ?

मिलर संकेतन (Miller notation) के बारे में कौन-सा कथन सत्य है ?

- (1) Only (A) is true / केवल (A) सत्य
- (2) Only (B) is true / केवल (B) सत्य
- (3) Both (A) and (B) are true / (A) व (B) दोनों सत्य
- (4) Both (A) and (B) are false / (A) व (B) दोनों असत्य

Correct Answer / सही उत्तर : (1) Only (A) is true / केवल (A) सत्य

Solution / हल : Only statement (A) about Miller notation is true. | मिलर संकेतन पर केवल कथन (A) सत्य है।

66. Which of the following acts as a Bronsted acid as well as Bronsted base?

निम्नलिखित में कौन ब्रॉन्स्टेड अम्ल व क्षार दोनों है ?

- (1) CH₃COOH / CH₃COO-
- (2) OH⁻ / OH-
- (3) HCO₃⁻ / HCO₃⁻
- (4) Na₂CO₃ / Na₂CO₃

Correct Answer / सही उत्तर : (3) HCO₃⁻ / HCO₃⁻

Solution / हल : HCO₃⁻ can act as both Bronsted acid and base (amphoteric). | HCO₃⁻ ब्रॉन्स्टेड अम्ल व क्षार दोनों है (उभयधर्मी)।

67. An element has atomic number 25. This element belongs to _____ ?

An element has atomic number 25. This element belongs to _____ ?

- (1) s-block / s-ब्लॉक
- (2) p-block / p-ब्लॉक
- (3) d-block / d-ब्लॉक
- (4) f-block / f-ब्लॉक

Correct Answer / सही उत्तर : (3) d-block / d-ब्लॉक

Solution / हल : Correct option: d-block | सही विकल्प: d-ब्लॉक

68. Which of the following bonds is the strongest?

निम्नलिखित में कौन-सा बंध सबसे प्रबल है ?

- (1) Hydrogen / हाइड्रोजन
- (2) Ionic / आयनिक
- (3) Covalent / सहसंयोजक
- (4) Van der Waals / वान डर वाल

Correct Answer / सही उत्तर : (2) Ionic / आयनिक

Solution / हल : The ionic bond is the strongest among these. | इनमें आयनिक बंध सबसे प्रबल है।

69. During discharging of lead storage cell ?

लेड संग्राहक सेल के अनावेशन में क्या होता है ?

- (1) sulphuric acid is consumed / सल्फ्यूरिक अम्ल खपत होता है
- (2) lead dissolves at cathode to deposit lead sulphate / कैथोड पर लेड घुलकर लेड सल्फेट जमा करता है
- (3) lead dioxide is converted to lead sulphate at anode / लेड डाइऑक्साइड एनोड पर लेड सल्फेट में बदलता है

(4) sulphur dioxide is liberated at cathode / कैथोड पर SO₂ निकलती है

Correct Answer / सही उत्तर : (1) sulphuric acid is consumed / सल्फ्यूरिक अम्ल खपत होता है

Solution / हल : During discharge of a lead cell, sulphuric acid is consumed. | लीड सेल अनावेशन में सल्फ्यूरिक अम्ल खपत होता है।

70. Haemoglobin is a coordination compound of ?

हीमोग्लोबिन किसका उपसहसंयोजन यौगिक है ?

(1) Mg / Mg

(2) Ni / Ni

(3) Fe / Fe

(4) Ru / Ru

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

Solution / हल : Haemoglobin is a coordination compound of iron (Fe). | हीमोग्लोबिन लोहे (Fe) का उपसहसंयोजन यौगिक है।

71. The ortho form of dihydrogen contains ?

डाइहाइड्रोजन का ऑर्थो रूप किसे रखता है ?

(1) Nuclear spins which are opposed to each other / एक-दूसरे के विपरीत नाभिकीय चक्रण

(2) Nuclei of one proton and two neutrons / एक प्रोटॉन व दो न्यूट्रॉन वाले नाभिक

(3) Nuclei with one proton and one neutron / एक प्रोटॉन व एक न्यूट्रॉन वाला नाभिक

(4) Nuclear spins which are aligned to each other / एक-दूसरे के समानांतर नाभिकीय चक्रण

Correct Answer / सही उत्तर : (4) Nuclear spins which are aligned to each other / एक-दूसरे के समानांतर नाभिकीय चक्रण

Solution / हल : Ortho-dihydrogen has nuclear spins aligned to each other. | ऑर्थो-डाइहाइड्रोजन में नाभिकीय चक्रण समानांतर होते हैं।

72. The catalytic action of an enzyme is: SbspeeFce ?

एंजाइम की उत्प्रेरक क्रिया कैसी होती है ?

