



Aakash

Medical | IIT-JEE | Foundations

(Divisions of Aakash Educational Services Ltd.)

Regd. Office : Aakash Tower, Plot No.-4, Sec-11, MLU, Dwarka, New Delhi-110075

Ph.: 011-47623456 Fax : 011-47623472

Admission-cum-Scholarship Test (Sample Paper)

(Nurture 9X Classroom Course-2015)

(Syllabus of the Test : Science & Mathematics of Class VIII)

Roll No.: _____

Test Booklet Code : **A**

Time : 1½ Hrs.

Max.Marks : 240

INSTRUCTIONS TO THE CANDIDATES

1. The initial 10 minutes are earmarked for the candidates to carefully read the instructions. (Note : The candidates are not allowed to either look inside the question booklet or start answering during these initial 10 minutes.)
2. The question booklet and answer sheet are issued separately at the start of the examination.
3. This question booklet contains 60 questions.
4. Read each question carefully.
5. Determine the correct answer, one out of the four available choices given under each question.
6. It is mandatory to use Ball Point Pen to darken to appropriate circle in the answer sheet.
7. For each correct answer, **four** marks will be awarded. There is no negative marking.

For Example

Q. 12 : In the Question Booklet is : Which one is known as 'black gold'?

(Answer Sheet)

- (1) Old gold
- (2) Petroleum
- (3) Silver
- (4) Coal

Q.12. ① ② ③ ④

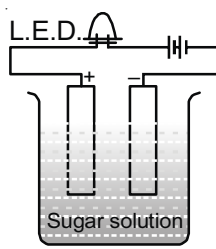
Thus as the correct answer is choice 2, the candidate should darken completely (with a blue/black Ball point pen only) the circle corresponding to choice 2 against Question No. 12 on the Answer Sheet. If more than one circle is darkened for a given question such answer will be rejected.

8. Do not use white-fluid or any other rubbing material on answer sheet. No change in the answer once marked is allowed. Before handing over the answer sheet to the invigilator, candidate should check that **Roll No.** and **Test-Booklet code** have been filled and marked correctly.
9. Rough work should be done only on the space provided in the question booklet.
10. Immediately after the prescribed examination time is over, the **Answer sheet and Question booklet are to be returned to the invigilator.** If the candidate wants to leave the examination hall before time, he/she should hand over the question paper and answer sheet to the invigilator. However, no student can leave the examination hall before half time.

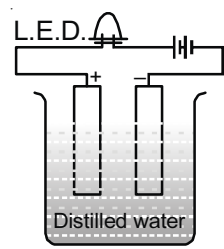
SCIENCE

Choose the correct answer :

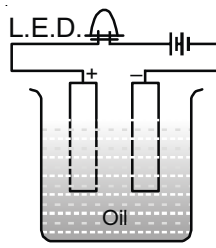
- In which of the following cases, does a net zero force act on the object?
 - (1) A ball rolling on the ground
 - (2) A car taking a turn
 - (3) A speeding bus
 - (4) A bicycle moving straight with constant speed
- Which of the following forces is always attractive in nature?
 - (1) Electrostatic force
 - (2) Magnetic force
 - (3) Gravitational force
 - (4) Electrostatic force and Gravitational force
- A wooden box is given horizontal push of same strength on levelled surfaces of different nature. It travels shortest before coming to rest on
 - (1) Marble floor
 - (2) Glass floor
 - (3) Polished wooden floor
 - (4) Cotton bed
- Friction between two surfaces in contact increases when
 - (1) A layer of grease is applied between them
 - (2) They are pressed harder against each other
 - (3) They move over each other
 - (4) They are pulled apart
- At a given temperature, sound travels fastest in
 - (1) Solids
 - (2) Gases
 - (3) Liquids
 - (4) Vacuum
- Which of the following sounds can be heard by us?
 - (1) Sound of a pendulum making 15 oscillations every second
 - (2) Sound of a string vibrating 50 times in 5 seconds.
 - (3) Sound of our heart beating 75 times every minute
 - (4) Sound of a body vibrating 75 times every second
- In which of the following cases will the L.E.D. glow?



