

UNIVERSITY OF LUCKNOW

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

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

MODEL PAPER - SET 11 / प्रतिदर्श प्रश्नपत्र - सेट 11

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 of the following functions is the only analytic function?

Which of the following functions is the only analytic function?

(1) $f(z) = \operatorname{Re}(iz) / f(z) = \operatorname{Re}(iz)$

(2) $f(z) = \sin(z) / f(z) = \sin(z)$

(3) $f(z) = \operatorname{Im}(z) / f(z) = \operatorname{Im}(z)$

(4) $f(z) = z / f(z) = z$

Correct Answer / सही उत्तर : (2) $f(z) = \sin(z) / f(z) = \sin(z)$

Solution / हल : Correct option: $f(z) = \sin(z)$ | सही विकल्प: $f(z) = \sin(z)$

2. Find the limit of the function $f(n) = 1$?

Find the limit of the function $f(n) = 1$?

(1) $2 / 2 : 1$

(2) $1 / 1 : 1, 1$

(3) $3 / 3 : 1$

(4) $0 / 0$

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

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

3. The ratio of the radius of two cylinders is 2:3 and the ratio of their heights is 5:3. The ratio of their volumes will be ?

The ratio of the radius of two cylinders is 2:3 and the ratio of their heights is 5:3. The ratio of their volumes will be ?

(1) $27 : 20 / 27 : 20$

(2) $4 : 9 / 49\%$

(3) $9 : 4 / 9 : 4$

(4) $20 : 27 = / 20 : 27 =$

Correct Answer / सही उत्तर : (4) $20 : 27 = / 20 : 27 =$

Solution / हल : Correct option: $20 : 27 =$ | सही विकल्प: $20 : 27 =$

4. If the subtraction of two roots is 2, of the $2x^2$ equation - $12x + m + 2 = 0$, then the value of m is ?

If the subtraction of two roots is 2, of the $2x^2$ equation - $12x + m + 2 = 0$, then the value of m is ?

(1) $m = 14 / m = 14$

(2) $m = 2 / m = 2$

(3) $m = / m =$

(4) $m = 7 / m = 7$

Correct Answer / सही उत्तर : (1) $m = 14 / m = 14$

Solution / हल : Correct option: $m = 14$ | सही विकल्प: $m = 14$

5. Topological space is ?

Topological space is ?

(1) Always / Always

(2) never / never

(3) Sometimes / Sometimes

(4) Vice-versa / Vice-versa

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

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

6. A system by a set of variables and a set of equations that establish relationships between the variables is ?

A system by a set of variables and a set of equations that establish relationships between the variables is ?

(1) Multivariate calculus / Multivariate calculus

(2) Algebra / Algebra

(3) Theory of real functions / Theory of real functions

(4) mathematical model / mathematical model

Correct Answer / सही उत्तर : (4) mathematical model / mathematical model

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

7. What is the order of the equation $d^2y/dx^2 + y = 0$?

What is the order of the equation $d^2y/dx^2 + y = 0$?

(1) 3 / 3 : 1

(2) 1 / 1 : 1

(3) 2 / 2 : 1

(4) 4 d^2y/dx^2 / 4 d^2y/dx^2

Correct Answer / सही उत्तर : (3) 2 / 2 : 1

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

8. Number of onto homomorphism from Klein's group to Symmetric group of order 4?

Number of onto homomorphism from Klein's group to Symmetric group of order 4?

(1) 3 / 3 : 1

(2) 2 / 2 : 1

(3) does not exist / does not exist

(4) 1 / 1 : 1

Correct Answer / सही उत्तर : (3) does not exist / does not exist

Solution / हल : Correct option: does not exist | सही विकल्प: does not exist

9. Let f and g be two uniformly continuous functions on interval I and also each function is bounded on I , then what can you say about product $f.g$?

Let f and g be two uniformly continuous functions on interval I and also each function is bounded on I , then what can you say about product $f.g$?

(1) $f.g$ is integrable / $f.g$ is integrable

(2) $f.g$ is continuous / $f.g$ is continuous

(3) $f.g$ is bounded / $f.g$ is bounded

(4) $f.g$ is uniformly continuous on \mathbb{R} / $f.g$ is uniformly continuous on \mathbb{R}

Correct Answer / सही उत्तर : (4) $f.g$ is uniformly continuous on \mathbb{R} / $f.g$ is uniformly continuous on \mathbb{R}

Solution / हल : Correct option: $f.g$ is uniformly continuous on \mathbb{R} | सही विकल्प: $f.g$ is uniformly continuous on \mathbb{R}

10. What is the maximum number of division used by the Euclidean algorithm to find the greatest common divisor of two positive integers 252 and 198?

What is the maximum number of division used by the Euclidean algorithm to find the greatest common divisor of two positive integers 252 and 198?

(1) 4 / 4 : 1

(2) 12 / 12%

(3) 36 / 36

(4) 16 / 16

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

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

11. Find the interior of $\{1, 2, 3, 4\}$?

Find the interior of $\{1, 2, 3, 4\}$?

(1) $\{3\}$ / 3 : 1

(2) empty / empty

(3) $\{2\}$ / 2 : 1

(4) $\{1\}$ / 1 : 1

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

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

12. A prime p can be written as the sum of two squares if ?

A prime p can be written as the sum of two squares if ?

(1) $p = 4$ or p / $p = 4$ or p

(2) $p = 3$ or p / $p = 3$ or p

(3) $p = 1$ or p / $p = 1$ or p

(4) $p = 2$ or p / $p = 2$ or p

Correct Answer / सही उत्तर : (4) $p = 2$ or p / $p = 2$ or p

Solution / हल : Correct option: $p = 2$ or p | सही विकल्प: $p = 2$ or p

13. If G is a finite group of order 217. Find out the number of generators of the group G ?

If G is a finite group of order 217. Find out the number of generators of the group G ?

(1) 188 / 188

(2) 182 / 182

(3) 181 / 181

(4) 180 / 180

Correct Answer / सही उत्तर : (4) 180 / 180

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

14. The radii of the ends of bucket of 16 cm height are 20 cm and 8 cm. Find the outer curved surface area of the bucket cm^2 cm^2 ?

The radii of the ends of bucket of 16 cm height are 20 cm and 8 cm. Find the outer curved surface area of the bucket cm^2 cm^2 ?

(1) $3120 \text{ cm}^2 \text{ cm}^2$ / $3120 \text{ cm}^2 \text{ cm}^2$

(2) 2240 / 2240

(3) 1760 / 1760

(4) 880 / 880

Correct Answer / सही उत्तर : (3) 1760 / 1760

Solution / हल : Correct option: 1760 | सही विकल्प: 1760

15. If $f(x,y) = (y - x)$ then $f(x,y)$ at point $(0,0)$ is ?

If $f(x,y) = (y - x)$ then $f(x,y)$ at point $(0,0)$ is ?

