

UNIVERSITY OF LUCKNOW

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

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

MODEL PAPER - SET 10 / प्रतिदर्श प्रश्नपत्र - सेट 10

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. What is the slope of the tangent to the curve $y = (x^2 - 4x)$?

What is the slope of the tangent to the curve $y = (x^2 - 4x)$?

- (1) 8 / 8
- (2) 4 / 4 : 1
- (3) 2 4x / 2 4x
- (4) 0 / 0

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

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

2. If $A = \{a,b,c\}$, $B = \{b,c,d\}$ and $C = \{a,d,c\}$, then $(A \cap B) \cap C$?

If $A = \{a,b,c\}$, $B = \{b,c,d\}$ and $C = \{a,d,c\}$, then $(A \cap B) \cap C$?

- (1) $\{(a,c), (a,d), (b,d)\} / \{(a,c), (a,d), (b,d)\}$
- (2) $\{(a,b), (c,d)\} / \{(a,b), (c,d)\}$
- (3) $\{(c,a), (d,a)\} / \{(c,a), (d,a)\}$
- (4) $\{(a,c), (a,d)\} / \{(a,c), (a,d)\}$

Correct Answer / सही उत्तर : (4) $\{(a,c), (a,d)\} / \{(a,c), (a,d)\}$

Solution / हल : Correct option: $\{(a,c), (a,d)\}$ | सही विकल्प: $\{(a,c), (a,d)\}$

3. If $f(x) = abx$ then $f'(0)$ is equal to ?

If $f(x) = abx$ then $f'(0)$ is equal to ?

- (1) ab / ab
- (2) $2ab / 2ab$
- (3) $0 / 0$
- (4) $ab(a+b) / ab(a+b)$

Correct Answer / सही उत्तर : (4) $ab(a+b) / ab(a+b)$

Solution / हल : Correct option: $ab(a+b)$ | सही विकल्प: $ab(a+b)$

4. The wheels of a taxi are of diameter 80 cm each. How many complete revolutions does each wheel make in 10 minutes when the taxi is traveling at a speed of 66 km/h ?

The wheels of a taxi are of diameter 80 cm each. How many complete revolutions does each wheel make in 10 minutes when the taxi is traveling at a speed of 66 km/h ?

- (1) 4355 / 4355
- (2) 4325 / 4325
- (3) 4735 / 4735
- (4) 4375 / 4375

Correct Answer / सही उत्तर : (4) 4375 / 4375

Solution / हल : Correct option: 4375 | सही विकल्प: 4375

5. There are some cows and some hens in the shed. The total number of legs is 92 and total number of heads is 29. Find the total number of cows in shed ?

There are some cows and some hens in the shed. The total number of legs is 92 and total number of heads is 29. Find the total number of cows in shed ?

- (1) 12 / 12%

- (2) 14 / 14%
- (3) 19 / 19
- (4) 17 / 17

Correct Answer / सही उत्तर : (4) 17 / 17

Solution / हल : Correct option: 17 | सही विकल्प: 17

6. A relation is equivalence if the relation is ?

A relation is equivalence if the relation is ?

- (1) Symmetric, transitive / Symmetric, transitive
- (2) Reflexive, symmetric, and transitive / Reflexive, symmetric, and transitive
- (3) Transitive, reflexive / Transitive, reflexive
- (4) Reflexive, symmetric / Reflexive, symmetric

Correct Answer / सही उत्तर : (2) Reflexive, symmetric, and transitive / Reflexive, symmetric, and transitive

Solution / हल : Correct option: Reflexive, symmetric, and transitive | सही विकल्प: Reflexive, symmetric, and transitive

7. In metric space which function is always continuous?

In metric space which function is always continuous?

- (1) distance function / distance function
- (2) continuous function / continuous function
- (3) discrete function / discrete function
- (4) bounded function / bounded function

Correct Answer / सही उत्तर : (1) distance function / distance function

Solution / हल : Correct option: distance function | सही विकल्प: distance function

8. The external direct product of additive group of integer Z with itself is ?

The external direct product of additive group of integer Z with itself is ?

- (1) Cyclic but not abelian / Cyclic but not abelian
- (2) Abelian as well as cyclic group / Abelian as well as cyclic group
- (3) Cyclic group / Cyclic group
- (4) Not cyclic group / Not cyclic group

Correct Answer / सही उत्तर : (4) Not cyclic group / Not cyclic group

Solution / हल : Correct option: Not cyclic group | सही विकल्प: Not cyclic group

9. How many positive integers less than 200 are NOT divisible by three or more primes?

How many positive integers less than 200 are NOT divisible by three or more primes?

- (1) 122 / 122
- (2) 65 / 65
- (3) 197 / 197
- (4) 168 / 168

Correct Answer / सही उत्तर : (4) 168 / 168

Solution / हल : Correct option: 168 | सही विकल्प: 168

10. What is the remainder when $1! + 2! + \dots + 100!$ is divided by 15?

What is the remainder when $1! + 2! + \dots + 100!$ is divided by 15?

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

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

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

11. Graph of given equation $y =$ decreases where ?

Graph of given equation $y =$ decreases where ?

- (1) $0 < x < 1$ / $0 < x < 1$
- (2) $1 < x < 5$ / $1 < x < 5$
- (3) $x < 0$ / $x < 0$
- (4) $x > 5$ / $x > 5$

Correct Answer / सही उत्तर : (2) $1 < x < 5$ / $1 < x < 5$

Solution / हल : Correct option: $1 < x < 5$ | सही विकल्प: $1 < x < 5$

12. If volume of a sphere is 36 ?

If volume of a sphere is 36 ?

- (1) 36 / 36
- (2) 6 / 6
- (3) 18 / 18%
- (4) 12 / 12%

Correct Answer / सही उत्तर : (1) 36 / 36

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

13. What is the order of Klein's four group?

What is the order of Klein's four group?

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

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

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

14. Construction of a cumulative frequency table is useful in determining the ?

Construction of a cumulative frequency table is useful in determining the ?

- (1) mode / mode
- (2) mean / mean
- (3) all the three given measures / all the three given measures
- (4) median / median

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

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

15. Number of zeros in $100!$ is ?

Number of zeros in $100!$ is ?

- (1) 100 / 100
- (2) 25 / $< 2, 5 >$
- (3) 24 100! / 24 100!
- (4) 1000 / 1000

Correct Answer / सही उत्तर : (3) 24 100! / 24 100!

Solution / हल : Correct option: 24 100! | सही विकल्प: 24 100!

16. If $f(z) = (x + 2) + 5yi$ then for any z , $f(z)$ is ?

If $f(z) = (x + 2) + 5yi$ then for any z , $f(z)$ is ?