(1) Heterogeneous / विषमांगी

(2) Non specific / अविशिष्ट

(3) Does not depend on the nature of substrate / सब्सट्रेट प्रकृति पर निर्भर नहीं

(4) Highly specific / अत्यधिक विशिष्ट

Correct Answer / सही उत्तर : (4) Highly specific / अत्यधिक विशिष्ट

Solution / हल : Enzyme catalytic action is highly specific. | एंजाइम की उत्प्रेरक क्रिया अत्यधिक विशिष्ट होती है।

73. Which of the following does not occur in DNA?

निम्नलिखित में कौन DNA में नहीं होता ?

(1) Thymine / थायमीन

(2) Cytosine / साइटोसीन

(3) Guanine / ग्वानीन

(4) Uracil / यूरेसिल

Correct Answer / सही उत्तर : (4) Uracil / यूरेसिल

Solution / हल : Uracil does not occur in DNA (it occurs in RNA). | यूरेसिल DNA में नहीं होता (यह RNA में होता है)।

74. Consider the below reaction. CH₃CH(OH)CH₃ ?

नीचे दी अभिक्रिया CH₃CH(OH)CH₃ → ... किस प्रकार की है ?

(1) Disproportionation / विषमानुपातन

(2) Oxidation / ऑक्सीकरण

(3) Reduction / अपचयन

(4) Redox reaction / रेडॉक्स अभिक्रिया

Correct Answer / सही उत्तर : (2) Oxidation / ऑक्सीकरण

Solution / हल : The given reaction (alcohol to ketone) is an oxidation. | दी गई अभिक्रिया (एल्कोहल → कीटोन) ऑक्सीकरण है।

75. Meissner effect is shown by : ceerpevej ?

मीस्नर प्रभाव किसके द्वारा दिखाया जाता है ?

- (1) Diamagnetic substances / प्रतिचुंबकीय पदार्थ
- (2) Ferromagnetic substances / लौहचुंबकीय पदार्थ
- (3) Anti-ferromagnetic substances / प्रतिलौहचुंबकीय पदार्थ
- (4) Superconductors / अतिचालक (Superconductors)

Correct Answer / सही उत्तर : (4) Superconductors / अतिचालक (Superconductors)

Solution / हल : The Meissner effect is shown by superconductors. | मीस्नर प्रभाव अतिचालकों द्वारा दिखाया जाता है।

76. Ion association in electrolyte solution is given by : efJe ?

Ion association in electrolyte solution is given by : efJe ?

- (1) Bjerrum theory / ब्जेरम सिद्धांत
- (2) Electrolyte theory / विद्युत-अपघट्य सिद्धांत
- (3) Vant'hoff theory / वॉंट हॉफ सिद्धांत
- (4) Debye-huckel theory / डिबाई-हकल सिद्धांत

Correct Answer / सही उत्तर : (1) Bjerrum theory / ब्जेरम सिद्धांत

Solution / हल : Correct option: Bjerrum theory | सही विकल्प: ब्जेरम सिद्धांत

77. EDTA complexometric titration involving estimation of hardness of water, use of EDTA ?

जल की कठोरता निर्धारण वाले EDTA संकुलमिति अनुमापन में किस सूचक का उपयोग होता है ?

- (1) acid base indicator / अम्ल-क्षार सूचक
- (2) adsorption indicator / अधिशोषण सूचक
- (3) redox indicator / रेडॉक्स सूचक
- (4) metal ion indicator / धातु आयन सूचक

Correct Answer / सही उत्तर : (4) metal ion indicator / धातु आयन सूचक

Solution / हल : EDTA hardness titration uses a metal-ion indicator (EBT). | EDTA कठोरता अनुमापन में धातु-आयन सूचक (EBT) प्रयुक्त होता है।

78. When solid solute is added to a solvent, some solute particles in solution collide with the solid solute particles and get separated out of solution. This process is known as _____ ?

विलयक में ठोस विलेय मिलाने पर कुछ कण विलयन से अलग होकर ठोस पर बैठ जाते हैं — यह क्या कहलाता है ?

- (1) Crystallisation / क्रिस्टलन (Crystallisation)
- (2) Solubilisation / विलेयीकरण
- (3) Dissolution / विलयन
- (4) Deionisation / विआयनन

Correct Answer / सही उत्तर : (1) Crystallisation / क्रिस्टलन (Crystallisation)

Solution / हल : Separation of solute back to solid is crystallisation. | विलेय का ठोस रूप में पुनः अलग होना क्रिस्टलन है।

79. The SI unit for the amount of substance ?

पदार्थ की मात्रा का SI मात्रक क्या है ?