(1) Neither maximum nor minimum / Neither maximum nor minimum

(2) Relative Minimum / Relative Minimum

(3) Relative maximum / Relative maximum

(4) None of these above $x^2 - y^2$ / None of these above $x^2 - y^2$

Correct Answer / सही उत्तर : (3) Relative maximum / Relative maximum

Solution / हल : Correct option: Relative maximum | सही विकल्प: Relative maximum

16. If $n=30$, then the value is ?

If $n=30$, then the value is ?

(1) $8 \cdot 5n + 5n$ / $8 \cdot 5n + 5n$

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

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

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

17. The number of permutation can be made out of the letters word 'COMPUTER' as ?
The number of permutation can be made out of the letters word 'COMPUTER' as ?

- (1) 720 / 720
- (2) 10,080 / 10,080
- (3) 40,320 / 40,320
- (4) 5,040 / 5,040

Correct Answer / सही उत्तर : (3) 40,320 / 40,320

Solution / हल : Correct option: 40,320 | सही विकल्प: 40,320

18. A set T is compact if it has the property ?
A set T is compact if it has the property ?

- (1) Uniqued / Uniqued
- (2) Heine-borel / Heine-borel
- (3) Jaein-borel / Jaein-borel
- (4) Heine-corel / Heine-corel

Correct Answer / सही उत्तर : (2) Heine-borel / Heine-borel

Solution / हल : Correct option: Heine-borel | सही विकल्प: Heine-borel

19. The null space of A is the solution set of the equation ?
The null space of A is the solution set of the equation ?

- (1) Ax / Ax
- (2) Ax = b / Ax = b
- (3) Ax = 0 / Ax = 0
- (4) None of these / इनमें कोई नहीं

Correct Answer / सही उत्तर : (3) Ax = 0 / Ax = 0

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

20. If {x} and [x] represent fractional and integral part of x, then the value of [x] + {x+k} ?
If {x} and [x] represent fractional and integral part of x, then the value of [x] + {x+k} ?

- (1) 1000x / 1000x
- (2) x / x
- (3) 0 / 0
- (4) 1 / 1 : 1

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

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

21. and thus is a basis for 1 12 0 (b) 2 24 0 =24 ?
and thus is a basis for 1 12 0 (b) 2 24 0 =24 ?

- (1) 2 / 2 : 1
- (2) 0 / 0
- (3) None of these / इनमें कोई नहीं
- (4) 3 / 3 : 1

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

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

22. In how many ways can 5 ladies and 5 gentlemen be seated at a round table so that no two ladies are next two each other?

In how many ways can 5 ladies and 5 gentlemen be seated at a round table so that no two ladies are next to each other?

- (1) 720 / 720
- (2) 24 / 24
- (3) 120 / 120
- (4) 2880 / 2880

Correct Answer / सही उत्तर : (1) 720 / 720

Solution / हल : Correct option: 720 | सही विकल्प: 720

23. In engineering problems, there are some statements in which we have to use mathematical expression in terms of variable, function and equation, such expressions are termed as...?

In engineering problems, there are some statements in which we have to use mathematical expression in terms of variable, function and equation, such expressions are termed as...?

- (1) models of time / models of time
- (2) ring solutions / ring solutions
- (3) terms of continuity / terms of continuity
- (4) mathematical models / mathematical models

Correct Answer / सही उत्तर : (4) mathematical models / mathematical models

Solution / हल : Correct option: mathematical models | सही विकल्प: mathematical models

24. The general term of A.P. whose sum of n terms is given by $4n^2 + 3n$, is ?

The general term of A.P. whose sum of n terms is given by $4n^2 + 3n$, is ?

- (1) $8n$ / $8n$
- (2) $8n + 1$ / $8n + 1$
- (3) $6n$ / $6n$
- (4) $6n + 2$ / $6n + 2$

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

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

25. Find the simultaneous limit of function $y \sin(1/x)$?

Find the simultaneous limit of function $y \sin(1/x)$?

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

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

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

26. If $\theta = 4$, then the value of x ?

If $\theta = 4$, then the value of x ?

- (1) $\tan(\theta)$ / $\tan(\theta)$
- (2) $\tan(8)$ / $\tan(8)$
- (3) $\tan(2)$ / $\tan(2)$
- (4) $\tan(4)$ / $\tan(4)$

Correct Answer / सही उत्तर : (2) $\tan(8)$ / $\tan(8)$

Solution / हल : Correct option: $\tan(8)$ | सही विकल्प: $\tan(8)$

27. The theorem which allows us to translate difficult line integrals into more simple double integral is ?

The theorem which allows us to translate difficult line integrals into more simple double integral is ?

- (1) Green's theorem / Green's theorem
- (2) Cantor's theorem / Cantor's theorem
- (3) Stoke's theorem / Stoke's theorem

(4) Mean value theorem / Mean value theorem

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

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

28. Then Euclid's Division lemma gives $31513=dq+r$ & $34369=dq+r$ 1 2 ?

Then Euclid's Division lemma gives $31513=dq+r$ & $34369=dq+r$ 1 2 ?

(1) 0.3 / 0.3

(2) 1.9 / 1.9

(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

29. In how many ways can 12 balloons be distributed at a birthday party of 10 children?

In how many ways can 12 balloons be distributed at a birthday party of 10 children?

(1) 45 ways / 45 ways

(2) 55 ways / 55 ways

(3) 56 ways / 56 ways

(4) 48 ways / 48 ways

Correct Answer / सही उत्तर : (2) 55 ways / 55 ways

Solution / हल : Correct option: 55 ways | सही विकल्प: 55 ways

30. A group having no proper non subgroup is efpeme mecetn ?

A group having no proper non subgroup is efpeme mecetn ?

(1) none of / none of

(2) Normal / Normal

(3) Simple subgroup / Simple subgroup

(4) Abslian subgroup / Abslian subgroup

Correct Answer / सही उत्तर : (3) Simple subgroup / Simple subgroup

Solution / हल : Correct option: Simple subgroup | सही विकल्प: Simple subgroup

31. Which theorem states that,"Between any two distinct numbers, there lies at least on rational number and hence there lies many rational numbers ?

Which theorem states that,"Between any two distinct numbers, there lies at least on rational number and hence there lies many rational numbers ?

(1) Archimedean property / Archimedean property

(2) Density theorem / Density theorem

(3) Cantor's theorem / Cantor's theorem

(4) Hahn Banach theorem / Hahn Banach theorem

Correct Answer / सही उत्तर : (2) Density theorem / Density theorem

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

32. How many terms of the G.P. 3, , are 2 4 3069 needed to give the sum ?

How many terms of the G.P. 3, , are 2 4 3069 needed to give the sum ?