- (1) Not-differentiable for any z / Not-differentiable for any z
- (2) none of the above / इनमें कोई नहीं
- (3) Differentiable for some z / Differentiable for some z
- (4) Differentiable for all z / Differentiable for all z

Correct Answer / सही उत्तर : (1) Not-differentiable for any z / Not-differentiable for any z

Solution / हल : Correct option: Not-differentiable for any z | सही विकल्प: Not-differentiable for any z

17. How many types of mathematical models are there ?

How many types of mathematical models are there ?

(1) 2 / 2 : 1

(2) 1 / 1 : 1

(3) 3 / 3 : 1

(4) 4 / 4 : 1

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

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

18. Which is not the level transitive of conjugative classes ?

Which is not the level transitive of conjugative classes ?

(1) inverse transitive / inverse transitive

(2) fold transitive / fold transitive

(3) double transitive / double transitive

(4) Transitive / Transitive

Correct Answer / सही उत्तर : (1) inverse transitive / inverse transitive

Solution / हल : Correct option: inverse transitive | सही विकल्प: inverse transitive

19. Let S be any set then Derived set of S is ?

Let S be any set then Derived set of S is ?

(1) Always closed / Always closed

(2) Always open / Always open

(3) Always Uncountable / Always Uncountable

(4) Always Infinite / Always Infinite

Correct Answer / सही उत्तर : (1) Always closed / Always closed

Solution / हल : Correct option: Always closed | सही विकल्प: Always closed

20. The prime factorization of 42833 is given by ?

The prime factorization of 42833 is given by ?

(1) 7.21.219 / 7.21.219

(2) 7.21.299 / 7.21.299

(3) 7.29.211 / 7.29.211

(4) 7.21.291 / 7.21.291

Correct Answer / सही उत्तर : (3) 7.29.211 / 7.29.211

Solution / हल : Correct option: 7.29.211 | सही विकल्प: 7.29.211

21. Let 'A' be cantor set then which of the following statement is false ?

Let 'A' be cantor set then which of the following statement is false ?

(1) countable / countable

(2) It is closed and bounded / It is closed and bounded

(3) measure is zero / measure is zero

(4) perfect / perfect

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

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

22. For what values of m, is arithmetic $am + bm$ mean of a and b?

For what values of m, is arithmetic $am + bm$ mean of a and b?

(1) none of $am+1+bm+1$ / none of $am+1+bm+1$

(2) 0 / 0

(3) 1 / 1 : 1

(4) 2 these / 2 these

Correct Answer / सही उत्तर : (2) 0 / 0

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

23. Which theorem connects the result $\langle T(x), y \rangle = \langle x, z \rangle$?

Which theorem connects the result $\langle T(x), y \rangle = \langle x, z \rangle$?

- (1) Hilbert Theorem / Hilbert Theorem
- (2) Reisz representative theorem / Reisz representative theorem
- (3) Hahn Banach Theorem / Hahn Banach Theorem
- (4) Picard theorem / Picard theorem

Correct Answer / सही उत्तर : (2) Reisz representative theorem / Reisz representative theorem

Solution / हल : Correct option: Reisz representative theorem | सही विकल्प: Reisz representative theorem

24. Value of the limit $\lim_{x \rightarrow 0} 2x \sin x$ is equal to x ?

Value of the limit $\lim_{x \rightarrow 0} 2x \sin x$ is equal to x ?

- (1) not defined / अपरिभाषित
- (2) 1 / 1 : 1
- (3) none of these / इनमें कोई नहीं
- (4) 0 / 0

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

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

25. What kind of information is given to us in mathematical models?

What kind of information is given to us in mathematical models?

- (1) accurate results / accurate results
- (2) wrong results / wrong results
- (3) estimated results / estimated results
- (4) approximate wrong results / approximate wrong results

Correct Answer / सही उत्तर : (3) estimated results / estimated results

Solution / हल : Correct option: estimated results | सही विकल्प: estimated results

26. The sequence $\{1 + i^n\}$ is ?

The sequence $\{1 + i^n\}$ is ?

- (1) Oscillates infinitely / Oscillates infinitely
- (2) Convergent / Convergent
- (3) Oscillates finitely / Oscillates finitely
- (4) Divergent / Divergent

Correct Answer / सही उत्तर : (3) Oscillates finitely / Oscillates finitely

Solution / हल : Correct option: Oscillates finitely | सही विकल्प: Oscillates finitely

27. If altitudes of a triangle are in A. P. then sides of the triangle are in ?

If altitudes of a triangle are in A. P. then sides of the triangle are in ?

- (1) A.P / A.P
- (2) H.P / H.P
- (3) None of these / इनमें कोई नहीं
- (4) G.P / G.P

Correct Answer / सही उत्तर : (2) H.P / H.P

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

28. Identify the set in which supremum of set is equal to infimum of the set?

Identify the set in which supremum of set is equal to infimum of the set?

- (1) $\{a\}$ / a
- (2) empty / empty
- (3) $\{a, b\}$ / $\{a, b\}$
- (4) $\{1, 2, 3\}$ / $\langle 1, 2, 3, \dots \rangle$

Correct Answer / सही उत्तर : (1) $\{a\}$ / a

Solution / हल : Correct option: {a} | सही विकल्प: a

29. Which is not the way to write Taylor expansion ?
Which is not the way to write Taylor expansion ?

- (1) cubic / घनीय
- (2) constant / अचर (constant)
- (3) quadratic / quadratic
- (4) onto / onto

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

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

30. Find the cardinality of generating set for dihedral group ?
Find the cardinality of generating set for dihedral group ?

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

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

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

31. Mean of 100 observations is 45. It was later found that two observations 19 and 31 were recorded incorrectly as 91 and 13, then the correct mean is 100 DeJeueske ?

Mean of 100 observations is 45. It was later found that two observations 19 and 31 were recorded incorrectly as 91 and 13, then the correct mean is 100 DeJeueske ?

- (1) 45 / 45
- (2) None of these / इनमें कोई नहीं
- (3) 44 / 44
- (4) 44.46 / 44.46

Correct Answer / सही उत्तर : (4) 44.46 / 44.46

Solution / हल : Correct option: 44.46 | सही विकल्प: 44.46

32. The terms of the two series $3+10+17+\dots$ and $63+65+67+\dots$ are equal, then the value of n is ?
The terms of the two series $3+10+17+\dots$ and $63+65+67+\dots$ are equal, then the value of n is ?

- (1) 19 nth / 19 nth
- (2) 13 / 13
- (3) None of these / इनमें कोई नहीं
- (4) 9 / 9%

Correct Answer / सही उत्तर : (2) 13 / 13

Solution / हल : Correct option: 13 | सही विकल्प: 13

33. Check about the continuity of function given by $f(x) = x$ in interval $[0, 2]$?
Check about the continuity of function given by $f(x) = x$ in interval $[0, 2]$?

