

Mathematics

1. If $2^x \times 2^y \times 2^z = 2^6$, what is the average of x , y and z ?

- (A) 0 (B) 1
(C) 3 (D) 2

2. Kiran scored 80 marks in a test which is $\frac{5}{6}$

of the total marks. What is the total mark for the test ?

- (A) 96 (B) 100
(C) 104 (D) 108

3. Choose a number that is not a perfect cube.

- (A) 1331 (B) 216
(C) 243 (D) 512

4. The adjacent sides of a parallelogram are 8 cm and 9 cm. The diagonal joining the ends of these sides is 13 cm. Calculate the area of the parallelogram.

- (A) 72cm^2 (B) $12\sqrt{35}\text{cm}^2$
(C) $24\sqrt{35}\text{cm}^2$ (D) 150cm^2

5. The perimeter of a circular plot is equal to that of a square plot. What is the ratio of their respective areas ?

- (A) 13:11 (B) 14:11
(C) 15:11 (D) 16:11

6. Evaluate: $\frac{(-1)^{13}}{2^3} + \frac{2^3 - 1^{10} + 3^2}{3^2 - 2^2} + \left(\frac{7}{11}\right)^3 \div \frac{98}{121}$

- (A) $3\frac{173}{440}$ (B) $3\frac{17}{44}$ (C) $3\frac{137}{440}$ (D) $3\frac{21}{440}$

7. If $0 < a < 1$, then the value of $a + \frac{1}{a}$ is

- (A) greater than 2. (B) less than 2.
(C) greater than 4. (D) less than 4.

8. The Compound interest on a certain sum for two years is ₹ 410 and simple interest on the same sum is ₹ 400. The rate of interest per annum is

- (A) 10%. (B) 8%.
(C) 5%. (D) 4%.

9. The area of a square field is $80\frac{244}{729}$ sq.m.

What is the length of each side of the field ?

- (A) 8.96m (B) 10.26m
(C) 13.54m (D) 9.86m

10. If 10 is added to four times a certain number, the result is 5 less than five times the number. What is the number ?

- (A) 10 (B) 15
(C) 20 (D) 25

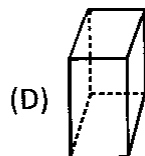
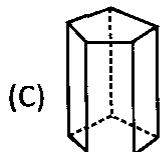
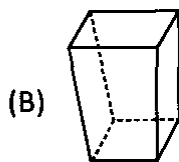
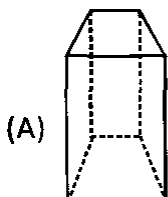
11. A man sold 10 eggs for 5 rupees and gained 20%. How many eggs did he buy for 5 rupees ?

- (A) 12 (B) 15
(C) 25 (D) 10

12. Satish takes 24 minutes to reach his school, travelling at 15 km/h. At what speed he must go to reach his school in 18 minutes?

- (A) 20 km/h (B) 30 km/h
(C) 24 km/h (D) 18 km/h

13. Which option has a base other than a quadrilateral ?

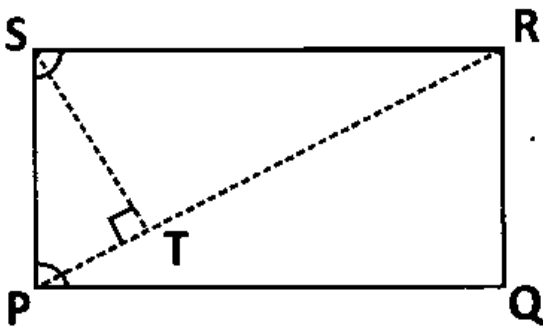


14. What is the probability of choosing a vowel from the English alphabet?

(A) $\frac{21}{26}$ (B) $\frac{5}{26}$

(C) $\frac{1}{21}$ (D) $\frac{5}{21}$

15. PQRS is a rectangle. If the perpendicular ST from S on PR divides $\angle S$ in the ratio 2 : 3, then what is the measure of $\angle TPQ$?