(1) 10 / 1, 0

(2) 9 / 9%

(3) 8 / 8

(4) None of these / इनमें कोई नहीं

Correct Answer / सही उत्तर : (1) 10 / 1, 0

Solution / हल : Correct option: 10 | सही विकल्प: 1, 0

33. X is a non-negative integer valued random ?

X is a non-negative integer valued random ?

- (1) 2 & 4 / 24
- (2) 2 & 2 / 22
- (3) 2 & 3 / 2.3%
- (4) 4 & 2 / 4 & 2

Correct Answer / सही उत्तर : (1) 2 & 4 / 24

Solution / हल : Correct option: 2 & 4 | सही विकल्प: 24

34. The perimeter of a triangle right angled at C is 70, and the in radius is 6. Then |a ?
The perimeter of a triangle right angled at C is 70, and the in radius is 6. Then |a ?

- (1) 2 / 2 : 1
- (2) 1 / 1 : 1
- (3) 8 / 8
- (4) 9 / 9%

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

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

35. For any event E, if $P(E) = 0.999$, find the value of $P(\text{not } E)$. ?
For any event E, if $P(E) = 0.999$, find the value of $P(\text{not } E)$. ?

- (1) None of these / इनमें कोई नहीं
- (2) 0.001 / 0.001
- (3) 0.1 / 0, 1
- (4) 0.01 / 0.01

Correct Answer / सही उत्तर : (2) 0.001 / 0.001

Solution / हल : Correct option: 0.001 | सही विकल्प: 0.001

36. Which of the following group is not normal under usual ring operation?
Which of the following group is not normal under usual ring operation?

- (1) 7 ssg / 7 ssg
- (2) 5 ssg / 5 ssg
- (3) 3 ssg / 3 ssg
- (4) 2 ssg / 2 ssg

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

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

37. dx $x=2$ 13. Find out the number of equivalence classes that $\{1,2,3\}$. can be defined by the set ?
dx $x=2$ 13. Find out the number of equivalence classes that $\{1,2,3\}$. can be defined by the set ?

- (1) 5 / 5
- (2) 125 / 12.5%
- (3) 72 / 72
- (4) 16 / 16

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

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

38. If $[x]$ represent the integral part of x , then the range of the function $y = [x^2]$?
If $[x]$ represent the integral part of x , then the range of the function $y = [x^2]$?

- (1) $\{1, 2\}$ / 12%
- (2) $\{0, 1\}$ / 0, 1
- (3) $\{0\}$ / 0
- (4) $\{0, 1, 2\}$ / $\{0, 1, 2\}$

Correct Answer / सही उत्तर : (4) $\{0, 1, 2\}$ / $\{0, 1, 2\}$

Solution / हल : Correct option: $\{0, 1, 2\}$ | सही विकल्प: $\{0, 1, 2\}$

39. In the following figure, O is the centre of the circle and D, E and F are the mid points of AB, BO and OA respectively. If ?

In the following figure, O is the centre of the circle and D, E and F are the mid points of AB, BO and OA respectively. If ?

- (1) 120 / 120
- (2) 90 / 90
- (3) 30 / 30
- (4) 60 / 60

Correct Answer / सही उत्तर : (4) 60 / 60

Solution / हल : Correct option: 60 | सही विकल्प: 60

40. The number of odd three-digit positive integers that have no repeated digits is ?

The number of odd three-digit positive integers that have no repeated digits is ?

- (1) 240 / 240
- (2) 320 / 320
- (3) 160 / 160
- (4) 128 / 128

Correct Answer / सही उत्तर : (2) 320 / 320

Solution / हल : Correct option: 320 | सही विकल्प: 320

SECTION B - PHYSICS / खण्ड B - भौतिक विज्ञान

41. Which of the following are coherent sources?

Which of the following are coherent sources?

- (1) A 60 Watt and a 100 Watt bulbs / A 60 Watt and a 100 Watt bulbs
- (2) Two bulbs of 60W each / Two bulbs of 60W each
- (3) Two virtual sources obtained by biprism / Two virtual sources obtained by biprism
- (4) Two halves of a 60 Watt bulbs / Two halves of a 60 Watt bulbs

Correct Answer / सही उत्तर : (3) Two virtual sources obtained by biprism / Two virtual sources obtained by biprism

Solution / हल : Correct option: Two virtual sources obtained by biprism | सही विकल्प: Two virtual sources obtained by biprism

42. The equation representing a stationary waves is : where symbols have their usual meanings.

$(\cos/2)\sin(kxt/2)$?

The equation representing a stationary waves is : where symbols have their usual meanings.

$(\cos/2)\sin(kxt/2)$?

- (1) $y=2y \sin kx \cos(t/2) \text{ m}$ / $y=2y \sin kx \cos(t/2) \text{ m}$
- (2) $y=y \text{ m} \cos(kxt+)$ / $y=y \text{ m} \cos(kxt+)$
- (3) $y=y \text{ m}$ / $y=y \text{ m}$
- (4) $y=2y \text{ m} \sin(kxt+)$ / $y=2y \text{ m} \sin(kxt+)$

Correct Answer / सही उत्तर : (1) $y=2y \sin kx \cos(t/2) \text{ m}$ / $y=2y \sin kx \cos(t/2) \text{ m}$

Solution / हल : Correct option: $y=2y \sin kx \cos(t/2) \text{ m}$ | सही विकल्प: $y=2y \sin kx \cos(t/2) \text{ m}$

43. Two resistances of 10 and 30 are parallelly connected in a circuit. Equivalent resistance of the circuit will be ?

Two resistances of 10 and 30 are parallelly connected in a circuit. Equivalent resistance of the circuit will be ?

- (1) 15 / 15%
- (2) 20 / 20
- (3) 40 / 40
- (4) 7.5 / 75

Correct Answer / सही उत्तर : (4) 7.5 / 75

Solution / हल : Correct option: 7.5 | सही विकल्प: 75

44. A satellite is revolving round the earth at a height of 600 km from the surface of earth. The speed of the satellite if (Radius of the earth = 6×10^4 km, mass of the earth : kg. 6.67×10^{24} N-m²/kg²) $G = ?$
A satellite is revolving round the earth at a height of 600 km from the surface of earth. The speed of the satellite if (Radius of the earth = 6×10^4 km, mass of the earth : kg. 6.67×10^{24} N-m²/kg²) $G = ?$

- (1) 11.00 km/s / 11.00 km/s
- (2) 4.92 km/s / 4.92 km/s
- (3) 9.00 km/s / 9.00 km/s
- (4) 7.60 km/s / 7.60 km/s

Correct Answer / सही उत्तर : (4) 7.60 km/s / 7.60 km/s

Solution / हल : Correct option: 7.60 km/s | सही विकल्प: 7.60 km/s

45. A sound wave of unknown frequency gives 10 beats with a wave of frequency 300 Hz and 15 beats with a wave of frequency 325 Hz. The frequency of unknown wave is ?
A sound wave of unknown frequency gives 10 beats with a wave of frequency 300 Hz and 15 beats with a wave of frequency 325 Hz. The frequency of unknown wave is ?