- (1) it is not uniformly continuous / it is not uniformly continuous
- (2) can't say about continuity of f / can't say about continuity of f
- (3) discontinuous everywhere / discontinuous everywhere
- (4) it is uniformly continuous / it is uniformly continuous

Correct Answer / सही उत्तर : (4) it is uniformly continuous / it is uniformly continuous

Solution / हल : Correct option: it is uniformly continuous | सही विकल्प: it is uniformly continuous

34. In a school there are 20 teachers who teach mathematics or physics of these, 12 teach mathematics and 4 teach both physics and mathematics. How many teach only physics?

In a school there are 20 teachers who teach mathematics or physics of these, 12 teach mathematics and 4 teach both physics and mathematics. How many teach only physics?

(1) 16 / 16

(2) None of these / इनमें कोई नहीं

(3) 12 / 12%

(4) 8 / 8

Correct Answer / सही उत्तर : (4) 8 / 8

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

35. The value of \lim is equal to x ?

The value of \lim is equal to x ?

(1) 2 / 2 : 1

(2) 2 these / 2 these

(3) 0 1 / 0, 1

(4) none of $1+x^2$ / none of $1+x^2$

Correct Answer / सही उत्तर : (3) 0 1 / 0, 1

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

36. The orthocenter of the triangle ABC, whose angular points are A(1, 2), B(2, 3), is of the form ?

The orthocenter of the triangle ABC, whose angular points are A(1, 2), B(2, 3), is of the form ?

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

(2) (1, 4) / 14%

(3) (1, 6) / 16

(4) (2, 1) / 21

Correct Answer / सही उत्तर : (3) (1, 6) / 16

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

37. For what value of k do the equations $3(k$?

For what value of k do the equations $3(k$?

(1) 2 / 2 : 1

(2) 3 / 3 : 1

(3) 4 / 4 : 1

(4) 1 / 1 : 1

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

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

38. Hence, the convergence is not uniform on $[0, 1]$ 7. The external direct product of two abelian group is abelian if and only if both are?

Hence, the convergence is not uniform on $[0, 1]$ 7. The external direct product of two abelian group is abelian if and only if both are?

(1) non abelian / non abelian

(2) infinite / infinite

(3) abelian / abelian

(4) finite / finite

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

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

39. If $\log 81=x$, then the value of x is 3 ?

If $\log 81=x$, then the value of x is 3 ?

(1) 4 / 4 : 1

(2) 32 / 32

(3) 8 / 8

(4) 16 / 16

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

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

40. Let $\{f\}$, $\{g\}$ and $\{h\}$ are real sequence and $\{f\} \leq \{g\} \leq \{h\}$, for all x ?

Let $\{f\}$, $\{g\}$ and $\{h\}$ are real sequence and $\{f\} \leq \{g\} \leq \{h\}$, for all x ?

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

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

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

SECTION B - PHYSICS / खण्ड B - भौतिक विज्ञान

41. Quartz has refractive indices 1.553 and 1.544 respectively. The thickness of quarter wave plate of quartz for sodium light (wavelength 5890 Å) is 102 102 ?

Quartz has refractive indices 1.553 and 1.544 respectively. The thickness of quarter wave plate of quartz for sodium light (wavelength 5890 Å) is 102 102 ?

- (1) $1.43 \times \text{mm}$ / $1.43 \times \text{mm}$
- (2) $1.63 \times \text{mm}$ / $1.63 \times \text{mm}$
- (3) $1.33 \times \text{mm}$ / $1.33 \times \text{mm}$
- (4) $1.53 \times \text{mm}$ 102 102 / $1.53 \times \text{mm}$ 102 102

Correct Answer / सही उत्तर : (2) $1.63 \times \text{mm}$ / $1.63 \times \text{mm}$

Solution / हल : Correct option: $1.63 \times \text{mm}$ | सही विकल्प: $1.63 \times \text{mm}$

42. Two lenses of powers +4D and 2D are kept in contact. The combinations focal length will be ?

Two lenses of powers +4D and 2D are kept in contact. The combinations focal length will be ?

- (1) 50cm / 50cm
- (2) 25cm / 25cm
- (3) 100cm / 100cm
- (4) 75cm / 75cm

Correct Answer / सही उत्तर : (1) 50cm / 50cm

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

43. A star is emitting yellow light. If it is accelerated towards earth, then to an observer on earth it will appear ?

A star is emitting yellow light. If it is accelerated towards earth, then to an observer on earth it will appear ?

- (1) gradually changing to red / gradually changing to red
- (2) shining yellow / shining yellow
- (3) unchanged / unchanged
- (4) gradually changing to blue / gradually changing to blue

Correct Answer / सही उत्तर : (4) gradually changing to blue / gradually changing to blue

Solution / हल : Correct option: gradually changing to blue | सही विकल्प: gradually changing to blue

44. Three equal resistances each of value R are connected so as to form a triangle. The equivalent resistance across any two corners of triangle is ?

Three equal resistances each of value R are connected so as to form a triangle. The equivalent resistance across any two corners of triangle is ?

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

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

Solution / हल : Correct option: $R/3$ | सही विकल्प: $R/3$

45. When the movable mirror of Michelson interferometer moves a distance of $100\mu\text{m}$. a shift of 500 fringes is observed. What will be the wavelength of used light?

When the movable mirror of Michelson interferometer moves a distance of $100\mu\text{m}$. a shift of 500 fringes is observed. What will be the wavelength of used light?

- (1) 4500 / 4500
- (2) 5500 / 5500
- (3) 7000 / 7000
- (4) 4000 / 4000

Correct Answer / सही उत्तर : (4) 4000 / 4000

Solution / हल : Correct option: 4000 | सही विकल्प: 4000

46. Consider the following: A. Presence of audience in a hall decreases reverberation time. B. Open windows increase reverberation time ?

Consider the following: A. Presence of audience in a hall decreases reverberation time. B. Open windows increase reverberation time ?

- (1) A is false, B is true / A is false, B is true
- (2) A is true, B is false / A is true, B is false
- (3) Both A, B are false / Both A, B are false
- (4) Both A, B are true / Both A, B are true

Correct Answer / सही उत्तर : (2) A is true, B is false / A is true, B is false

Solution / हल : Correct option: A is true, B is false | सही विकल्प: A is true, B is false

47. The equation $\text{J.E} = +\nabla \cdot \text{sis}$ called ∂t ?

The equation $\text{J.E} = +\nabla \cdot \text{sis}$ called ∂t ?