- (1) Mole / मोल
- (2) Kilogram / किलोग्राम
- (3) Gram / ग्राम

(4) Candela / कैंडेला

Correct Answer / सही उत्तर : (1) Mole / मोल

Solution / हल : The SI unit of amount of substance is the mole. | पदार्थ की मात्रा का SI मात्रक मोल है।

80. Which one of the following statements is not true with regard to an electrolytic cell?

विद्युत-अपघटनी सेल के संबंध में कौन-सा कथन सत्य नहीं है ?

(1) Cathode is negative terminal / कैथोड ऋणात्मक टर्मिनल है

(2) Cathode is positive terminal / कैथोड धनात्मक टर्मिनल है

(3) Reduction occurs at cathode / कैथोड पर अपचयन होता है

(4) Electrons enter into cathode from the external cell / बाहरी सेल से इलेक्ट्रॉन कैथोड में आते हैं

Correct Answer / सही उत्तर : (2) Cathode is positive terminal / कैथोड धनात्मक टर्मिनल है

Solution / हल : Cathode is the negative terminal in an electrolytic cell (statement that it is positive is false). | विद्युत-अपघटनी सेल में कैथोड ऋणात्मक टर्मिनल है (धनात्मक कहना असत्य)।

81. Glucose and galactose are : iuetke ?

ग्लूकोज व गैलक्टोज क्या हैं ?

(1) Epimers / एपिमर (Epimers)

(2) Non-sugars / अशर्करा

(3) Disacharides / डाइसैकेराइड

(4) Anomers / एनोमर

Correct Answer / सही उत्तर : (1) Epimers / एपिमर (Epimers)

Solution / हल : Glucose and galactose are epimers (differ at C4). | ग्लूकोज व गैलक्टोज एपिमर हैं (C4 पर भिन्न)।

82. Which of the following is not the mineral of magnesium?

निम्नलिखित में कौन मैग्नीशियम का खनिज नहीं है ?

(1) Magnetite / मैग्नेटाइट

(2) Dolomite / डोलोमाइट

(3) Kieserite / कीसेराइट

(4) Magnesite / मैग्नेसाइट

Correct Answer / सही उत्तर : (1) Magnetite / मैग्नेटाइट

Solution / हल : Magnetite is an iron mineral, not a magnesium mineral. | मैग्नेटाइट लोहे का खनिज है, मैग्नीशियम का नहीं।

83. Ketones from _____ ?

कीटोन किससे बनते हैं ?

(1) amine / ऐमीन

(2) enamine / एनामीन

(3) imine / इमीन

(4) ketal / कीटल

Correct Answer / सही उत्तर : (3) imine / इमीन

Solution / हल : Ketones form imines with amines. | कीटोन ऐमीन से इमीन बनाते हैं।

84. The element Si is obtained by reducing SiO₂ with : SiO ?

Si तत्व SiO₂ को किससे अपचयित कर प्राप्त किया जाता है ?

(1) Coke / कोक

(2) Diamond / हीरा

(3) Preons / प्रीऑन

(4) Graphite / ग्रेफाइट

Correct Answer / सही उत्तर : (1) Coke / कोक

Solution / हल : Silicon is obtained by reducing SiO₂ with coke. | सिलिकॉन SiO₂ को कोक से अपचयित कर प्राप्त होता है।

85. Phenolphthalein is used as an indicator in the titration of H₂S ?

Phenolphthalein is used as an indicator in the titration of H₂S ?

- (1) formic acid against ammonium hydroxide / फॉर्मिक अम्ल बनाम अमोनियम हाइड्रॉक्साइड
- (2) acetic acid against potassium hydroxide / एसीटिक अम्ल बनाम पोटैशियम हाइड्रॉक्साइड
- (3) hydrochloric acid against ammonium hydroxide / HCl बनाम अमोनियम हाइड्रॉक्साइड
- (4) oxalic acid against potassium permanganate / ऑक्सैलिक अम्ल बनाम पोटैशियम परमैंगनेट

Correct Answer / सही उत्तर : (2) acetic acid against potassium hydroxide / एसीटिक अम्ल बनाम पोटैशियम हाइड्रॉक्साइड

Solution / हल : Correct option: acetic acid against potassium hydroxide | सही विकल्प: एसीटिक अम्ल बनाम पोटैशियम हाइड्रॉक्साइड

SECTION D - COMPUTER / खण्ड D - कंप्यूटर

86. Ubuntu, Mint and Fedora are versions of Gyeblet efceb ?

उबंटू, मिंट व फेडोरा किसके संस्करण हैं ?

