LPUNEST 2025 Question Paper

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1. 10^{-6} **M NaOH is diluted 100 times. The pH of the diluted base is:**

(A) between 7 and 8

(B) between 5 and 6

(C) between 6 and 7

(D) between 10 and 11

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2. In the electrolysis of acidulated water, it is desired to obtain 1.12 **cc of hydrogen per second under STP condition. The current to be passed is:**

(A) 1.93 A

(B) 9.65 A

(C) 19.3 A

(D) 0.965 A

---

3. The one which decreases with dilution is:

(A) molar conductance

(B) conductance

(C) specific conductance

(D) equivalent conductance

---

4. Vapour pressure of pure 'A' is 70 **mm of Hg at** 25°C**. It forms an ideal solution with 'B' in which mole fraction of A is** 0.8**. If the vapour pressure of the solution is** 84 **mm of Hg at** 25°C**, the vapour pressure of pure 'B' at** 25°C **is:**

(A) 28 mm

(B) 56 mm

(C) 70 mm

(D) 140 mm

5. A 6% solution of urea is isotonic with:

(A) 1 M solution of glucose

(B) 0.05 M solution of glucose

(C) 6% solution of glucose

(D) 25% solution of glucose

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6. In countries nearer to polar region, the roads are sprinkled with $CaCl_2$. This is:

(A) to minimise the wear and tear of the roads

(B) to minimise the snow fall

(C) to minimise pollution

(D) to minimise the accumulation of dust on the road

---

7. A compound of 'A' and 'B' crystallises in a cubic lattice in which 'A' atoms occupy the lattice points at the corners of the cube. The 'B' atoms occupy the centre of each face of the cube. The probable empirical formula of the compound is:

(A) AB_2

(B) A_2B

(C) AB

(D) AB_3

---

8. In electrophilic aromatic substitution reaction, the nitro group is meta directing because it:

(A) decreases electron density at ortho and para positions

(B) decreases electron density at meta position

(C) increases electron density at meta position

(D) increases electron density at ortho and para position

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9. The best method for the conversion of an alcohol into an alkyl chloride is by treating the alcohol with:

(A) PCl_5

(B) PCl_3

(C) $SOCl_2$ in presence of pyridine

(D) dry HCl in the presence of anhydrous $ZnCl_2$

---

10. The carbon bond length in benzene is:

(A) in between C_2H_6 and C_2H_4

(B) same as in C_2H_4

(C) in between C_2H_6 and C_2H_2

(D) in between C_2H_4 and C_2H_2

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11. I go to Madurai by —— Vaigai Express.

(A) a

(B) an

(C) some

(D) the

Passage : Direction : The five items in this section consist of a word or group of words followed by four words as (a), (b), (c) and (d). Select the word which is nearly opposite to the meaning of the original word or group of words and mark your response as (a), (b), (c) and (d), as the case may be, in your Answer Sheet.

12. Assets

(A) liabilities

(B) responsibilities

(C) estates

(D) profits

Passage : Direction : In the question, out of the four alternatives, choose the word which is opposite in meaning to the given word and click the button corresponding to it.

13. Affidavit

(A) Affirmation

(B) Slander

(C) Oath

(D) Testimony

Passage : Direction: In the following question, out of the four alternatives, choose the word which is opposite in meaning to the given word and click the button corresponding to it.

14. Atheist

(A) Skeptic

(B) Pagan

(C) Disciple

(D) Agnostic

Passage : Direction: A passage is given with question following it. Read the passage carefully and choose the best answer to the question out of the four alternatives and click the button corresponding to it.

Passage

The. . . . . of gurudakshina is very ancient and it is . . . . . to the Indian culture and tradition. If you are absolutely . . . . . about India, then it's advisable that you first try to understand the meaning of a guru and the ..... of his presence in you to understand what gurudakshina is. In ancient India, a teacher or a guru was a spiritually ..... guide.

15. The..... of gurudakshina is very ancient.

(A) habit

(B) approach

(C) perception

(D) concept

Passage : Direction: A passage is given with question following it. Read the passage carefully and choose the best answer to the question out of the four alternatives and click the button corresponding to it.