- (1) 310 Hz / 310 Hz
- (2) None of the above / इनमें कोई नहीं
- (3) 290 Hz / 290 Hz
- (4) 340 Hz / 340 Hz

Correct Answer / सही उत्तर : (1) 310 Hz / 310 Hz

Solution / हल : Correct option: 310 Hz | सही विकल्प: 310 Hz

46. Three charges each of q coulombs are placed at the three corners of a square with side ' a '. The magnitude of electric field intensity at the fourth corner is q ?
Three charges each of q coulombs are placed at the three corners of a square with side ' a '. The magnitude of electric field intensity at the fourth corner is q ?

- (1) $2\sqrt{2} + 18\pi a^2 0 q$ / $2\sqrt{2} + 18\pi a^2 0 q$
- (2) $2\sqrt{2} + 14\pi a^2 0 q$ / $2\sqrt{2} + 14\pi a^2 0 q$
- (3) $2 + 18\pi a^2$ / $2 + 18\pi a^2$
- (4) $2 + 14\pi a^2 0 q$ / $2 + 14\pi a^2 0 q$

Correct Answer / सही उत्तर : (1) $2\sqrt{2} + 18\pi a^2 0 q$ / $2\sqrt{2} + 18\pi a^2 0 q$

Solution / हल : Correct option: $2\sqrt{2} + 18\pi a^2 0 q$ | सही विकल्प: $2\sqrt{2} + 18\pi a^2 0 q$

47. Transmission of heat by molecular collision is ?

Transmission of heat by molecular collision is ?

- (1) Radiation / Radiation
- (2) Conduction / Conduction
- (3) Convection / Convection
- (4) Scattering / Scattering

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

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

48. If the earth stops rotating, the value of ' g ' at the equator will ?

If the earth stops rotating, the value of ' g ' at the equator will ?

- (1) None of the above / इनमें कोई नहीं
- (2) Increase / बढ़ती (Increase)
- (3) Remain same / Remain same
- (4) Decrease / Decrease

Correct Answer / सही उत्तर : (2) Increase / बढ़ती (Increase)

Solution / हल : Correct option: Increase | सही विकल्प: बढ़ती (Increase)

49. A parallel plate capacitor has two layers of different dielectrics as shown in figure. The ratio of potential difference across the dielectric layers when connected to the battery is $K K_a$?

A parallel plate capacitor has two layers of different dielectrics as shown in figure. The ratio of potential difference across the dielectric layers when connected to the battery is $K K_a$?

(1) $1 : 1 K_b$ / $1 : 1 K_b$

(2) $1 K K_b 2 2 K_a$ / $1 K K_b 2 2 K_a$

(3) $1 / 1 : 1$

(4) $2 / 2 : 1$

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

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

50. Kirchhoff's Laws are applicable to ?

Kirchhoff's Laws are applicable to ?

(1) None of the above / इनमें कोई नहीं

(2) AC only / AC only

(3) DC only / DC only

(4) AC and DC both / AC and DC both

Correct Answer / सही उत्तर : (4) AC and DC both / AC and DC both

Solution / हल : Correct option: AC and DC both | सही विकल्प: AC and DC both

51. Heat transfers by the process of convection occurs ?

Heat transfers by the process of convection occurs ?

(1) In solids, liquids and gases / In solids, liquids and gases

(2) Only in liquids / Only in liquids

(3) Only in solids / Only in solids

(4) Only in liquids and gases / Only in liquids and gases

Correct Answer / सही उत्तर : (4) Only in liquids and gases / Only in liquids and gases

Solution / हल : Correct option: Only in liquids and gases | सही विकल्प: Only in liquids and gases

52. The value of λ for which vectors $\hat{j} + 4\hat{k}$ and $i - \lambda$ are perpendicular is ?

The value of λ for which vectors $\hat{j} + 4\hat{k}$ and $i - \lambda$ are perpendicular is ?

(1) $7 / 7$

(2) $3 / 3 : 1$

(3) $10 / 1, 0$

(4) $14 / 14\%$

Correct Answer / सही उत्तर : (4) $14 / 14\%$

Solution / हल : Correct option: 14 | सही विकल्प: 14%

53. Two satellites A and B are revolving around the earth in the same orbit. Mass of B is thrice to that of A. Then the correct statement is ?

Two satellites A and B are revolving around the earth in the same orbit. Mass of B is thrice to that of A. Then the correct statement is ?

(1) None of the above / इनमें कोई नहीं

(2) speeds of A and B are greater / speeds of A and B are greater

(3) speeds of A and B are equal / speeds of A and B are equal

(4) P.E.s of A and B are equal / P.E.s of A and B are equal

Correct Answer / सही उत्तर : (3) speeds of A and B are equal / speeds of A and B are equal

Solution / हल : Correct option: speeds of A and B are equal | सही विकल्प: speeds of A and B are equal

54. The number of cardinal points in a thin lens is ?

The number of cardinal points in a thin lens is ?

- (1) zero / शून्य
- (2) three / तीन
- (3) two / दो (Two)
- (4) six / छह

Correct Answer / सही उत्तर : (4) six / छह

Solution / हल : Correct option: six | सही विकल्प: छह

55. At a given temperature, mean free path of a gas is ?

At a given temperature, mean free path of a gas is ?

- (1) None of the above / इनमें कोई नहीं
- (2) Independent of pressure / दाब से स्वतंत्र
- (3) Directly proportional to the pressure / Directly proportional to the pressure
- (4) Inversely proportional to the pressure / Inversely proportional to the pressure

Correct Answer / सही उत्तर : (4) Inversely proportional to the pressure / Inversely proportional to the pressure

Solution / हल : Correct option: Inversely proportional to the pressure | सही विकल्प: Inversely proportional to the pressure

56. In above velocity-time graph of a particle, the distance covered in first 4 seconds is ?

In above velocity-time graph of a particle, the distance covered in first 4 seconds is ?

- (1) Zero / शून्य
- (2) 16m / 16m
- (3) 20m / 20m
- (4) 12m / 12m

Correct Answer / सही उत्तर : (2) 16m / 16m

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

57. If the diameter of a capillary tube is increased by two times, then the height of liquid rise in it will be ?

If the diameter of a capillary tube is increased by two times, then the height of liquid rise in it will be ?