- (1) Coulombs law / Coulombs law
- (2) Stoke's law / Stoke's law
- (3) Poynting theorem / Poynting theorem
- (4) None of these / इनमें कोई नहीं

Correct Answer / सही उत्तर : (3) Poynting theorem / Poynting theorem

Solution / हल : Correct option: Poynting theorem | सही विकल्प: Poynting theorem

48. The empty space between the plates of a capacitor is filled by a liquid of dielectric constant K, the capacitance of capacitor ?

The empty space between the plates of a capacitor is filled by a liquid of dielectric constant K, the capacitance of capacitor ?

- (1) decreases by a factor K / decreases by a factor K
- (2) increases by a factor K / increases by a factor K
- (3) increases by a factor K^2 / increases by a factor K^2
- (4) decreases by a factor / decreases by a factor

Correct Answer / सही उत्तर : (2) increases by a factor K / increases by a factor K

Solution / हल : Correct option: increases by a factor K | सही विकल्प: increases by a factor K

49. Two capillary tubes of same material having radii 1 mm and 2 mm respectively are immersed in a liquid. If the liquid rises to 30 cm in the first, then the height in second will be ?

Two capillary tubes of same material having radii 1 mm and 2 mm respectively are immersed in a liquid. If the liquid rises to 30 cm in the first, then the height in second will be ?

- (1) 7.5 cm / 7.5 cm
- (2) 120 cm / 120 cm
- (3) 60 cm / 60 cm
- (4) 15 cm / 15 cm

Correct Answer / सही उत्तर : (4) 15 cm / 15 cm

Solution / हल : Correct option: 15 cm | सही विकल्प: 15 cm

50. The frequency of a light spring when 1 kg weight is suspended on its end is 4 oscillations per second. If 4 kg weight suspended to the same spring, the frequency of oscillations shall be ?
The frequency of a light spring when 1 kg weight is suspended on its end is 4 oscillations per second. If 4 kg weight suspended to the same spring, the frequency of oscillations shall be ?

- (1) 2 per sec / 2 per sec
- (2) 16 per sec / 16 per sec
- (3) 4 per sec / 4 per sec
- (4) 8 per sec / 8 per sec

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

Solution / हल : Correct option: 2 per sec | सही विकल्प: 2 per sec

51. Which of the following will form a virtual and erect image for all positions of the object ?
Which of the following will form a virtual and erect image for all positions of the object ?

- (1) Concave mirror / Concave mirror
- (2) Convex lens / Convex lens
- (3) Convex mirror / Convex mirror
- (4) None of the above / इनमें कोई नहीं

Correct Answer / सही उत्तर : (3) Convex mirror / Convex mirror

Solution / हल : Correct option: Convex mirror | सही विकल्प: Convex mirror

52. If the radius of earth is 6400 km. then angular velocity for a point on its equator will be ?
If the radius of earth is 6400 km. then angular velocity for a point on its equator will be ?

- (1) 7.3×10^6 rad/sec / 7.3×10^6 rad/sec
- (2) 1.5×10^5 rad/sec / 1.5×10^5 rad/sec
- (3) 7.3×10^5 rad/sec / 7.3×10^5 rad/sec
- (4) 10×10^5 rad/sec / 10×10^5 rad/sec

Correct Answer / सही उत्तर : (3) 7.3×10^5 rad/sec / 7.3×10^5 rad/sec

Solution / हल : Correct option: 7.3×10^5 rad/sec | सही विकल्प: 7.3×10^5 rad/sec

53. Consider : A. The wavelength of scattered light may be greater or less than that of incident light. B. Above statement A is true for scattering of photons by electrons ?

Consider : A. The wavelength of scattered light may be greater or less than that of incident light. B. Above statement A is true for scattering of photons by electrons ?

- (1) A is true, B is false / A is true, B is false
- (2) A, B both are true / A, B both are true
- (3) A is false, B is true / A is false, B is true
- (4) A, B both are false / A, B both are false

Correct Answer / सही उत्तर : (1) A is true, B is false / A is true, B is false

Solution / हल : Correct option: A is true, B is false | सही विकल्प: A is true, B is false

54. In Helium-Neon laser, helium atoms ?

In Helium-Neon laser, helium atoms ?

- (1) Emit laser radiation / Emit laser radiation
- (2) Impart energy to the Neon atoms / Impart energy to the Neon atoms
- (3) Act as quenching agents / Act as quenching agents
- (4) Act as catalytic atom / Act as catalytic atom

Correct Answer / सही उत्तर : (2) Impart energy to the Neon atoms / Impart energy to the Neon atoms

Solution / हल : Correct option: Impart energy to the Neon atoms | सही विकल्प: Impart energy to the Neon atoms

55. The dimensions of Planck's constant are equivalent to which of the following ?

The dimensions of Planck's constant are equivalent to which of the following ?

- (1) Angular momentum / Angular momentum

- (2) Energy / Energy
- (3) Linear momentum / Linear momentum
- (4) Force / Force

Correct Answer / सही उत्तर : (1) Angular momentum / Angular momentum

Solution / हल : Correct option: Angular momentum | सही विकल्प: Angular momentum

56. Red shift observed in the spectral lines of distant stars tells that universe is ?
Red shift observed in the spectral lines of distant stars tells that universe is ?

- (1) contracting / contracting
- (2) getting converted into black holes / getting converted into black holes
- (3) expanding / expanding
- (4) whirling around / whirling around

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

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

57. A person climbs up a stalled escalator in 60 s. If standing on the same but escalator running with constant velocity he 40 s. How much time is taken by the person to walk up the moving escalator ?
A person climbs up a stalled escalator in 60 s. If standing on the same but escalator running with constant velocity he 40 s. How much time is taken by the person to walk up the moving escalator ?

- (1) 37 s / 37 s
- (2) 45 s / 45 s
- (3) 24 s / 24 s
- (4) 27 s / 27 s

Correct Answer / सही उत्तर : (3) 24 s / 24 s

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

58. With a decrease of current in primary coil from 2 Amp to 0 Amp in 0.01 sec, the e.m.f. generated in secondary coil is 100 Volt. The mutual inductance will be ?

With a decrease of current in primary coil from 2 Amp to 0 Amp in 0.01 sec, the e.m.f. generated in secondary coil is 100 Volt. The mutual inductance will be ?

- (1) 0.5 Henry / 0.5 Henry
- (2) 5 Henry / 5 Henry
- (3) 10 Henry / 10 Henry
- (4) 1 Henry / 1 Henry

Correct Answer / सही उत्तर : (1) 0.5 Henry / 0.5 Henry

Solution / हल : Correct option: 0.5 Henry | सही विकल्प: 0.5 Henry

59. There is a diode connected to an external resistance and an e.m.f. source as shown in figure. Assuming that potential barrier developed in diode is 0.5 V, the value of current in the circuit is ?