- (A) 54° (B) 36°
(C) 90° (D) 18°

16. The last digit of the number $(373)^{333}$ is

- (A) 1 (B) 2
(C) 3 (D) 9

17. The capacity of a cup is 300 ml. The capacity of a jug is twice that of a cup. What is the capacity of 3 cups and 3 jugs?

- (A) 2.7 l (B) 2700 l
(C) 27 l (D) 270 l

18. A and B have money in the ratio 2 : 1. If A gives ? 2 to B, the money will be in the ratio 1:1. What were the initial amounts they had?

- (A) Rs. 12 and Rs. 6 (B) Rs. 16 and Rs. 8
(C) Rs. 8 and Rs. 4 (D) Rs. 6 and Rs. 3

19. If the number whose one-fifth part when increased by 30, is equal to its one-fourth part decreased by 30. Then, find the number.

- (A) 120 (B) 180
(C) 1200 (D) 1800

20. One of the factors of $x^4 - \{x - z\}^4$ is

- (A) $2x + z$. (B) $x + 2z$.
(C) $2x - z$. (D) $x - 2z$.

21. If A is the HCF of 546, 294 and 3066; and B is the LC.M of 42, 14 and 21, what is the relationship between A and B ?

- (A) $A = B$ (B) $A > B$
(C) $A < B$ (D) $A + B = 82$

22. Given that

$$(6^{30} + 6^{-30})(6^{30} - 6^{-30}) = 3^A \cdot 8^B - 3^{-A} \cdot 8^{-B}$$

find $A + B$.

- (A) 30 (B) 40
(C) 60 (D) 80

23. A wheel revolves 19500 times in 3 hours. How many times does it revolve in 7 hours?

- (A) 54500 (B) 55400
(C) 45500 (D) 50450

24. If x and y are directly proportional and when $x = 10$, $y = 25$, then which of the following is a possible pair of corresponding values of x and y ?

- (A) 1 and 3 (B) 2 and 5
(C) 15 and 60 (D) 4 and 8

25. The square root of a perfect square containing 'n' digits has _____ digits.

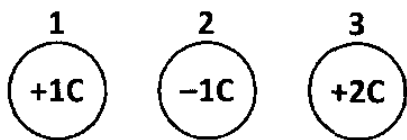
- (A) $\frac{n+1}{2}$ (B) $\frac{n}{2}$
(C) (A) or (B) (D) $\frac{n-1}{2}$

Physics

26. The ultrasound that cannot be heard by the human ear is

- (A) 10,000 Hz. (B) 30 kHz.
(C) 0.015MHz. (D) Both (B) and (C) only

27. Which point charge will attract each other?



- (A) 1 and 2 only (B) 1 and 3 only
(C) 1 and 2, 2 and 3 only
(D) 1 and 3, 2 and 3 only

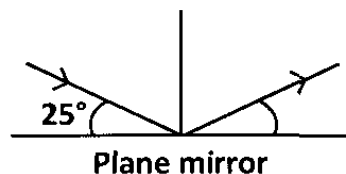
28. The given figure shows a boy riding a bicycle. Which one does not involve in friction ?



- (A) The brake and the tyre.
(B) The handle and the hands.
(C) The bicycle and air.
(D) The shoes and the road.

29. Observe the figure given below.

Plane mirror Find the angle between the incident ray and reflected ray.



- (A) 65° (B) 90° (C) 130° (D) 25°

30. Which substance when added to water, makes the solution a good conductor of electricity?

- (A) Calcium carbonate (B) Copper
(C) Ethanol (D) Sodium hydroxide

31. What is the effect of frictional force on an object ?

- (A) Production of sound
(B) Production of heat
(C) Reduces speed of a moving object
(D) All the three

32. A sharpened knife is used to cut fruits and vegetables because it has a

- (A) smaller area of contact and exerts less pressure.

- (B) greater area of contact and exerts greater pressure.
- (C) smaller area of contact and exerts greater pressure.
- (D) greater area of contact and exerts less pressure.