- (1) half / half
- (2) remains same / remains same
- (3) two times / दो गुना
- (4) one-fourth / one-fourth

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

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

58. A spectral line appearing at a wavelength of 5000 in the laboratory is observed as 5500 in the spectrum of light coming from a distant galaxy. The recessional velocity of the galaxies is The velocity of light is 3×10^{10} cm/sec ?

A spectral line appearing at a wavelength of 5000 in the laboratory is observed as 5500 in the spectrum of light coming from a distant galaxy. The recessional velocity of the galaxies is The velocity of light is 3×10^{10} cm/sec ?

- (1) 0.5×10^9 cm/sec / 0.5×10^9 cm/sec
- (2) 2×10^9 cm/sec / 2×10^9 cm/sec
- (3) 3×10^9 cm/sec / 3×10^9 cm/sec
- (4) 1×10^9 cm/sec / 1×10^9 cm/sec

Correct Answer / सही उत्तर : (3) 3×10^9 cm/sec / 3×10^9 cm/sec

Solution / हल : Correct option: 3×10^9 cm/sec | सही विकल्प: 3×10^9 cm/sec

59. The velocity of an electron, whose mass is ten times its rest mass, is 3.3×10^8 ?

The velocity of an electron, whose mass is ten times its rest mass, is 3.3×10^8 ?

- (1) ten times the velocity of light / ten times the velocity of light
 (2) m/sec 2.98×10^8 / m/sec 2.98×10^8
 (3) m/sec / m/sec
 (4) m/sec 4.2×10^7 / m/sec 4.2×10^7

Correct Answer / सही उत्तर : (4) m/sec 4.2×10^7 / m/sec 4.2×10^7

Solution / हल : Correct option: m/sec 4.2×10^7 | सही विकल्प: m/sec 4.2×10^7

60. A 10 V battery of negligible internal resistance is connected to 50 ohm resistance coil. The heat energy produced in 1 hour in joules will be ?

A 10 V battery of negligible internal resistance is connected to 50 ohm resistance coil. The heat energy produced in 1 hour in joules will be ?

- (1) 4500 J / 4500 J
 (2) 8000 J / 8000 J
 (3) 7200 J / 7200 J
 (4) 6500 J / 6500 J

Correct Answer / सही उत्तर : (3) 7200 J / 7200 J

Solution / हल : Correct option: 7200 J | सही विकल्प: 7200 J

SECTION C - CHEMISTRY / खण्ड C - रसायन विज्ञान

61. Cheese is an example ?

पनीर किसका उदाहरण है ?

- (1) Liquid in solid / ठोस में द्रव
 (2) Gas in solid / ठोस में गैस
 (3) Solid in solid / ठोस में ठोस
 (4) Solid in liquid / द्रव में ठोस

Correct Answer / सही उत्तर : (1) Liquid in solid / ठोस में द्रव

Solution / हल : Cheese is an example of liquid dispersed in solid. | पनीर ठोस में परिक्षेपित द्रव का उदाहरण है।

62. In hydrogen peroxide, the hybridization involved in oxygen atoms is ?

हाइड्रोजन परॉक्साइड में ऑक्सीजन परमाणुओं में कौन-सा संकरण होता है ?

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

Correct Answer / सही उत्तर : (2) sp³ / sp³

Solution / हल : In hydrogen peroxide, oxygen atoms are sp³ hybridised. | हाइड्रोजन परॉक्साइड में ऑक्सीजन sp³ संकरित होता है।

63. What is the temporary hardness of water if water contains 7.3 ?

यदि जल में 7.3 ... हो तो जल की अस्थायी कठोरता कितनी है ?

- (1) 25 mg / 25 mg
 (2) 20 mg / 20 mg
 (3) 15 mg / 15 mg
 (4) 35 mg / 35 mg

Correct Answer / सही उत्तर : (3) 15 mg / 15 mg

Solution / हल : Temporary hardness here is 15 mg. | यहाँ अस्थायी कठोरता 15 mg है।

64. Radical stabilization in free radicals is defined by _____ ?

मुक्त मूलकों में मूलक स्थायीकरण किससे परिभाषित होता है ?

- (1) C-H bond dissociation energy / C-H बंध वियोजन ऊर्जा
 (2) C-H bond enthalpy / C-H बंध एन्थैल्पी

(3) C-C bond enthalpy / C-C बंध एन्थैल्पी

(4) C-C bond dissociation energy / C-C बंध वियोजन ऊर्जा

Correct Answer / सही उत्तर : (1) C-H bond dissociation energy / C-H बंध वियोजन ऊर्जा

Solution / हल : Radical stability is defined by C-H bond dissociation energy. | मूलक स्थायित्व C-H बंध वियोजन ऊर्जा से परिभाषित है।

65. In Ion exchange method, study of which factor helps in determination of stability constant of complexes in solution?

आयन विनिमय विधि में किस कारक का अध्ययन विलयन में संकुलों के स्थायित्व स्थिरांक निर्धारण में सहायक है ?

(1) Heterogeneous equilibrium / विषमांगी साम्य

(2) Polarizability / ध्रुवणता

(3) Solubility / विलेयता

(4) Conductivity / चालकता

Correct Answer / सही उत्तर : (1) Heterogeneous equilibrium / विषमांगी साम्य

Solution / हल : Heterogeneous equilibrium study in ion-exchange gives stability constants. | आयन विनिमय में विषमांगी साम्य अध्ययन से स्थायित्व स्थिरांक मिलता है।

66. Which of the following metal hydrides has the crystal structure of rutile?

निम्नलिखित में किस धातु हाइड्राइड की रुटाइल क्रिस्टल संरचना है ?

(1) BaH₂ / BaH₂

(2) LiH / LiH

(3) MgH / MgH₂

(4) NaH / NaH

Correct Answer / सही उत्तर : (3) MgH / MgH₂

Solution / हल : MgH₂ has a rutile crystal structure. | MgH₂ की रुटाइल क्रिस्टल संरचना होती है।

67. In order to synthesize phenylalanine by Gabriel's phthalimide method, it needs potassium phthalimide and an ester ?

गैब्रिएल थैलिमाइड विधि से फेनिलएलानीन बनाने हेतु पोटैशियम थैलिमाइड व कौन-सा एस्टर चाहिए ?

(1) phenylacetic acid / फेनिलएसीटिक अम्ल

(2) 2-chlorophenylacetic acid / 2-क्लोरोफेनिलएसीटिक अम्ल

(3) 3-phenylpropanoic acid / 3-फेनिलप्रोपेनोइक अम्ल

(4) 2-chloro-3-phenylpropanoic acid / 2-क्लोरो-3-फेनिलप्रोपेनोइक अम्ल

Correct Answer / सही उत्तर : (4) 2-chloro-3-phenylpropanoic acid / 2-क्लोरो-3-फेनिलप्रोपेनोइक अम्ल

Solution / हल : Gabriel synthesis of phenylalanine needs 2-chloro-3-phenylpropanoic ester. | गैब्रिएल विधि से फेनिलएलानीन हेतु 2-क्लोरो-3-फेनिलप्रोपेनोइक एस्टर चाहिए।

68. Which of the following is not a basic amino acid?

निम्नलिखित में कौन क्षारकीय अमीनो अम्ल नहीं है ?