There is a diode connected to an external resistance and an e.m.f. source as shown in figure. Assuming that potential barrier developed in diode is 0.5 V, the value of current in the circuit is ?

- (1) 0.05 A / 0.05 A
- (2) 0.025 A / 0.025 A
- (3) 0.03 A / 0.03 A
- (4) 0.02 A / 0.02 A

Correct Answer / सही उत्तर : (4) 0.02 A / 0.02 A

Solution / हल : Correct option: 0.02 A | सही विकल्प: 0.02 A

60. The ionization potential of hydrogen atom is 13.6 eV. The ionization potential of singly ionized helium ion will be (in eV)

The ionization potential of hydrogen atom is 13.6 eV. The ionization potential of singly ionized helium ion will be (in eV)

- (1) 6.8 / 6.8
- (2) 27.2 / 27.2
- (3) 3.4 / 3 : 4
- (4) 54.4 / 54.4

Correct Answer / सही उत्तर : (4) 54.4 / 54.4

Solution / हल : Correct option: 54.4 | सही विकल्प: 54.4

SECTION C - CHEMISTRY / खण्ड C - रसायन विज्ञान

61. Potassium possesses body-centered cubic structure. The number of nearest neighboring atoms for each potassium atom in its crystal structure is hees ?

पोटैशियम की संरचना अंतःकेन्द्रित घनीय है। प्रत्येक K परमाणु के निकटतम पड़ोसी परमाणुओं की संख्या कितनी है ?

- (1) eight / आठ
- (2) twelve / बारह
- (3) six / छह
- (4) four / चार

Correct Answer / सही उत्तर : (1) eight / आठ

Solution / हल : In BCC, each potassium atom has eight nearest neighbours. | BCC में प्रत्येक K परमाणु के आठ निकटतम पड़ोसी होते हैं।

62. Which of the group 1 metal hydrides is stable up to 900 ?

समूह 1 का कौन-सा धातु हाइड्राइड 900°C तक स्थिर है ?

- (1) Potassium hydride / पोटैशियम हाइड्राइड
- (2) Lithium hydride / लिथियम हाइड्राइड
- (3) Sodium hydride / सोडियम हाइड्राइड
- (4) Caesium hydride / सीज़ियम हाइड्राइड

Correct Answer / सही उत्तर : (2) Lithium hydride / लिथियम हाइड्राइड

Solution / हल : Lithium hydride is stable up to 900°C. | लिथियम हाइड्राइड 900°C तक स्थिर है।

63. Chlorination of alkanes is an example of ?

Chlorination of alkanes is an example of ?

- (1) Substitution / प्रतिस्थापन
- (2) Addition / योग
- (3) Elimination / विलोपन
- (4) Free radical / मुक्त मूलक

Correct Answer / सही उत्तर : (4) Free radical / मुक्त मूलक

Solution / हल : Correct option: Free radical | सही विकल्प: मुक्त मूलक

64. For a reaction with rate law $V=k[A][B]^2$, if r reactant [A] is present in large excess of concentration and it remains constant throughout the reaction then the order of the reaction will be _____ ?

दर नियम $V=k[A][B]^2$ में यदि [A] अधिक मात्रा में हो व स्थिर रहे, तो अभिक्रिया की कोटि क्या होगी ?

- (1) First order reaction / प्रथम कोटि
- (2) Second order reaction / द्वितीय कोटि
- (3) Paeudo-second order reaction / छद्म-द्वितीय कोटि
- (4) Pseudo-first order reaction / छद्म-प्रथम कोटि

Correct Answer / सही उत्तर : (3) Paeudo-second order reaction / छद्म-द्वितीय कोटि

Solution / हल : With [A] constant, $V=k'[B]^2 \Rightarrow$ pseudo-second order. | [A] स्थिर होने पर $V=k'[B]^2 \Rightarrow$ छद्म-द्वितीय कोटि।

65. Which of the following is not a fiber?

निम्नलिखित में कौन रेशा नहीं है ?

- (1) Nylon 6, / नायलॉन 6,6
- (2) Neoprene / नियोप्रीन
- (3) Myosin / मायोसिन
- (4) Nylon / नायलॉन

Correct Answer / सही उत्तर : (2) Neoprene / नियोप्रीन

Solution / हल : Neoprene is a rubber, not a fibre. | नियोप्रीन रबर है, रेशा नहीं।

66. The optical density of a 5.0 ?

5.0 ... की प्रकाशिक घनत्व (optical density) क्या है ?

- (1) 0.75 lit mol / 0.75 lit/mol
- (2) 30.00 lit mol / 30.00 lit/mol
- (3) 300.00 lit mol / 300.00 lit/mol
- (4) 75 lit mol / 75 lit/mol

Correct Answer / सही उत्तर : (3) 300.00 lit mol / 300.00 lit/mol

Solution / हल : The optical density value is 300.00 (per key). | प्रकाशिक घनत्व मान 300.00 है (कुंजी अनुसार)।

67. According to Fajan's rule which one holds true?

फाजान नियम के अनुसार कौन-सा कथन सत्य है ?

- (1) Ti^{3+} and V^{3+} will have stable gas configuration / Ti^{3+} और V^{3+} स्थायी गैस विन्यास रखेंगे
- (2) Ti^{3+} and V^{3+} will be poorly polarising / Ti^{3+} और V^{3+} दुर्बल ध्रुवण करेंगे
- (3) Ti^{3+} and V^{3+} will be highly polarising / Ti^{3+} और V^{3+} प्रबल ध्रुवण करेंगे
- (4) Ti^{3+} and V^{3+} are neutral ions / Ti^{3+} और V^{3+} उदासीन आयन हैं

Correct Answer / सही उत्तर : (3) Ti^{3+} and V^{3+} will be highly polarising / Ti^{3+} और V^{3+} प्रबल ध्रुवण करेंगे

Solution / हल : By Fajan's rule, small highly charged Ti^{3+} and V^{3+} are highly polarising. | फाजान नियम अनुसार Ti^{3+} , V^{3+} प्रबल ध्रुवण करते हैं।

68. Consider the electrode potentials : Fueske ?

विद्युत-अपघट्य विभव पर विचार करें — किसका अपचयन सबसे कठिन है ?

- (1) Fe^{3+} / Fe^{3+}
- (2) Mg / Mg
- (3) Fe / Fe
- (4) Mg^{2+} / Mg^{2+}

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

Solution / हल : Mg has the most negative electrode potential (hardest to reduce here). | Mg का विभव सबसे ऋणात्मक (यहाँ अपचयन सबसे कठिन)।

69. The red color of oxy-haemoglobin is mainly due to _____ ?

ऑक्सी-हीमोग्लोबिन का लाल रंग मुख्यतः किसके कारण है ?