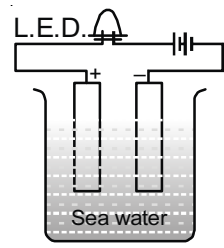
(1) Sugar solution



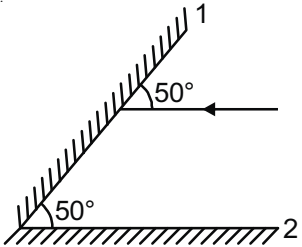
(2) Distilled water



(3) Oil



(4) Sea water
- The process of transferring of charge from a charged object to the earth is called
 - (1) Lightning
 - (2) Earthing
 - (3) Charging
 - (4) Insulating
- Two plane mirrors are inclined with each other at an angle of 50° . A light ray incident upon mirror 1, as shown is reflected from mirror 2 at an angle


 - (1) 10°
 - (2) 20°
 - (3) 80°
 - (4) 40°

Space For Rough Work

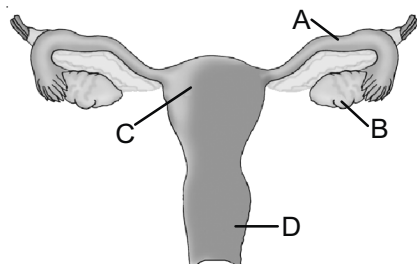
10. When we say that a person has brown eyes, then the colour of which part of eye are we referring to exactly?
- (1) Iris (2) Pupil
(3) Cornea (4) Ciliary muscles
11. The repeating units present in polyester are
- (1) Glucose (2) Ester
(3) Cotton (4) Ethene
12. The synthetic fibre used as wool is
- (1) Polycot (2) Acrylic
(3) Polyester (4) Nylon
13. The correct increasing order of chemical reactivities of the given metals is
- (1) $\text{Fe} < \text{Cu} < \text{Zn}$ (2) $\text{Zn} < \text{Fe} < \text{Cu}$
(3) $\text{Cu} < \text{Zn} < \text{Fe}$ (4) $\text{Cu} < \text{Fe} < \text{Zn}$
14. Reaction of a metal with an acid generally produces a gas 'X'. X is also produced when aluminium reacts with sodium hydroxide. Identify X.
- (1) Carbon dioxide (2) Nitrogen
(3) Hydrogen (4) Chlorine
15. Consider the following statements :
- Statement 1** : Iron is a metal present in human body.
- Statement 2** : Magnesium is an important metal present in plants.
- Choose the correct option.
- (1) Statement 1 is correct, statement 2 is incorrect
(2) Statement 2 is correct, statement 1 is incorrect
(3) Both the statements are correct
(4) Both the statements are incorrect
16. Which of the following is not a product of coal processing?
- (1) Coke (2) Coal-tar
(3) Coal-gas (4) Bitumen
17. PCRA is associated with
- (1) Pests control
(2) Pollution control
(3) Petroleum conservation
(4) Forest conservation
18. Which of the following elements burns in air to form acidic oxide?
- (1) Sulphur (2) Sodium
(3) Calcium (4) Zinc
19. Which of the following substances will take maximum time for degradation?
- (1) Paper (2) Wood
(3) Wool (4) Cotton
20. Match the following :
- | Column I | Column II |
|-----------------------|---------------------------|
| a. Paraffin wax | (i) Naphthalene |
| b. Coal tar | (ii) Extraction of metals |
| c. Coke | (iii) Fire extinguisher |
| d. Sodium bicarbonate | (iv) Ointments |
- (1) a(iv), b(i), c(ii), d(iii)
(2) a(ii), b(iii), c(iv), d(i)
(3) a(i), b(iv), c(ii), d(iii)
(4) a(iv), b(iii), c(ii), d(i)
21. Which of the following are rabi crops?
- (1) Maize, soyabean and wheat
(2) Wheat, pea and mustard
(3) Groundnut, soyabean and linseed
(4) Pea, maize and wheat
22. Large scale storage of grains is done in
- (1) Silos (2) Jute bags
(3) Metallic bins (4) Gunny bags

Space For Rough Work

23. Which of the following is a common preservative?

- (1) Hydrochloric acid
- (2) Sulphuric acid
- (3) Sodium hydroxide
- (4) Sodium benzoate

24. Refer the diagram and identify the part where female gametes ova are produced.



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

25. Match the following :

Column I	Column II
a. Cholera	(i) Viruses
b. Tuberculosis	(ii) Bacteria
c. Citrus canker	
d. Measles	
e. Polio	

- (1) a, b, e(ii) & c, d(i)
- (2) a, b, c(ii) & d, e(i)
- (3) a, b, c(i) & d, e(ii)
- (4) a, d, e(ii) & b, c(i)

26. Which of the following structures is observed in onion cells but not in human cheek cells?

- (1) Nucleus
- (2) Cytoplasm
- (3) Cell membrane
- (4) Cell wall

27. **Statement 1** : Reforestation is restocking of the destroyed forests.

Statement 2 : Deforestation can lead to desertification.

Choose the correct option.