(1) Serine / सेरीन

(2) Arginine / आर्जिनीन

(3) Asparagine / एस्पैरेजीन

(4) Glutamine / ग्लूटामीन

Correct Answer / सही उत्तर : (1) Serine / सेरीन

Solution / हल : Serine is not a basic amino acid. | सेरीन क्षारकीय अमीनो अम्ल नहीं है।

69. Catalyst used in Haber-Bosch process for making NH₃ is _____ ?

NH₃ बनाने हेतु हैबर-बॉश प्रक्रिया में प्रयुक्त उत्प्रेरक कौन-सा है ?

(1) FeSO / FeSO₄

(2) Pt / Pt

(3) MnO / MnO₂

(4) Promoted Fe / प्रोमोटेड Fe

Correct Answer / सही उत्तर : (4) Promoted Fe / प्रोमोटेड Fe

Solution / हल : Promoted iron (Fe) is the catalyst in the Haber-Bosch process. | हैबर-बॉश में प्रोमोटेड लोहा (Fe) उत्प्रेरक है।

70. Carbon tetrachloride is a commonly used liquid in fire extinguishers to combat small fires. This is because ?

कार्बन टेट्राक्लोराइड अग्निशामक में प्रयुक्त होता है क्योंकि ?

(1) it is made up of only covalent bonds / यह केवल सहसंयोजक बंधों का बना है

(2) its vapors are non-poisonous / इसके वाष्प अविषैले हैं

(3) it has low melting point and boiling point / इसका गलनांक व क्वथनांक कम है

(4) it has no flash point and non- inflammable / इसका कोई फ्लैश बिंदु नहीं व अज्वलनशील है

Correct Answer / सही उत्तर : (4) it has no flash point and non- inflammable / इसका कोई फ्लैश बिंदु नहीं व अज्वलनशील है

Solution / हल : CCl₄ is used in fire extinguishers as it has no flash point and is non-inflammable. | CCl₄ अग्निशामक में प्रयुक्त होता है क्योंकि इसका फ्लैश बिंदु नहीं व अज्वलनशील है।

71. Solids CaCO₃ and CaO and CO gas are kept in a closed vessel and allowed to reach equilibrium. The quantity of CaO in the vessel could be increased ?

CaCO₃, CaO व CO₂ बंद पात्र में साम्य पर हैं — CaO की मात्रा कैसे बढ़ाई जा सकती है ?

(1) lowering the temperature / ताप घटाकर

(2) reducing the volume of the vessel / पात्र का आयतन घटाकर

(3) adding more of CaCO₃ / अधिक CaCO₃ मिलाकर

(4) removing some of CO gas / कुछ CO₂ गैस हटाकर

Correct Answer / सही उत्तर : (4) removing some of CO gas / कुछ CO₂ गैस हटाकर

Solution / हल : CaO increases by removing some CO₂ gas (shifting equilibrium). | कुछ CO₂ हटाकर CaO बढ़ाया जा सकता है (साम्य खिसकना)।

72. Molar conductance, specific conductance ____ ?

मोलर चालकता व विशिष्ट चालकता क्रमशः ____ ?

(1) decreases, decreases / घटती, घटती

(2) increases, decreases / बढ़ती, घटती

(3) increases, increases / बढ़ती, बढ़ती

(4) decreases, increases / घटती, बढ़ती

Correct Answer / सही उत्तर : (2) increases, decreases / बढ़ती, घटती

Solution / हल : On dilution molar conductance increases while specific conductance decreases. | तनुकरण पर मोलर चालकता बढ़ती व विशिष्ट चालकता घटती है।

73. A five-carbon ketose is known as:

पाँच-कार्बन कीटोस को क्या कहते हैं ?

(1) Ribose / राइबोज

(2) Pentulose / पेंटुलोस

(3) Ketohehexose / कीटोहेक्सोस

(4) Arabinose / अरेबिनोज

Correct Answer / सही उत्तर : (2) Pentulose / पेंटुलोस

Solution / हल : A five-carbon ketose is a pentulose. | पाँच-कार्बन कीटोस पेंटुलोस है।

74. Which of the following has the largest dipole moment?

निम्नलिखित में किसका द्विध्रुव आघूर्ण सर्वाधिक है ?

(1) HCl / HCl

(2) HBr / HBr

(3) HF / HF

(4) HI / HI

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

Solution / हल : HF has the largest dipole moment. | HF का द्विध्रुव आघूर्ण सर्वाधिक है।

75. Reaction of alkyne with a solution of an alkali metal in liquid ammonia gives: lejeu ?

एल्काइन की क्षार धातु के द्रव अमोनिया विलयन से अभिक्रिया क्या देती है ?

(1) Cis alkene / सिस एल्कीन

(2) Alkane / एल्केन

(3) Primary amine / प्राथमिक ऐमीन

(4) Trans alkene / ट्रांस एल्कीन

Correct Answer / सही उत्तर : (4) Trans alkene / ट्रांस एल्कीन

Solution / हल : Alkyne with alkali metal in liquid ammonia gives trans-alkene. | एल्काइन + क्षार धातु/द्रव अमोनिया ट्रांस-एल्कीन देता है।

76. In group II B, which metal has greater tendency to form coordination compound?

समूह IIB में किस धातु में उपसहसंयोजन यौगिक बनाने की प्रवृत्ति अधिक है ?

(1) Hg / Hg

(2) Zn / Zn

(3) Both Zn and Cd / Zn व Cd दोनों

(4) Cd / Cd

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

Solution / हल : Among group IIB, Hg has the greatest tendency to form complexes. | समूह IIB में Hg में संकुल बनाने की प्रवृत्ति सर्वाधिक है।

77. Peptization is a process ?

पेप्टीकरण किस प्रक्रिया को कहते हैं ?

(1) dispersing precipitates into colloidal solution / अवक्षेपों को कोलॉइडी विलयन में परिक्षेपित करना

(2) protection of colloidal solution / कोलॉइडी विलयन की रक्षा

(3) purification of colloids / कोलॉइड का शोधन

(4) precipitation of colloidal particles / कोलॉइडी कणों का अवक्षेपण

Correct Answer / सही उत्तर : (1) dispersing precipitates into colloidal solution / अवक्षेपों को कोलॉइडी विलयन में परिक्षेपित करना

Solution / हल : Peptization disperses precipitates into a colloidal solution. | पेप्टीकरण अवक्षेपों को कोलॉइडी विलयन में परिक्षेपित करता है।

78. The reducing agent used in the conversion ?

रूपांतरण में प्रयुक्त अपचायक कौन-सा है ?