Passage

Some languages are used by a few people. Others, such as Mandarin Chinese and English, are spoken by millions. Many people speak two or more languages. They may use one language at home with family and friends and other at work or school. Regional variations of language are known as dialects. The Anglo-Saxons, who conquered Britain at the end of the Roman Empire, spoke a Germanic language. These include Danish, Dutch, German and Swedish. English also contains French-derived words after it was ruled by French-speaking kings following the Norman Conquest.

16. Mandarin Chinese is spoken by people.

(A) Little

(B) Few

(C) Many

(D) Big

Passage :

Some languages are used by a few people. Others, such as Mandarin Chinese and English, are spoken by millions. Many people speak two or more languages. They may use one language at home with family and friends and other at work or school. Regional variations of language are known as dialects. The Anglo-Saxons, who conquered Britain at the end of the Roman Empire, spoke a Germanic language.

These include Danish, Dutch, German and Swedish. English also contains French-derived words after it was ruled by French-speaking kings following the Norman Conquest.

17. A person who is good at foreign languages is known as:

(A) Virtuoso

(B) Linguist

(C) Ventriloquist

(D) Scholar

Passage :

Some languages are used by a few people. Others, such as Mandarin Chinese and English, are spoken by millions. Many people speak two or more languages. They may use one language at home with family and friends and other at work or school. Regional variations of language are known as dialects. The Anglo-Saxons, who conquered Britain at the end of the Roman Empire, spoke a Germanic language. These include Danish, Dutch, German and Swedish. English also contains French-derived words after it was ruled by French-speaking kings following the Norman Conquest.

18. _____ are regional variations of a language.

(A) English

(B) Mandarin Chinese

(C) Home language

(D) Dialects

---

19. Sahil said, "Where will I be this time next year!"

(A) Sahil asked where he should be that time the following year.

(B) Sahil worried where he would be that time the next year.

(C) Sahil wondered where he would be that time the following year.

(D) Sahil said where he should be that time the next year

20. The primary objective of a socialist government is to _____ the miseries of the poor.

(A) Mollify

(B) mitigate

(C) soothe

(D) abet

Passage : Direction : In the question, four alternatives are given for the Idioms/Phrases. Choose the alternative which best expresses the meaning of the Idioms/Phrases and click the button corresponding to it.

21. Rule of thumb

(A) A rough unit of measure for small lengths

(B) A broadly accurate guide based on practice

(C) To force someone to work against his wish

(D) To use your power to ensure discipline

Passage : Direction : A sentence/a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve the sentence. Choose the correct alternative and click the button corresponding to it. In case no improvement is needed, click the button corresponding to "No improvement".

22. The young man <u>was carried by</u> the passionate appeal made by the social worker.

(A) was carried towards

(B) was carried off by

(C) Got carried away by

(D) No improvement

---

23. To leave a place suddenly secretly

(A) Scare

(B) Linger

(C) Decamp

(D) Loiter

Passage : Direction: In this question the rest of the passage is split into three parts and named P, Q and R. These three parts are not given in their proper order. Read the sentence and find out which of the four combinations is correct. Then find the correct answer:

24. However the major drawback

- **P.** of this process is that
- **Q.** there is no legally binding
- **R.** outcome at the end of six years

(A) QRP

(B) RPQ

(C) PRQ

(D) PQR

---

25. Four words are given, out of which only one word is spelt correctly. Choose the correctly spelt word.

(A) Rosetes

(B) Reaffirm

(C) Estimate

(D) Lunchon

---

26. Find out which part of the sentence has an error and click the button corresponding to it. If the sentence is free from error, click the "No error" option.

- (A) I am certain that

- (B) The officer is not only
- (C) greedy but corrupt
- (D) No error

Passage : Direction : In the question, out of the four alternatives, choose the word which is opposite in meaning to the given word and click the button corresponding to it.