33. When current is passed through molten sodium chloride

- (A) sodium is deposited at the positive electrode and chlorine gas is formed at the negative electrode.
- (B) Sodium is evaporated and chloride ions are formed at the negative electrode.
- (C) sodium is deposited at the positive electrode and chlorine is deposited at the negative electrode.
- (D) sodium is deposited at the negative electrode and the chlorine gas is formed at the positive electrode.

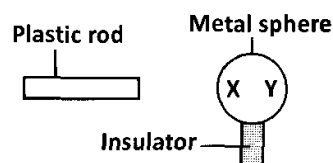
34. Which one uses the reflection of light?

- (A) Kaleidoscope (B) Plane mirror
- (C) Side mirror of a car (D) All of these

35. When an object is falling through the air at constant speed

- (A) the forces acting on it are equal and opposite in direction.
- (B) there are no forces acting on the object.
- (C) forces acting on it are so weak, they do not affect the object's speed.
- (D) the pulling force of gravity is greater than the frictional force of the air.

36. The given figure shows a negatively charged plastic rod being brought near a metal sphere.



What type of charges exist on the metal sphere at X and Y?

- (A) X-Positive, Y-Negative
- (B) X-Positive, Y-Positive
- (C) X-Negative, Y-Positive
- (D) X-Negative, Y-Negative

37. Which of these statements about sound is TRUE?

- (A) It is a type of radiation.
- (B) It is an invisible form of energy.
- (C) It is the low energy part of the light spectrum.
- (D) Both (A) and (C)

38. In which electrolysis experiment there will be no change in the concentration of the solution?

	Electrolysis	Electrodes
(A)	Aqueous copper (II) sulphate	Copper
(B)	Aqueous copper (II) sulphate	Carbon
(C)	Conc. aqueous sodium chloride	Carbon
(D)	Dilute sulphuric acid	Platinum

39. The area NOT prone to earthquake is

- (A) Rann of Kutch (B) Indo Gangetic plain
- (C) Rajasthan (D) Bihar

40. The frequency of a wave is directly proportional to the pitch of the sound. This means

- (A) the frequency of a sound is slightly below its pitch.

(B) that if the frequency increases the pitch will decrease.

(C) that if the frequency increases the pitch will also increase.

(D) that the pitch of the sound is always slightly greater than the frequency of the sound.

41. Identify one of the characteristics of an ideal mirror.

(A) It absorbs all the amount of light Incident on it.

(B) It refracts all the light.

(C) It reflects all the light.

(D) All of the above.

42. Let P = pressure, F = force and A = area. Which option gives the correct formula for all the three quantities?

	Pressure	Force	Area
(A)	$F \times A$	$P \times A$	$F \times P$
(B)	F / A	P / A	P / F
(C)	P / F	A / P	F / P
(D)	F / A	$P \times A$	F / P

43. A floor has a maximum loading capacity of 5 KN m^{-2} . Which of the following is allowed on this floor? (Take $g = 10 \text{ N kg}^{-1}$)

(A) An elephant weighing $50\,000 \text{ N}$ stands on 4 legs with each foot covering 400 cm^2 of the floor.

(B) A 50 kg lady wears a pair of high heel shoes. Each shoe has a contact area of 9 cm^2 with the floor.

(C) A 100 kg washing machine stands on a surface area of 6500 cm^2 .

(D) A designer's table weighing 1000 N stands on 3 legs. Each leg has a contact area of 0.1 cm^2 with the floor.

44. Which one can attract a stream of water?

(A) A negatively charged insulator

(B) A negatively charged conductor

(C) A neutral conductor

(D) Both (A) and (B)

45. When an image of an object is formed on the retina of a human eye, it stays there for about _____ of a second ?

(A) $1/4^{\text{th}}$ (B) $1/16^{\text{th}}$ (C) $1/8^{\text{th}}$ (D) $1/6^{\text{th}}$

46. The distorted W or M shaped constellation is

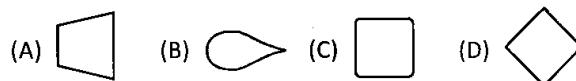
(A) Scorpius

(B) Orion

(C) Ursa Minor

(D) Cassiopeia

47. Which shape of an object in motion will give the least resistance in water?



48. A metal spoon is to be electroplated with silver using aqueous silver nitrate as the electrolyte. The negative electrode used as cathode is

(A) carbon.