(1) Stephen's reagent / Stephen's अभिकर्मक

(2) Raney Nickel / रैने निकेल

(3) Wittig's reagent / Wittig अभिकर्मक

(4) Tollen's reagent / Tollen's अभिकर्मक

Correct Answer / सही उत्तर : (1) Stephen's reagent / Stephen's अभिकर्मक

Solution / हल : Stephen's reagent (SnCl₂/HCl) is the reducing agent used. | प्रयुक्त अपचायक Stephen's अभिकर्मक (SnCl₂/HCl) है।

79. What is the shape of IF₄⁺?

IF₄⁺ की आकृति क्या है ?

(1) Sea-saw / सी-सॉ

(2) Tetrahedral / चतुष्फलकीय

(3) Square planar / वर्ग समतलीय

(4) Bent / बेंट

Correct Answer / सही उत्तर : (1) Sea-saw / सी-साँ

Solution / हल : IF_4+ has a see-saw shape. | IF_4+ की आकृति सी-साँ है।

80. Which of the following is an antacid?

निम्नलिखित में कौन प्रतिअम्ल (antacid) है ?

(1) Both Cimetidine & Omeprazole / सिमेटिडीन व ओमेप्राज़ोल दोनों

(2) Cimetidine / सिमेटिडीन

(3) Omeprazole / ओमेप्राज़ोन

(4) Novwstrol / नोवस्ट्रॉल

Correct Answer / सही उत्तर : (1) Both Cimetidine & Omeprazole / सिमेटिडीन व ओमेप्राज़ोल दोनों

Solution / हल : Both cimetidine and omeprazole are antacids. | सिमेटिडीन व ओमेप्राज़ोल दोनों प्रतिअम्ल हैं।

81. Benzene reacts with bromine in presence of Iron(III) bromide as a catalyst to form _____ ?

बेन्जीन $Fe(III)$ ब्रोमाइड उत्प्रेरक की उपस्थिति में ब्रोमीन से अभिक्रिया कर क्या बनाता है ?

(1) Only HBr / केवल HBr

(2) Only bromobenzene / केवल ब्रोमोबेन्जीन

(3) No reaction at all / कोई अभिक्रिया नहीं

(4) Bromobenzene and HBr / ब्रोमोबेन्जीन व HBr

Correct Answer / सही उत्तर : (4) Bromobenzene and HBr / ब्रोमोबेन्जीन व HBr

Solution / हल : Benzene + Br_2 with $FeBr_3$ gives bromobenzene and HBr. | बेन्जीन + Br_2 ($FeBr_3$ सहित) ब्रोमोबेन्जीन व HBr देता है।

82. What does a bacteriostatic drug do?

जीवाणुस्थैतिक (bacteriostatic) औषधि क्या करती है ?

(1) It inhibits the growth of bacteria / जीवाणु वृद्धि रोकती है

(2) It kills bacteria / जीवाणु मारती है

(3) It does not react with bacteria / जीवाणु से क्रिया नहीं करती

(4) It increases the growth of bacteria / जीवाणु वृद्धि बढ़ाती है

Correct Answer / सही उत्तर : (1) It inhibits the growth of bacteria / जीवाणु वृद्धि रोकती है

Solution / हल : A bacteriostatic drug inhibits the growth of bacteria. | जीवाणुस्थैतिक औषधि जीवाणु वृद्धि रोकती है।

83. Which of the following ions have magnetic moment as 7.9 BM?

निम्नलिखित में किस आयन का चुंबकीय आघूर्ण 7.9 BM है ?

(1) Eu^{3+} / Eu^{3+}

(2) Ce^{4+} / Ce^{4+}

(3) Yb^{2+} / Yb^{2+}

(4) Gd^{3+} / Gd^{3+}

Correct Answer / सही उत्तर : (4) Gd^{3+} / Gd^{3+}

Solution / हल : Gd^{3+} (f^7) has a magnetic moment of 7.9 BM. | Gd^{3+} (f^7) का चुंबकीय आघूर्ण 7.9 BM है।

84. Which of the following ?

निम्नलिखित में कौन-सा बल सबसे दुर्बल है ?

(1) Hydrogen bonds / हाइड्रोजन बंध

(2) Ionic bonds and Hydrogen bonds / आयनिक व हाइड्रोजन बंध

(3) Vander walls attraction / वान डर वाल आकर्षण

(4) Ionic bonds / आयनिक बंध

Correct Answer / सही उत्तर : (3) Vander walls attraction / वान डर वाल आकर्षण

Solution / हल : Van der Waals attraction is the weakest of these forces. | वान डर वाल आकर्षण इनमें सबसे दुर्बल है।

85. The place of the DNA at which it interacts with macromolecules is called: DNA ?

DNA का वह स्थान जहाँ यह वृहदाणुओं से क्रिया करता है, क्या कहलाता है ?

- (1) Minor groove / माइनर ग्रूव
- (2) Major groove / मेजर ग्रूव
- (3) Base pairs / क्षारक युग्म
- (4) Deoxy ribose rings / डीऑक्सी राइबोज वलय

Correct Answer / सही उत्तर : (2) Major groove / मेजर ग्रूव

Solution / हल : DNA interacts with macromolecules at the major groove. | DNA वृहदाणुओं से मेजर ग्रूव पर क्रिया करता है।

SECTION D - COMPUTER / खण्ड D - कंप्यूटर

86. Which of the following is NOT an internal part of the computer?

निम्नलिखित में कौन कंप्यूटर का आंतरिक भाग नहीं है ?

- (1) Video drive / वीडियो ड्राइव
- (2) Flash / फ्लैश
- (3) card / कार्ड
- (4) Motherboard / मदरबोर्ड

Correct Answer / सही उत्तर : (2) Flash / फ्लैश

Solution / हल : Flash (drive) is not an internal part of the computer. | फ्लैश (ड्राइव) कंप्यूटर का आंतरिक भाग नहीं है।

87. The integrated circuit connected to every major part of a computer is called as _____. keeb ?

The integrated circuit connected to every major part of a computer is called as _____. keeb ?

- (1) ROM / ROM
- (2) Motherboard / मदरबोर्ड
- (3) CPU / CPU
- (4) Monitor / मॉनिटर

Correct Answer / सही उत्तर : (2) Motherboard / मदरबोर्ड

Solution / हल : Correct option: Motherboard | सही विकल्प: मदरबोर्ड

88. The 2's complement of the binary number (10000000) is 2 ef ?

The 2's complement of the binary number (10000000) is 2 ef ?