27. Haste

(A) Soon

(B) Eventually

(C) Later

(D) Never

---

28. The elements of the set $\{x : x$ is an integer, $x^2 \leq 4\}$ can be represented as $\ldots Z \ldots$. Here, Z refers to:

(A) $\{-2, 2\}$

(B) $\{-1, 0, 1\}$

(C) $\{-2, -1, 0, 1, 2\}$

(D) $\{0, 1, 2\}$

---

29. If $P = \{1, 2\}$, then $P \times P \times P = \{(1,1,1), (1,1,2), (1,2,1), (2,1,2), (2,2,1), (2,2,2)\}$. The ordered triplet missing in $P \times P \times P$ are:

(A) $(1, 2), (2, 1)$

(B) $(1, 2, 1), (2, 1, 1)$

(C) $(1, 2, 2), (2, 1, 2)$

(D) $(1, 2, 2), (2, 1, 1)$

---

30. $a + ib > c + id$ can be explained only when:

(A) $b = 0,\ c = 0$

(B) $b = 0,\ d = 0$

(C) $a = 0,\ c = 0$

(D) $a = 0,\ d = 0$

---

31. If the sum of a certain n number of terms of the A.P. $25, 22, 19, \ldots$ is 116, then the last term is:

(A) 4

(B) 3

(C) 2

(D) -4

---

32. In how many ways can the number 7056 be resolved into two factors?

(A) 20

(B) 21

(C) 23

(D) 22

---

33. How many 5-digit telephone numbers can be constructed using the digits 0 to 9, if each number starts with 67 and no digit appears more than once?

(A) 336

(B) 337

(C) 335

(D) None of these

---

34. The total number of terms in the expansion of $(x + a)^{100} + (x - a)^{100}$ after simplification will be:

(A) 202

(B) 51

(C) 50

(D) None of these

---

35. If $(x-2)$ is a common factor of the expressions x^2+ax+b and x^2+cx+d, then $\dfrac{b-d}{c-a}$ is equal to:

(A) -2

(B) -1

(C) 1

(D) 2

---

36. If $-3x+17<-13$, then

(A) $x \in (10,\ \infty)$

(B) $x \in [10,\ \infty)$

(C) $x \in (-\infty,\ 10)$

(D) $x \in [-10,\ 10)$

---

37. If $A=\begin{bmatrix} a+4 & 3b \\ 8 & -6 \end{bmatrix}$ and $B=\begin{bmatrix} 2a+2 & b^2+2 \\ 8 & b^2-5b \end{bmatrix}$ such that $A=B$, then the values of a and b is:

(A) $a=2$ and $b=1,2$

(B) $a=1$ and $b=3$

(C) $a=-2$ and $b=\dfrac{1}{2},-1$

(D) None of the above

---

38. The determinant of an orthogonal matrix is:

(A) ± 1

(B) 2

(C) 0

(D) ± 2

39. If $\cos x = \tan y,\ \cot y = \tan z$ and $\cot z = \tan x$, then $\sin x$ is equal to:

(A) $\dfrac{\sqrt{5}+1}{4}$

(B) $\dfrac{\sqrt{5}-1}{4}$

(C) $\dfrac{\sqrt{5}+1}{2}$

(D) $\dfrac{\sqrt{5}-1}{2}$

---

40. $\tan^{-1}(1) - \sec^{-1}(2)$ is equal to:

(A) π

(B) $\dfrac{\pi}{3}$

(C) $\dfrac{\pi}{6}$

(D) $\dfrac{2\pi}{3}$

---

41. If the radius of a circle increases at a uniform rate of 2 cm/s, then the rate of increase of area of the circle, at the approximate instant when the radius is 20 cm, is:

(A) 80π m^2/s

(B) 80 m^2/s

(C) 80π cm^2/s

(D) 80 cm^2/s

---

42. The value of $\displaystyle\int \frac{1}{(x-5)^2}\,dx$ is:

(A) $\dfrac{1}{(x-5)} + C$

(B) $-\dfrac{1}{(x-5)} + C$

(C) $\dfrac{2}{(x-5)^3} + C$

(D) $-2(x-5)^{-3} + C$

---

43. The order and degree of the differential equation

$$\left[1+\left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}} = k\left(\frac{d^2y}{dx^2}\right)$$

are respectively:

(A) 2, 2

(B) 2, 3

(C) 3, 4

(D) 1, 5

---

44. If the points $(1,1)$, $(-1,-1)$ are the vertices of a triangle, then this triangle is:

(A) right angled

(B) isosceles

(C) equilateral

(D) None of these

---

45. Find the centre and radius of the circle $2x^2+2y^2=3x-5y+7$.

(A) $\left(\frac{3}{4},-\frac{5}{4}\right),\ \frac{3\sqrt{10}}{4}$

(B) $\left(\frac{1}{4},\frac{2}{4}\right),\ \frac{\sqrt{10}}{4}$

(C) $\left(\frac{3}{4},-\frac{1}{4}\right),\ \frac{5\sqrt{10}}{4}$

(D) None of these

---

46. What conic does $13x^2-18xy+37y^2+2x+14y-2=0$ represent?

(A) Circle

(B) Ellipse

(C) Parabola

(D) Hyperbola

---

47. If $\lambda(3\mathbf{i}+2\mathbf{j}-2\mathbf{k})$ is a unit vector, then the value(s) of λ are:

(A) $\pm\frac{1}{7}$

(B) ± 7

(C) $\pm\sqrt{43}$

(D) $\pm\frac{1}{\sqrt{43}}$

---

48. If $(1, -2, -2)$ and $(0, 2, 1)$ are direction ratios of two lines, then the direction cosines of a line perpendicular to both the lines are:

(A) $\left(\frac{1}{3}, -\frac{1}{3}, \frac{2}{3}\right)$

(B) $\left(\frac{2}{3}, -\frac{1}{3}, \frac{2}{3}\right)$

(C) $\left(-\frac{2}{3}, -\frac{1}{3}, \frac{2}{3}\right)$

(D) $\left(\frac{2}{\sqrt{14}}, -\frac{1}{\sqrt{14}}, \frac{3}{\sqrt{14}}\right)$

---

49. The mean of n items is $\bar{x}$. If each item is successively increased by $3, 3^2, 3^3, \ldots, 3^n$, then the new mean will be:

(A) $\bar{x} + \frac{3^{n+1}}{2n}$

(B) $\bar{x} + \frac{3(3^n - 1)}{3n}$

(C) $\bar{x} + \frac{3^n}{3n}$

(D) $\bar{x} + \frac{3(3^n - 1)}{2n}$

---

50. There are two children in a family. The probability that both of them are boys is:

(A) $\frac{1}{2}$

(B) $\frac{1}{3}$

(C) $\frac{1}{4}$

(D) $\frac{2}{5}$

---

51. Let V be a vector space over a field F and $a \in F$ and $u \in V$. Which of the following statements is not correct?

(A) $au = \theta \Rightarrow$ either $a = 0$ or $u = \theta$

(B) $|-1\,u| = |-1|\,|u|$ for all $u \in V$

(C) $a\theta = \theta$

(D) $0u = \theta \;\; a \in F$

---

52. The value of $f(x) = x + |x|$ is continuous for:

(A) $x \in (-\infty, \infty)$

(B) $x \in (-\infty, \infty) - \{0\}$

(C) Only $x > 0$

(D) No value of x

---

53. Read the sentence to find out whether there is any grammatical error in it. The sentence is in three separate parts and each one is labelled (A), (B), (C) and (D). In that case, letter (D) will signify a 'No error' response.

(A) He was in the temper

(B) and refused

(C) discuss the matter again

(D) No error

---

54. Spot the error part of the following sentence.

(A) She

(B) went

(C) straightly

(D) home

(E) No error

---

55. Find out the error part of the following sentence.

(A) Go North-East

(B) across the mountains

(C) till you will reached an island

(D) No error

Passage : In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.

56. To sleep with the fishes

(A) Always be in a dream world

(B) To make absurd excuses

(C) To sleep peacefully

(D) To be dead

Passage : Fill in the blanks with suitable forms of words by choosing the best out of four options given below the question:

57. The philosophy of putting another's welfare above one's own _____.

(A) polytheism

(B) altruism

(C) iconoclasm

(D) agnosticism

---

58. Find the error in the following sentence, if any. If there is no error, answer is No error.

(A) Mango, the most unique fruit

(B) is available in India

(C) in plenty

(D) No error

---

59. Select the combination of numbers so that letters arranged accordingly will form a meaningful word.

T	R	I	F	U
1	2	3	4	5

(A) 3 1 2 4 5

(B) 4 2 5 3 1

(C) 4 3 2 1 5

(D) 5 3 2 1 4

---

60. Read the sentence to find out whether there is any error in it. The error, if any, will be in one part of the sentence. The letter of that part is the answer. If there is no error, the answer is (D). (Ignore errors of punctuation, if any).