(B) lead.

(C) platinum.

(D) the spoon.

49. If the amplitude of sound becomes twice, the loudness increases by a factor of

(A) 4

(B) 2

(C) 1

(D) 3

50. Which of the following locations experiences the highest atmospheric pressure ?

- (A) Or top of Mount Everest
- (B) Inside a commercial aeroplane which is flying in the air
- (C) At sea level
- (D) In a coal mine 100 m below sea level

Chemistry

51. Why is carbon monoxide dangerous to humans ?

- (A) It is carcinogenic.
- (B) It can cause the weakening of muscle.
- (C) It can damage the digestive system.
- (D) It reduces the ability of blood to transport oxygen.

52. Which property of a pencil lead makes it suitable for writing on the paper?

- (A) Ductility
- (B) Softness
- (C) Flexibility
- (D) Malleability

53. What is stainless steel made of?

- (A) Iron
- (B) Carbon
- (C) Chromium
- (D) All the three

54. When the wick of a candle is touched by a lit match, the candle begins and continues to burn. What is the role of the match in the reaction involving the candle wax ?

- (A) It acts as a catalyst.
- (B) It supplies the heat energy.
- (C) It lowers the heat energy.
- (D) It decreases the rate of the combustion.

55. What is the main reason for using polystyrene to make boxes for packing takeaway food and cold items?

- (A) It is relatively cheap and easy to produce.
- (B) It reflects heat.
- (C) It is a good insulator of heat.
- (D) It does not react with its contents.

56. Brass is produced by mixing

- (A) copper and iron.
- (B) copper and zinc.
- (C) tin and nickel.
- (D) tin and copper.

57. On combustion, which fuel never produces pollutants?

- (A) Diesel
- (B) Hydrogen
- (C) Methane
- (D) Petrol

58. Identify a false statement on combustion of fossil fuels.

- (A) Chemical energy stored in the fuel is converted into other forms of energy.
- (B) Oxygen is needed for this form of chemical change.
- (C) Heat energy stored in the carbon compounds of the fossil fuels is released.
- (D) An example of this combustion reaction is: methane + oxygen \rightarrow carbon dioxide + water.

59. Which natural resource is being depleted by the manufacture of plastics?

- (A) Air
- (B) Fossil fuels
- (C) Metal ores
- (D) Water

60. Which substance has the highest boiling point?

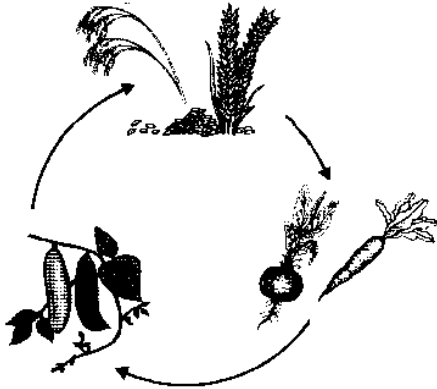
- (A) Water
- (B) Oxygen
- (C) Rubber
- (D) Aluminum

70. Which one is not made from petroleum?

- (A) Aircraft fuel (B) Diesel oil
(C) Paints (D) Margarine

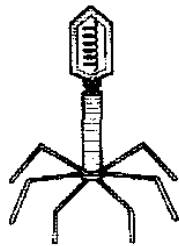
Biology

71. What does the given figure signify?



- (A) Life cycle of a plant (B) Jhum cultivation
(C) Crop rotation (D) Shifting cultivation

72. The microorganism in the given figure is a



- (A) phase in the life cycle of bacteria.
(B) bacteria that eats other bacteria.
(C) virus that uses bacteria as a host.
(D) protozoa.