- (1) Apple MAC OS / Apple MAC OS
- (2) Linux / Linux
- (3) MS DOS / MS DOS
- (4) Windows / Windows

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

Solution / हल : Ubuntu, Mint and Fedora are versions of Linux. | उबंटू, मिंट व फेडोरा Linux के संस्करण हैं।

87. Permanent Memory of a computer is known as ?

Permanent Memory of a computer is known as ?

- (1) RAM / RAM
- (2) ROM / ROM
- (3) CD-ROM / CD-ROM
- (4) CPU / CPU

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

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

88. How many audio and video streams can be handled by HDMI?

HDMI कितने ऑडियो व वीडियो स्ट्रीम संभाल सकता है ?

- (1) 2 Video, 2 audio / 2 वीडियो, 2 ऑडियो
- (2) 1 audio, 1 video / 1 ऑडियो, 1 वीडियो
- (3) 1 video, 2 audio / 1 वीडियो, 2 ऑडियो
- (4) 2 audio, 1 video / 2 ऑडियो, 1 वीडियो

Correct Answer / सही उत्तर : (2) 1 audio, 1 video / 1 ऑडियो, 1 वीडियो

Solution / हल : HDMI handles 1 audio and 1 video stream (per key). | HDMI 1 ऑडियो व 1 वीडियो स्ट्रीम संभालता है (कुंजी अनुसार)।

89. What happens when an attempt is made to queue?

What happens when an attempt is made to queue?

- (1) Overflow / Overflow
- (2) Underflow / Underflow
- (3) Queuefull / Queuefull
- (4) Onflow DeesJejhe / Onflow DeesJejhe

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

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

90. Functional language is also known as :

Functional language is also known as :

- (1) Imperative language / Imperative language
- (2) Non-procedural / Non-procedural
- (3) Low-level language / Low-level language
- (4) Procedural language / Procedural language

Correct Answer / सही उत्तर : (3) Low-level language / Low-level language

Solution / हल : Correct option: Low-level language | सही विकल्प: Low-level language

91. Computer language COBOL is appropriate for ?

कंप्यूटर भाषा COBOL किसके लिए उपयुक्त है ?

- (1) None of these / इनमें कोई नहीं
- (2) Commercial purpose / वाणिज्यिक उद्देश्य
- (3) Scientific purpose / वैज्ञानिक उद्देश्य
- (4) Graphic / ग्राफिक

Correct Answer / सही उत्तर : (2) Commercial purpose / वाणिज्यिक उद्देश्य

Solution / हल : COBOL is appropriate for commercial purposes. | COBOL वाणिज्यिक उद्देश्य हेतु उपयुक्त है।

92. Which of the following statements related to 'C' language is ?

Which of the following statements related to 'C' language is ?

- (1) Only (i) / Only (i)
- (2) Both (i) and (ii) / दोनों (i) व (ii)
- (3) Only (ii) / केवल (ii)
- (4) Neither (i) nor (ii) / Neither (i) nor (ii)

Correct Answer / सही उत्तर : (4) Neither (i) nor (ii) / Neither (i) nor (ii)

Solution / हल : Correct option: Neither (i) nor (ii) | सही विकल्प: Neither (i) nor (ii)

93. Which was the first electronic digital computer?

पहला इलेक्ट्रॉनिक डिजिटल कंप्यूटर कौन-सा था ?

- (1) IBM-PC / IBM-PC
- (2) EDSAC / EDSAC
- (3) ENIAC / ENIAC
- (4) PASCAL / PASCAL

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

Solution / हल : ENIAC was the first electronic digital computer. | ENIAC पहला इलेक्ट्रॉनिक डिजिटल कंप्यूटर था।

94. USB stands for ?

USB का पूर्ण रूप क्या है ?

- (1) Universal Serial Bus / Universal Serial Bus
- (2) Uniform Series Bus / Uniform Series Bus
- (3) Uniform serial Bus / Uniform Serial Bus
- (4) Universal Series / Universal Series

Correct Answer / सही उत्तर : (1) Universal Serial Bus / Universal Serial Bus

Solution / हल : USB = Universal Serial Bus. | USB = Universal Serial Bus।

95. Which of the following is the correct option indicating Universal Gate?

Which of the following is the correct option indicating Universal Gate?