(A) If I was you

(B) I would not attend

(C) the function

(D) No error

---

61. Temperature can be expressed as derived quantity in terms of:

(A) length and mass

(B) mass and time

(C) length, mass and time

(D) None of these

---

62. Electron volt is a unit of:

(A) potential difference

(B) charge

(C) energy

(D) capacity

---

63. If a body is moving at constant speed in a circular path, its:

(A) velocity is constant and its acceleration is zero

(B) velocity and acceleration are both changing direction only

(C) velocity and acceleration are both increasing

(D) velocity is constant and acceleration is changing direction

---

64. If a car is traveling north on a straight road and its brakes are applied, it will:

(A) have no acceleration

(B) accelerate to the south

(C) accelerate to the north

(D) accelerate either east or west

---

65. Friction forces act:

(A) in the direction of force applied

(B) in the direction of the motion

(C) in the direction opposite to the direction of motion

(D) None of these

---

66. The effect of frictional force may be minimized by:

(A) using a smooth object

(B) using a smooth plane

(C) providing a lubricant at the surface of contact

(D) All of these

---

67. A stone of mass $1\,\mathbf{kg}$ is raised through $1\,\mathbf{m}$ height.

(A) The loss of gravitational potential energy by the stone is 1 joule

(B) The gain of gravitational potential energy by the stone is 1 joule

(C) The loss of gravitational potential energy is 9.8 joule

(D) The gain of gravitational potential energy is 9.8 joule

---

68. The centre of mass of a rigid body lies:

(A) inside the body

(B) outside the body

(C) neither (a) nor (b)

(D) either (a) or (b)

---

69. The motion of the centre of mass depends on:

(A) total external forces

(B) total internal forces

(C) sum of (a) and (b)

(D) either (a) or (b)

---

70. The force of gravitation between two bodies does not depend on:

(A) their separation

(B) the product of their masses

(C) the sum of their masses

(D) the gravitational constant

---

71. The acceleration due to gravity:

(A) has the same values everywhere in space

(B) has the same value everywhere on the earth

(C) varies with the latitude on the earth

(D) is greater on the moon due to its smaller diameter

---

72. Buoyant force on an object due to fluid always acts:

(A) in the downward direction

(B) side ways

(C) in the upper direction

(D) None of these

73. A wooden cube floating in water supports a mass $m = 0.2\,\mathbf{kg}$ on its top. When the mass is removed, the cube rises by $2\,\mathbf{cm}$. The side of the cube is (density of water $= 10^3\,\mathbf{kg/m^3}$):

(A) 6 cm

(B) 12 cm

(C) 8 cm

(D) 10 cm

---

74. Which of the following is carried by waves from one place to another?

(A) Mass

(B) Velocity

(C) Wavelength

(D) Energy

---

75. The velocity of sound is largest in:

(A) water

(B) air

(C) metal

(D) vacuum

---

76. Which of the following pairs may give equal numerical values of the temperature of human body?

(A) Fahrenheit and Celsius

(B) Celsius and Kelvin

(C) Kelvin and Reaumur

(D) None of these

---

77. Which of the following temperatures is the highest?

(A) 100 K

(B) $-13°F$

(C) $-20°C$

(D) $-23°C$

---

78. Direction of conventional current is from:

(A) Negative terminal to positive terminal

(B) Positive terminal to negative terminal

(C) In any direction

(D) In both the directions

---

79. Among the following statements:

1. A discharge lamp uses a discharge tube which is filled with a gas at a very low pressure.
2. Always white light is emitted independent of gas taken in the lamp.