- (1) Metal to ligand charge transfer / धातु से लिगेंड आवेश स्थानांतरण
- (2) Intraligand / अंतरालिगेंड
- (3) Ligand to metal charge transfer / लिगेंड से धातु आवेश स्थानांतरण
- (4) d-d transition / d-d संक्रमण

Correct Answer / सही उत्तर : (4) d-d transition / d-d संक्रमण

Solution / हल : The red colour of oxy-haemoglobin is due to d-d transition. | ऑक्सी-हीमोग्लोबिन का लाल रंग d-d संक्रमण से है।

70. When macromolecular crowding increases, the chemical potential of protein _____ ?

वृहदाण्विक भीड़ (macromolecular crowding) बढ़ने पर प्रोटीन का रासायनिक विभव क्या होता है ?

- (1) Remains unchanged / अपरिवर्तित रहता है

- (2) Increases / बढ़ता है
- (3) Decreases / घटती (Decreases)
- (4) Initially increases then decreases / पहले बढ़ता फिर घटता

Correct Answer / सही उत्तर : (2) Increases / बढ़ता है

Solution / हल : With macromolecular crowding, protein chemical potential increases. | वृहदाण्विक भीड़ बढ़ने पर प्रोटीन का रासायनिक विभव बढ़ता है।

71. 'Silver salt' method is used for the determination of molecular mass ?

'सिल्वर लवण' विधि किसके अणुभार निर्धारण हेतु प्रयोग होती है ?

- (1) Aniline / एनिलीन
- (2) Benzoic acid / बेन्जोइक अम्ल
- (3) Benzamide / बेन्जामाइड
- (4) Ethyl benzoate / एथिल बेन्जोएट

Correct Answer / सही उत्तर : (2) Benzoic acid / बेन्जोइक अम्ल

Solution / हल : The silver salt method determines molecular mass of benzoic acid (acids). | सिल्वर लवण विधि बेन्जोइक अम्ल (अम्लों) का अणुभार निर्धारित करती है।

72. Which of the following processes leads to an increase in the atomic number of a nuclide?

निम्नलिखित में कौन-सी प्रक्रिया न्यूक्लाइड के परमाणु क्रमांक में वृद्धि करती है ?

- (1) Electron capture / इलेक्ट्रॉन ग्रहण
- (2) Positron emission / पॉज़िट्रॉन उत्सर्जन
- (3) Alpha emission / अल्फा उत्सर्जन
- (4) Beta emission / बीटा उत्सर्जन

Correct Answer / सही उत्तर : (4) Beta emission / बीटा उत्सर्जन

Solution / हल : Beta emission increases the atomic number. | बीटा उत्सर्जन परमाणु क्रमांक बढ़ाता है।

73. Haloalkanes cannot be prepared by ?

Haloalkanes cannot be prepared by ?

- (1) Nucleophilic substitution / नाभिकरागी प्रतिस्थापन
- (2) Electrophilic addition / इलेक्ट्रॉनरागी योग
- (3) U.V light / U.V प्रकाश
- (4) Electrophilic substitution / इलेक्ट्रॉनरागी प्रतिस्थापन

Correct Answer / सही उत्तर : (4) Electrophilic substitution / इलेक्ट्रॉनरागी प्रतिस्थापन

Solution / हल : Correct option: Electrophilic substitution | सही विकल्प: इलेक्ट्रॉनरागी प्रतिस्थापन

74. Acetaminophen is an example of _____ ?

एसीटामिनोफेन किसका उदाहरण है ?

- (1) Antipyretic and analgesic / ज्वररोधी व पीड़ाहारी
- (2) Antibiotic / प्रतिजैविक
- (3) Anti-microbial / सूक्ष्मजीवरोधी
- (4) Anti-inflammatory / प्रदाहरोधी

Correct Answer / सही उत्तर : (1) Antipyretic and analgesic / ज्वररोधी व पीड़ाहारी

Solution / हल : Acetaminophen is an antipyretic and analgesic. | एसीटामिनोफेन ज्वररोधी व पीड़ाहारी है।

75. Which is the weak electrolyte among the below?

निम्नलिखित में दुर्बल विद्युत-अपघट्य कौन-सा है ?

- (1) HI / HI
- (2) HCl / HCl
- (3) HBr / HBr
- (4) HF / HF

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

Solution / हल : HF is a weak electrolyte (weak acid) among the halogen acids. | हैलोजन अम्लों में HF दुर्बल विद्युत-अपघट्य है।

76. The reagent used in the reaction ?

अभिक्रिया में प्रयुक्त अभिकर्मक कौन-सा है ?

- (1) aqueous NH₃ / जलीय NH₃
- (2) alcoholic KCN / ऐल्कोहलीय KCN
- (3) alcoholic AgCN / ऐल्कोहलीय AgCN
- (4) alkaline CHCl₃ / क्षारीय CHCl₃

Correct Answer / सही उत्तर : (2) alcoholic KCN / ऐल्कोहलीय KCN

Solution / हल : The reagent used is alcoholic KCN (gives nitrile). | प्रयुक्त अभिकर्मक ऐल्कोहलीय KCN है (नाइट्राइल देता है)।

77. Hormone that is not synthesised by the process ?

कौन-सा हार्मोन इस प्रक्रिया से संश्लेषित नहीं होता ?

- (1) Insulin / इंसुलिन
- (2) Melatonin / मेलाटोनिन
- (3) Glucagon / ग्लूकैगॉन
- (4) Somatostatin / सोमैटोस्टैटिन

Correct Answer / सही उत्तर : (2) Melatonin / मेलाटोनिन

Solution / हल : Melatonin is not synthesised by that process (others are pancreatic). | मेलाटोनिन उस प्रक्रिया से संश्लेषित नहीं होता।

78. Natural rubber obtained from the rubber tree, 'Hevea Brasiliensis' consists of 'Hevea Brasiliensis' ?

'हेविया ब्रासिलिएन्सिस' से प्राप्त प्राकृतिक रबर किससे बना होता है ?

- (1) poly (isobutylene) / पॉली(आइसोब्यूटिलीन)
- (2) trans-poly (isoprene) / ट्रांस-पॉली(आइसोप्रीन)
- (3) cis-poly (isoprene) / सिस-पॉली(आइसोप्रीन)
- (4) poly (chloroprene) / पॉली(क्लोरोप्रीन)

Correct Answer / सही उत्तर : (3) cis-poly (isoprene) / सिस-पॉली(आइसोप्रीन)

Solution / हल : Natural rubber is cis-poly(isoprene). | प्राकृतिक रबर सिस-पॉली(आइसोप्रीन) है।

79. Which one of the following phenols is more likely to be soluble in aqueous sodium bicarbonate solution?

निम्नलिखित में कौन-सा फिनॉल जलीय सोडियम बाइकार्बोनेट में अधिक घुलनशील है ?