73. Which of the following group represents the bacterial diseases?

- (A) Cholera, tuberculosis, malaria, measles
(B) Small pox, tuberculosis, malaria, typhoid
(C) Cholera, tuberculosis, typhoid, measles
(D) Cholera, anthrax, tuberculosis, typhoid

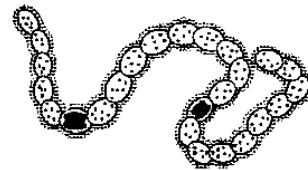
74. Identify the organization that works in the field of wild life conservation.

- (A) WWF (C) WEF
(B) WWE (D) UNEP

75. In a biology class, the teacher was discussing about the organelles of a cell as endoplasmic reticulum, mitochondria, nucleus, ribosome, centriole and centrosome. Which cell was she referring to ?

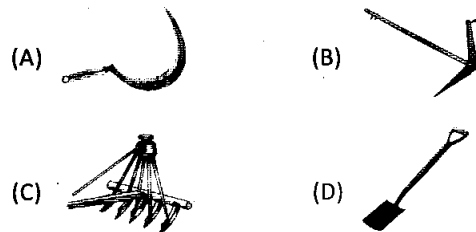
- (A) Prokaryotic cell (C) Animal cell
(B) Conifer cell (D) Angiosperm cell

76. The microorganism in the given figure is associated with which of the following functions ?



- (A) Nitrogen fixation (B) Photosynthesis
(C) Transpiration (D) Respiration

77. Which agricultural tool is used for harvesting ?



78. What do you know from the table given below ?

Organism	Consumer	Cilia	Flagella	Pseudopods
A			X	
B	X			X
C	X	X		

- (A) A could be an alga, B could be Amoeba and C could be a Paramecium
 (B) A could be a plant, B and C could be coelenterates
 (C) A could be a yeast, B and C could be bacteria
 (D) A could be a moss, B could be a hydra and C could be an earthworm

79. Which of these is a/are semi-autonomous cell organelle?

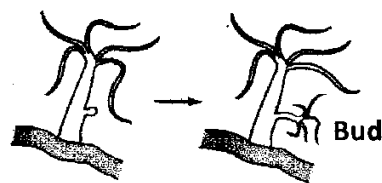


- (A) P
 (B) Q
 (C) R and Q
 (D) P and R

80. Choose the correct statement related to nitrogen.

- (A) It is not useful for plants.
 (B) It is important for growth of plants and is taken by all plants from the air.
 (C) It is important for growth of plants, but no plant can absorb the nitrogen present in the air directly.
 (D) It is important to provide energy to all living organisms.

81. Which of the following conditions is represented by the given figures?



- (I) Asexual reproduction in Hydra
 (II) Reproduction by budding in Hydra
 (III) Sexual reproduction in Hydra
 (IV) Reproduction by binary fission in Hydra
 (A) I and II
 (B) I and IV
 (C) II only
 (D) III only

82. Which gland is also called as an exo and endocrine gland?

- (A) Thyroid
 (B) Pancreas
 (C) Pituitary
 (D) Adrenal

83. Observe the given figure and identify the group it belongs to.

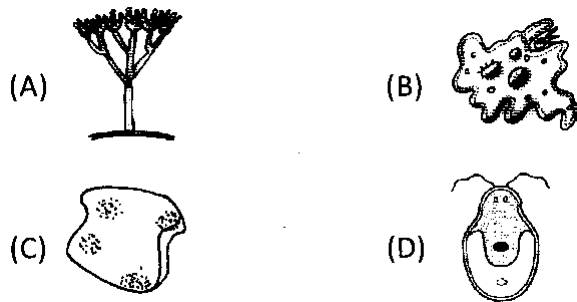


- (A) Monera
 (B) Protozoan
 (C) Virus
 (D) Fungus

84. Given below is a list of microorganisms based on their characteristic features. Pick the odd one out.

- (A) Amoeba
 (B) Paramecium
 (C) Rhizobium
 (D) Plasmodium

85. Identify the organism that is an autotroph.



86. I am an animal cell travels from one part to another in an organism in small spaces. I do not have a nucleus. My function is to distribute gas. Who am I ?