- (1) (10000000) / 10000000
- (2) (01010101) 2 / (01010101) 2
- (3) (10101010) 2 / (10101010) 2
- (4) (01111111) / (01111111)

Correct Answer / सही उत्तर : (1) (10000000) / 10000000

Solution / हल : Correct option: (10000000) | सही विकल्प: 10000000

89. Which of the following are the two components ?

Which of the following are the two components ?

- (1) ALU and Bus / ALU and Bus
- (2) Control unit and / Control unit and
- (3) Control unit and Bus / Control unit and Bus
- (4) Registers and Main memory jefpem / Registers and Main memory jefpem

Correct Answer / सही उत्तर : (3) Control unit and Bus / Control unit and Bus

Solution / हल : Correct option: Control unit and Bus | सही विकल्प: Control unit and Bus

90. The operating system is the most common type of software. Dee@hejsef ?

The operating system is the most common type of software. Dee@hejsef ?

- (1) Communication / Communication
- (2) Application / Application
- (3) System / System
- (4) Word-processing / Word-processing

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

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

91. Desktop computers, laptop computers, tablets and smartphones are different types of : [smke ?
Desktop computers, laptop computers, tablets and smartphones are different types of :
[smke ?

- (1) Micro / Micro
- (2) Mainframe Computers / Mainframe Computers
- (3) Mini Computers / मिनीकंप्यूटर
- (4) Super Computers / Super Computers

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

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

92. is a supplementary memory system which stores frequently used instructions and data for quicker processing.Ske ?
is a supplementary memory system which stores frequently used instructions and data for quicker processing.Ske ?

- (1) Register / रजिस्टर
- (2) Hard disk / हार्ड डिस्क
- (3) RAM / RAM
- (4) Cache memory / कैश मेमोरी

Correct Answer / सही उत्तर : (4) Cache memory / कैश मेमोरी

Solution / हल : Correct option: Cache memory | सही विकल्प: कैश मेमोरी

93. Which of the following is NOT a table relationship?
निम्नलिखित में कौन-सा टेबल संबंध नहीं है ?

- (1) One-to-key / वन-टू-की
- (2) Many-to-many / मैनी-टू-मैनी
- (3) One-to-many / वन-टू-मैनी
- (4) One-to-one / वन-टू-वन

Correct Answer / सही उत्तर : (1) One-to-key / वन-टू-की

Solution / हल : One-to-key is not a valid table relationship. | वन-टू-की मान्य टेबल संबंध नहीं है।

94. Which company manufactured the first 4004?
Which company manufactured the first 4004?

- (1) INTEL Corporation / INTEL Corporation
- (2) ENOcean Private Company / ENOcean Private Company
- (3) NVIDIA / NVIDIA
- (4) PLX Devices / PLX Devices

Correct Answer / सही उत्तर : (1) INTEL Corporation / INTEL Corporation

Solution / हल : Correct option: INTEL Corporation | सही विकल्प: INTEL Corporation

95. Android is an operating system based on Sb[^eF[Dee@hejsef ?
Android is an operating system based on Sb[^eF[Dee@hejsef ?

- (1) MS-Word / MS-Word
- (2) IBM / IBM
- (3) Linux / Linux

(4) Windows / Windows

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

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

SECTION E - MENTAL ABILITY / खण्ड E - मानसिक योग्यता

96. Gauri went to the stationery and bought things worth Rs.25, out of which 30 paise went on sales tax on taxable purchases. If the tax rate was 6%, then what was the cost of the tax free items? (?

गौरी ने ₹25 का सामान खरीदा, जिसमें 30 पैसे कर-योग्य खरीद पर बिक्री कर गया। यदि कर दर 6% थी, तो कर-मुक्त वस्तुओं की लागत क्या थी ?

(1) Rs.19.70 / ₹19.70

(2) Rs.15 / ₹15

(3) Rs.15.70 / ₹15.70

(4) Rs.20 / ₹20

Correct Answer / सही उत्तर : (1) Rs.19.70 / ₹19.70

Solution / हल : Tax 30 paise at 6% => taxable Rs.5; tax-free items = Rs.19.70. | 30 पैसे कर 6% पर => कर-योग्य ₹5; कर-मुक्त = ₹19.70।

97. A 360-metre-long train crosses a platform in 120 seconds. What is the speed of the train?

A 360-metre-long train crosses a platform in 120 seconds. What is the speed of the train?

(1) 4.5 m/s / 4.5 m/s

(2) 5 m/s / 5 m/s

(3) Cannot be determined / निर्धारित नहीं

(4) 3 m/s / 3 m/s

Correct Answer / सही उत्तर : (3) Cannot be determined / निर्धारित नहीं

Solution / हल : Correct option: Cannot be determined | सही विकल्प: निर्धारित नहीं

98. In one litre of mixture of alcohol and water, 30% is water. The amount of alcohol that must be added to the mixture, So that the part of water in the mixture becomes 12.5%, is: (?

In one litre of mixture of alcohol and water, 30% is water. The amount of alcohol that must be added to the mixture, So that the part of water in the mixture becomes 12.5%, is: (?

(1) 1700 ml / 1700 ml

(2) 1400 ml / 1400 ml

(3) 900 ml / 900 ml

(4) 1300 ml / 1300 ml

Correct Answer / सही उत्तर : (2) 1400 ml / 1400 ml

Solution / हल : Correct option: 1400 ml | सही विकल्प: 1400 ml

99. Sujata scored 2240 marks in an examination that is 128 marks more than the minimum passing percentage of 64%. What is the percentage of marks obtained by Meena if she scores 907 marks less than Sujata?

Sujata scored 2240 marks in an examination that is 128 marks more than the minimum passing percentage of 64%. What is the percentage of marks obtained by Meena if she scores 907 marks less than Sujata?

(1) 35 / 3.5%

(2) 36 / 36

(3) 45 / 45

(4) 40 / 40

Correct Answer / सही उत्तर : (4) 40 / 40

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

100. In an examination, the maximum aggregate marks are 1020. In order to pass the exam a student is required to obtain 663 marks out of the aggregate marks. Shreya obtained 612 marks. By what percent did Shreya fail the exam?

परीक्षा में अधिकतम कुल अंक 1020 हैं। पास होने हेतु 663 अंक चाहिए। श्रेया ने 612 अंक पाए। वह कितने प्रतिशत से फेल हुई ?

- (1) 5% / 5
- (2) Cannot be determined / निर्धारित नहीं
- (3) 7% / 7
- (4) 8% / 8

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

Solution / हल : Shreya needed 663, got 612; shortfall 51 = 5% of 1020. | श्रेया को 663 चाहिए थे, मिले 612; कमी 51 = 1020 का 5%।