- (1) XOR, XNOR / XOR, XNOR
- (2) AND, OR / AND, OR
- (3) NOT, XOR / NOT, XOR
- (4) NAND, NOR / NAND, NOR

Correct Answer / सही उत्तर : (4) NAND, NOR / NAND, NOR

Solution / हल : Correct option: NAND, NOR | सही विकल्प: NAND, NOR

SECTION E - MENTAL ABILITY / खण्ड E - मानसिक योग्यता

96. A man starts going for morning walk every day. The distance walked by him on the first day was 2 km. Everyday he walks half of the distance walked on the previous day. What can be the maximum total distance walked by him in his lifetime?

A man starts going for morning walk every day. The distance walked by him on the first day was 2 km. Everyday he walks half of the distance walked on the previous day. What can be the maximum total distance walked by him in his lifetime?

- (1) 8 km / 8 km
- (2) Data inadequate / Data inadequate
- (3) 20 km / 20 km
- (4) 4 km / 4 km

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

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

97. Three wheels can complete respectively 60,36,24 revolutions per minute. There is a red spot on each wheel that touches the ground at time zero. After how much time, all these spots will simultaneously touch the ground again?

तीन पहिये क्रमशः 60, 36, 24 चक्कर/मिनट पूरे करते हैं। प्रत्येक पर लाल बिंदु समय शून्य पर ज़मीन छूता है। सभी बिंदु पुनः एक साथ कब छुएँगे ?

- (1) 5/2 seconds / 5/2 सेकंड
- (2) 5/3 seconds / 5/3 सेकंड
- (3) 5 seconds / 5 सेकंड
- (4) 7.5 seconds / 7.5 सेकंड

Correct Answer / सही उत्तर : (3) 5 seconds / 5 सेकंड

Solution / हल : LCM of revolution times => all spots touch ground again after 5 seconds. | चक्करों के LCM से सभी बिंदु 5 सेकंड बाद पुनः ज़मीन छूते हैं।

98. Sonika invested an amount of Rs. 5800 for 2 years. At what rate of compound interest will she get an amount of Rs. 594.50 at the end of two years?

सोनिका ने ₹5800, 2 वर्ष हेतु निवेशित किए। किस चक्रवृद्धि दर पर उसे 2 वर्ष बाद ₹594.50 ब्याज मिलेगा ?

- (1) 5 pcpa / 5 pcpa
- (2) 6 pcpa / 6 pcpa
- (3) 8 pcpa / 8 pcpa
- (4) 4 pcpa / 4 pcpa

Correct Answer / सही उत्तर : (1) 5 pcpa / 5 pcpa

Solution / हल : At 5% pa compound interest, Rs.5800 gives Rs.594.50 interest in 2 yr. | 5% वार्षिक चक्रवृद्धि पर ₹5800 से 2 वर्ष में ₹594.50 ब्याज।

99. Prathik sold a music system to Karthik at 20% and Karthik sold it to Swasthik at 40% gain. If Swasthik paid Rs. 10,500 for the music system, what amount did Prathik pay for the same? (?

प्रथिक ने कार्तिक को म्यूज़िक सिस्टम 20% लाभ पर व कार्तिक ने स्वस्तिक को 40% लाभ पर बेचा। यदि स्वस्तिक ने ₹10,500 दिए, तो प्रथिक ने कितने में खरीदा ?

- (1) Rs. 8,240 / ₹8,240
- (2) Rs. 7,500 / ₹7,500
- (3) Rs. 6,250 / ₹6,250
- (4) Cannot be determined / निर्धारित नहीं

Correct Answer / सही उत्तर : (3) Rs. 6,250 / ₹6,250

Solution / हल : Working back from Rs.10,500 at 40% then 20%, Prathik paid Rs.6,250. | ₹10,500 से 40% फिर 20% पीछे => प्रथिक ने ₹6,250 में खरीदा।

100. The compound interest earned on a sum is 3 years at 15% per annum compounded annually is Rs. 6500.52. What is the sum?

The compound interest earned on a sum is 3 years at 15% per annum compounded annually is Rs. 6500.52. What is the sum?

- (1) Rs. 14800 / Rs. 14800
- (2) Rs. 10500 / ₹10,500
- (3) Rs. 12480 / Rs. 12480
- (4) Rs. 13620 / Rs. 13620

Correct Answer / सही उत्तर : (3) Rs. 12480 / Rs. 12480

Solution / हल : Correct option: Rs. 12480 | सही विकल्प: Rs. 12480