- (1) 4-Cyanophenol / 4-सायनोफिनॉल
- (2) 2, 4-Dihydroxy acetophenone / 2,4-डाइहाइड्रॉक्सी एसीटोफिनोन
- (3) 2, 4, 6-Tricyanophenol / 2,4,6-ट्राइसायनोफिनॉल
- (4) 3, 4-Dicyanophenol / 3,4-डाइसायनोफिनॉल

Correct Answer / सही उत्तर : (3) 2, 4, 6-Tricyanophenol / 2,4,6-ट्राइसायनोफिनॉल

Solution / हल : 2,4,6-Tricyanophenol (most acidic) is most soluble in NaHCO₃. | 2,4,6-ट्राइसायनोफिनॉल (सर्वाधिक अम्लीय) NaHCO₃ में सर्वाधिक घुलनशील है।

80. An element with atomic number 103 has a nuclear charge of +103. So its charge would be balanced by _____ ?

An element with atomic number 103 has a nuclear charge of +103. So its charge would be balanced by _____ ?

- (1) 103 electrons / 103 electrons
- (2) 104 electrons / 104 electrons
- (3) 103 protons / 103 protons
- (4) 104 protons / 104 protons

Correct Answer / सही उत्तर : (1) 103 electrons / 103 electrons

Solution / हल : Correct option: 103 electrons | सही विकल्प: 103 electrons

81. Acetylsalicylic acid, the most widely used mild analgesic is commonly known as _____ ?
एसिटोसैलिसिलिक अम्ल (सबसे प्रयुक्त हल्का पीड़ाहारी) सामान्यतः किस नाम से जाना जाता है ?

- (1) Quinoid / क्विनॉइड
- (2) Morphin / मॉर्फिन
- (3) Aspirin / एस्पिरिन
- (4) Paracetamol / पैरासिटामोल

Correct Answer / सही उत्तर : (3) Aspirin / एस्पिरिन

Solution / हल : Acetylsalicylic acid is commonly known as aspirin. | एसिटोसैलिसिलिक अम्ल को एस्पिरिन कहते हैं।

82. For graphical determination of rate constant of a first order reaction, when $\ln[A]$ vs t का ढाल कैसा होता है ?
प्रथम कोटि अभिक्रिया के दर स्थिरांक के आलेखी निर्धारण में $\ln[A]$ vs t का ढाल कैसा होता है ?

- (1) Sigmoidal curve / सिग्मॉयडल वक्र
- (2) Increasing slope / बढ़ता ढाल
- (3) Decreasing slope / घटता ढाल
- (4) Constant slope / स्थिर ढाल

Correct Answer / सही उत्तर : (3) Decreasing slope / घटता ढाल

Solution / हल : For a first-order plot, $\ln[A]$ vs t gives a decreasing slope. | प्रथम कोटि के आलेख में $\ln[A]$ vs t का ढाल घटता है।

83. When ethyne reacts with silver nitrate solution, ethyne shows peye efmeuJey veeF ?
एथाइन सिल्वर नाइट्रेट विलयन से अभिक्रिया कर कौन-सा गुण दर्शाता है ?

- (1) acidic property / अम्लीय गुण
- (2) oxidizing property / ऑक्सीकारक गुण
- (3) reducing property / अपचायक गुण
- (4) basic property / क्षारीय गुण

Correct Answer / सही उत्तर : (1) acidic property / अम्लीय गुण

Solution / हल : Ethyne with AgNO_3 shows acidic property (terminal alkyne). | एथाइन AgNO_3 से अम्लीय गुण दर्शाता है (टर्मिनल एल्काइन)।

84. Oxygen brings out the group oxidation state for many elements more readily than fluorine ?
ऑक्सीजन फ्लोरीन की तुलना में कई तत्वों की समूह ऑक्सीकरण अवस्था अधिक आसानी से क्यों लाती है ?

- (1) Decreased steric crowding / घटी हुई त्रिविम भीड़
- (2) Higher electronegativity / उच्च विद्युतऋणात्मकता
- (3) Lower atomic radius / कम परमाणु त्रिज्या
- (4) Higher ionization enthalpy / उच्च आयनन एन्थैल्पी

Correct Answer / सही उत्तर : (1) Decreased steric crowding / घटी हुई त्रिविम भीड़

Solution / हल : Oxygen brings group oxidation states due to decreased steric crowding. | ऑक्सीजन घटी त्रिविम भीड़ के कारण समूह ऑक्सीकरण अवस्था लाती है।

85. Fragment ions with lower energy than normal appearing ?
सामान्य से कम ऊर्जा वाले खंड आयन क्या कहलाते हैं ?

- (1) Metastable peak / मेटास्टेबल शिखर
- (2) Base peak / आधार शिखर
- (3) Fragment peak / फ्रैगमेंट शिखर
- (4) Ion peak / आयन शिखर

Correct Answer / सही उत्तर : (1) Metastable peak / मेटास्टेबल शिखर

Solution / हल : Lower-energy fragment ions give metastable peaks. | कम ऊर्जा वाले खंड आयन मेटास्टेबल शिखर देते हैं।

SECTION D - COMPUTER / खण्ड D - कंप्यूटर

86. 1 Gigabyte is equal to ?

1 गीगाबाइट कितने के बराबर है ?

- (1) 216 bytes / 216 बाइट
- (2) 830 bytes / 830 बाइट
- (3) yeeF / yeeF
- (4) 230 bytes / 230 बाइट

Correct Answer / सही उत्तर : (4) 230 bytes / 230 बाइट

Solution / हल : 1 Gigabyte = 2^{30} bytes. | 1 गीगाबाइट = 2^{30} बाइट।

87. The technology of scanning that reads the check boxes contained inside a predefined space is ?
पूर्वनिर्धारित स्थान में बने चेक बॉक्स पढ़ने वाली स्कैनिंग तकनीक कौन-सी है ?

- (1) OCR / OCR
- (2) MICR / MICR
- (3) OMR / OMR
- (4) BCR / BCR

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

Solution / हल : OMR reads check boxes in a predefined space. | OMR पूर्वनिर्धारित स्थान के चेक बॉक्स पढ़ता है।

88. Who developed the computer language COBOL?

COBOL भाषा किसने विकसित की ?

- (1) Alan / एलन
- (2) Grace Hopper / ग्रेस हॉपर
- (3) John / जॉन
- (4) Robert Noyce / रॉबर्ट नॉयस

Correct Answer / सही उत्तर : (2) Grace Hopper / ग्रेस हॉपर

Solution / हल : COBOL was developed by Grace Hopper. | COBOL ग्रेस हॉपर ने विकसित की।

89. complements of hexadecimal number (A01) is : 16 <ees[Me DeeOeejer (nske ?
complements of hexadecimal number (A01) is : 16 <ees[Me DeeOeejer (nske ?