(A) Only 1 is true

(B) Only 2 is true

(C) Both 1 and 2 are true

(D) Both 1 and 2 are false

---

80. Among identical spheres A and B having charges as -5 C and -16 C:

(A) -5 C is at higher potential

(B) -16 C is at higher potential

(C) both are at equal potential

(D) it cannot be said

---

81. For an object at infinity, a concave mirror produces an image at its focus which is:

(A) enlarged

(B) virtual

(C) erect

(D) real, inverted and diminished

---

82. According to the laws of reflection:

(A) angle i = angle r

(B) $\sin i = \sin r$

(C) $\dfrac{\sin i}{\sin r} = \text{constant}$

(D) All of these

---

83. Which of the following is a false statement?

(A) To overcome the energy crisis the use of solar cooker must be increased

(B) To overcome the energy crisis more amount of non–renewable source of energy must be used

(C) The re–usage of waste material as a source of energy can be done to overcome the energy crisis

(D) To overcome the energy crisis water has to be saved

---

84. The phenomenon that best supports the theory that matter has a wave nature is:

(A) electron momentum

(B) electron diffraction

(C) photon momentum

(D) photon diffraction

---

85. G. P. Thomson experimentally confirmed the existence of matter waves by the phenomenon of:

(A) diffraction

(B) refraction

(C) polarization

(D) scattering

86. Which of the following is not a synthetic fibre?

(A) Angora

(B) Rayon

(C) Nylon

(D) Polyester

---

87. Which one is a sublime substance?

(A) Table salt

(B) Sugar

(C) Iodine

(D) Potassium iodide

---

88. The process of change of liquid state into gaseous state at constant temperature is known as:

(A) boiling

(B) melting

(C) fusion

(D) evaporation

---

89. Which one among the following statements about atoms is not correct?

(A) Atoms always combine to form molecules

(B) Atoms are the basic units from which molecules and ions are formed

(C) Atoms are always neutral in nature

(D) Atoms aggregate in large numbers to form the matter that we can see, feel and touch

---

90. Which of the following pair is/are correctly matched?

1. Isotopes : Atoms with same atomic number but different atomic mass
2. Isobars : Atoms with same number of neutrons but different atomic number

3. Isotones : Atoms with same mass number but different atomic number

Select the correct answer using the code given below:

(A) 1, 2 and 3

(B) 1 only

(C) 1 and 2 only

(D) 2 only

---

91. The early attempt to classify elements as metals and non-metals was made by:

(A) Mendeleev

(B) Lothar Meyer

(C) Lavoisier

(D) Henry Moseley

---

92. The long form of the periodic table consists of:

(A) seven periods and eight groups

(B) seven periods and eighteen groups

(C) eight periods and eighteen groups

(D) eighteen periods and eight groups

---

93. The octet rule is not valid for which one of the following molecules?

(A) CO_2

(B) H_2S

(C) NH_3

(D) BF_3

---

94. The rusting of an iron nail:

(A) decreases its weight

(B) increases its weight

(C) does not affect weight but iron is oxidised

(D) does not affect weight but iron is reduced

95. Which one of the following salts when dissolved in water makes the solution basic?

(A) Sodium chloride

(B) Copper sulphate

(C) Ferric chloride

(D) Sodium acetate

---

96. Arrange the following bases in increasing order of their basic strength:

1. Sodium hydroxide
2. Magnesium hydroxide
3. Aluminium hydroxide
4. Ammonium hydroxide

Select the correct answer using the code given below:

(A) 4 2 1 3

(B) 4 1 2 3

(C) 4 3 2 1

(D) 1 2 3 4

---

97. Which of the following is liquid at ordinary temperature?

(A) Germanium

(B) Gallium

(C) Gold

(D) Galena

---

98. The correct order of increasing chemical reactivity of the following metals is:

(A) Zn < Fe < Mg < K

(B) Fe < Mg < Zn < K

(C) Fe < Mg < K < Zn

(D) Fe < Zn < Mg < K

---

99. Ammonia evolved from $0.75\,\mathbf{g}$ of the soil sample in the Kjeldahl's method for nitrogen estimation neutralises $10\,\mathbf{mL}$ of $1\,\mathbf{M}$ H_2SO_4. Find the percentage of nitrogen present in the soil.

(A) 35.33%

(B) 37.33%

(C) 43.33%

(D) 45.33%

---

100. The main constituent of vinegar is:

(A) Acetic acid

(B) Ascorbic acid

(C) Citric acid

(D) Tartaric acid