- (A) White blood cell (B) Red blood cell
(C) Nerve cell (D) Egg cell

87. Select the correct sequence of activities that are followed to grow a crop.

- (A) Sowing, adding manure, protecting from weeds, soil preparation, harvesting, storage.
(B) Soil preparation, sowing, adding manure, irrigation, protection from weeds, harvesting, storage.
(C) Soil preparation, irrigation, adding manure, sowing, harvesting, storage.
(D) Irrigation, sowing, manure, protection from weeds, harvesting, storage.

88. What is one major difference between a human skin cell and a human egg cell?

- (A) The egg cell has twice as many chromosomes as the skin cell
(B) The egg cell has half as many chromosomes as the skin cell
(C) The skin cell is produced through meiosis
(D) The egg cell is produced through mitosis

89. X is a nitrogen fixer found in root nodules and is involved in symbiotic association with legumes. What is 'X'?

- (A) Rhizobium (B) Azotobacter
(C) Rhodospirillum (D) Clostridium

90. Which of the following determines the sex of a male baby?

- (A) XX (B) XY
(C) YY (D) ZX

General Awareness

91. Eritrea became the 182nd member of the UN in 1993. In which continent is Eritrea located?

- (A) Asia (B) Africa
(C) Europe (D) Australia

92. Human Rights Day (UN) is observed on

- (A) December 10th (B) January 5th
(C) November 5th (D) July 11th

93. In which state is Garampani wild life sanctuary located?

- (A) Gujarat (B) Assam
(C) Nagaland (D) Sikkim

94. For which of the following disciplines is Nobel Prize awarded?

- (A) Physics and Chemistry
(B) Physiology or Medicine
(C) Literature, Peace and Economics
(D) All of the above

95. Former cricketer Sachin Tendulkar has agreed to feature a campaign against drug and liquor abuse in which state?

- (A) Tamilnadu (B) Kerala
(C) Bihar (D) Maharashtra

96. Which country is ranked No. 1 in the latest football rankings announced by FIFA?

- (A) Argentina (B) Germany (C) Colombia
(D) Belgium

97. What is the name of the high speed train that initiated the experiment run in India route between Bareilly and Moradabad in Uttar Pradesh?

- (A) Rajoo (B) Shikansen
(C) Talgo (D) Intercity express

98. Which animal can be seen in the insignia of the RBI?

- (A) Lion (B) Tiger
(C) Panther (D) Elephant

99. Which company has launched 4G service under JIO brand name?

- (A) Reliance (B) Airtel
(C) Vodafone (D) BSNL

100. Which one of the following companies has started a rural marketing network called 'e-chaupals'?

- (A) ITC (B) Dabur
(C) Proctor and Gamble (D) Hindustan Lever



Ans Key

1. D	2. A	3. C	4. B	5. B	6. A	7. A	8. C	9. A	10. B
11. Del	12. A	13. C	14. B	15. B	16. C	17. A	18. C	19. C	20. C
21. A	22. D	23. C	24. B	25. C	26. B	27. C	28. D	29. C	30. D
31. D	32. C	33. D	34. D	35. A	36. A	37. B	38. A	39. D	40. C
41. C	42. D	43. C	44. D	45. B	46. D	47. B	48. D	49. A	50. D
51. D	52. B	53. D	54. B	55. C	56. B	57. B	58. C	59. B	60. D
61. A	62. C	63. C	64. D	65. D	66. C	67. B	68. A	69. B	70. D
71. C	72. C	73. D	74. A	75. C	76. A	77. A	78. A	79. D	80. C
81. A	82. B	83. D	84. C	85. D	86. B	87. B	88. B	89. A	90. B
91. B	92. A	93. B	94. D	95. B	96. A	97. C	98. B	99. A	100. A