- (1) (6EE) 16 / (6EE) 16
- (2) (6E0) / (6E0)
- (3) (5F0) / (5F0)
- (4) (5FE) 16 16 / (5FE) 16 16

Correct Answer / सही उत्तर : (4) (5FE) 16 16 / (5FE) 16 16

Solution / हल : Correct option: (5FE) 16 16 | सही विकल्प: (5FE) 16 16

90. What is logo in computer?

What is logo in computer?

- (1) Programming / Programming
- (2) Instruction / Instruction
- (3) Command / Command
- (4) Program / प्रोग्राम

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

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

91. Which computer generation replaced the IC (integrated circuit) with VLSI (Very Large Scale Intergration) circuit?

Which computer generation replaced the IC (integrated circuit) with VLSI (Very Large Scale Intergration) circuit?

- (1) Third / Third
- (2) Fourth / Fourth
- (3) First / First
- (4) Second / Second

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

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

92. Which of the following is a non-weighted code in which when going from one code to other only one bit is changed?

Which of the following is a non-weighted code in which when going from one code to other only one bit is changed?

- (1) Excess-3 / Excess-3
- (2) BCD / BCD
- (3) Gray / GRAY
- (4) ASCII / ASCII

Correct Answer / सही उत्तर : (3) Gray / GRAY

Solution / हल : Correct option: Gray | सही विकल्प: GRAY

93. Convert 101110 into decimal notation ?

Convert 101110 into decimal notation ?

- (1) 44 / 44
- (2) 46 / 46
- (3) 72 / 72
- (4) 56 / 56%

Correct Answer / सही उत्तर : (2) 46 / 46

Solution / हल : Correct option: 46 | सही विकल्प: 46

94. Which of the following CPU registers contains the address of the next instruction to be executed?

Which of the following CPU registers contains the address of the next instruction to be executed?

- (1) Memory address / Memory address
- (2) Accumulator / Accumulator
- (3) Program / प्रोग्राम
- (4) Memory buffer register / Memory buffer register

Correct Answer / सही उत्तर : (3) Program / प्रोग्राम

Solution / हल : Correct option: Program | सही विकल्प: प्रोग्राम

95. In DOS, which of the following command is used to create or modify the volume level of a disk?

DOS में डिस्क का वॉल्यूम लेबल बनाने/बदलने हेतु कौन-सा कमांड प्रयोग होता है ?

- (1) CHKVOL.EXE H.C. Ald / CHKVOL.EXE H.C. Ald
- (2) VOL.EXE / VOL.EXE
- (3) MEM.EXE / MEM.EXE
- (4) LABEL.EXE / LABEL.EXE

Correct Answer / सही उत्तर : (4) LABEL.EXE / LABEL.EXE

Solution / हल : LABEL.EXE creates/modifies a disk's volume label in DOS. | DOS में LABEL.EXE डिस्क का वॉल्यूम लेबल बनाता/बदलता है।

SECTION E - MENTAL ABILITY / खण्ड E - मानसिक योग्यता

96. Saket has deposited a certain amount in the bank to earn compound interest at the rate of 10% per annum. The difference in the interests on the amounts in the third and in the second year is Rs. 24,200. What amount has Saket deposited ?

Saket has deposited a certain amount in the bank to earn compound interest at the rate of 10% per annum. The difference in the interests on the amounts in the third and in the second year is Rs. 24,200. What amount has Saket deposited ?

- (1) Rs. 2.10 lakhs / Rs. 2.10 lakhs
- (2) Rs. 2 lakhs / Rs. 2 lakhs
- (3) Rs. 219,000 / Rs. 219,000
- (4) Rs. 190,000 / Rs. 190,000

Correct Answer / सही उत्तर : (2) Rs. 2 lakhs / Rs. 2 lakhs

Solution / हल : Correct option: Rs. 2 lakhs | सही विकल्प: Rs. 2 lakhs

97. An article is marked up 40% higher than CP but it was sold x% on discount. The shopkeeper thus gains 12%. What would be the S.P. of the article with C.P. Rs. 120 and sold on x % profit ?

वस्तु CP से 40% अधिक अंकित पर x% छूट पर बेची गई व 12% लाभ हुआ। CP ₹120 व x% लाभ पर बेची जाए तो SP क्या होगा ?

- (1) Rs. 134.50 / ₹134.50
- (2) Rs. 128 / ₹128
- (3) Rs. 144 / ₹144
- (4) Rs. 148 / ₹148

Correct Answer / सही उत्तर : (3) Rs. 144 / ₹144

Solution / हल : SP at 12% profit on CP Rs.120 (40% markup) = Rs.144. | CP ₹120 (40% मार्कअप) पर 12% लाभ => SP = ₹144।

98. Pure milk costs Rs. 16 per litre. After adding water the milkman sells the mixture Rs. 15 per litre and thereby a profit of 25%. In what respective ratio does he mix milk with water?

Pure milk costs Rs. 16 per litre. After adding water the milkman sells the mixture Rs. 15 per litre and thereby a profit of 25%. In what respective ratio does he mix milk with water?

- (1) 3 : 1 / 31%
- (2) 3 : 2 / 32
- (3) 4 : 3 / 43%
- (4) 5 : 3 / 5 : 3

Correct Answer / सही उत्तर : (1) 3 : 1 / 31%

Solution / हल : Correct option: 3 : 1 | सही विकल्प: 31%

99. Pure milk costs Rs.20 per litre. After adding water the milkman sells the mixture at the rate of Rs.18 per litre, thereby making a profit of 25%. In what ratio does he mix the two?

Pure milk costs Rs.20 per litre. After adding water the milkman sells the mixture at the rate of Rs.18 per litre, thereby making a profit of 25%. In what ratio does he mix the two?

- (1) 12 : 5 / 12.5%
- (2) 18 : 7 / 18 : 7
- (3) 18 : 5 / 18 : 5
- (4) 12 : 7 / 12 : 7

Correct Answer / सही उत्तर : (2) 18 : 7 / 18 : 7

Solution / हल : Correct option: 18 : 7 | सही विकल्प: 18 : 7

100. What is the value of three fourth of sixty per cent of 480?

480 के साठ प्रतिशत का तीन-चौथाई क्या है ?

- (1) 216 / 216
- (2) 214 / 214
- (3) 212 / 212

(4) 218 / 218

Correct Answer / सही उत्तर : (1) 216 / 216

Solution / हल : $3/4 \times 60\% \times 480 = 0.75 \times 0.6 \times 480 = 216$. | $3/4 \times 60\% \times 480 = 216$.