- (1) Statement 1 is true and 2 is false
- (2) Both the statements are false
- (3) Both the statements are true
- (4) Statement 2 is true and 1 is false

28. Which of the following statements is incorrect?

- (1) Prokaryotic cells contain well defined nucleus
- (2) Nucleus contains thread like structures called chromosomes
- (3) Nucleus is covered by nuclear membrane
- (4) Nucleus acts as control centre of the cell

29. Which of the following are the examples of fauna of Pachmarhi Biosphere Reserve?

- a. Cheetal
- b. Arjun
- c. Leopard

- (1) a, b & c
- (2) a & c
- (3) Only c
- (4) Only a

30. Select the correct sequence of the stages of binary fission taking place in *Amoeba*.

- (1)
- (2)
- (3)
- (4)

Space For Rough Work

MATHEMATICS

31. The value of

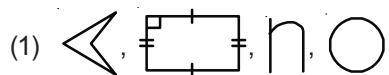
$$\left[\sqrt{21 + \sqrt{11 + \sqrt{25}}} \right] \times [(3 \times 8 - 4) \div 4]^{-1} \text{ is}$$

- (1) 5 (2) 0
(3) 25 (4) 1

32. What rate percent is one minute 12 seconds to an hour?

- (1) 2% (2) 3%
(3) 4% (4) 5%

33. Which of the following options contains 1 simple closed curve, 1 regular polygon, 1 convex polygon and 1 concave polygon?



34. The mean temperature from 9th to 16th of March, both days inclusive was 11.6°C and from 10th to 17th March, it was 12.2°C. If the temperature on 9th of March was 10.8°, then on 17th March it was

- (1) 16.6°C (2) 15.6°C
(3) 15°C (4) 16°C

35. Two numbers are respectively 20% and 50% more than a third number. What percentage is the first of the third?

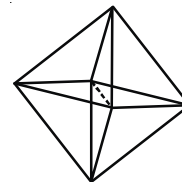
- (1) 80% (2) 100%
(3) 120% (4) 150%

36. The quotient when 1000^{1000} is divided by 200^{200} is

- (1) $1000^{800} \cdot 5^{200}$ (2) $1000^{200} \cdot 5^{800}$
(3) $1000^{700} \cdot 5^{200}$ (4) $1000^{900} \cdot 5^{200}$

37. The given figure consists of x faces. The value of x is

- (1) 8
(2) 10
(3) 12
(4) 14



38. A rectangular tank 25 m long and 20 m wide contains 2,50,000 gallons of water. If one cubic metre of water measure 200 gallons, then the depth of the tank is

- (1) 1.32 m (2) 1.72 m
(3) 2 m (4) 2.5 m

39. A general wishes to draw up his 36581 soldiers in the form of a square. After arranging them, he finds that some of them are left over. Number of soldiers left during the arrangement is

- (1) 400 (2) 198
(3) 100 (4) 286

40. A trader marked his goods 20% above the cost price. He sold half the stock at the marked price, one quarter at a discount of 20% on the marked price and rest at a discount of 40% on the marked price. His gain percentage is

- (1) 2% (2) 13.5%
(3) 4.5% (4) 15%

41. The difference between compound interest and simple interest on the sum of ₹ 7500 for 2 years at the same rate of interest is ₹ 108. The rate of interest per annum is

- (1) 6% (2) 8%
(3) 12% (4) 15%

Space For Rough Work

42. The wheel of a car $7\frac{1}{2}$ m in circumference makes 7 revolutions in 9 seconds. The speed of the car is

(1) 7 km/h (2) 21 km/h

(3) 14 km/h (4) $\frac{7}{3}$ km/h

43. If $x = 5 + 2\sqrt{6}$, then $\frac{(x-1)}{\sqrt{x}}$ is equal to

(1) $\sqrt{2}$ (2) $2\sqrt{2}$

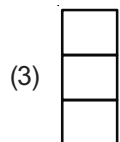
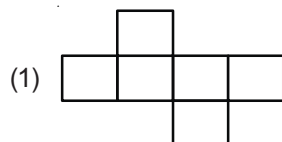
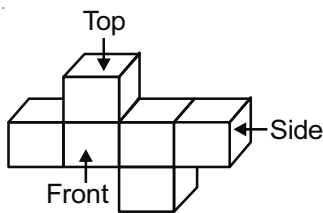
(3) $\sqrt{3}$ (4) $2\sqrt{3}$

44. A number whose fifth part when increased by 4 is equal to its fourth part diminished by 10, is

(1) 90 (2) 180

(3) 260 (4) 280

45. The side view of the given solid is



46. Which of the following is the greatest?

(1) $-\frac{2}{3} + \frac{1}{6} - \frac{8}{9} + \left\{\frac{1}{6} - \frac{2}{8}\right\}$

(2) $-\frac{2}{9} + \frac{8}{6} + 3$

(3) $4 - \frac{8}{9} - \frac{6}{5} - \frac{8}{3}$

(4) $\frac{4}{5} - \frac{2}{3} + \frac{1}{6} - 1$

47. Number of diagonals in a decagon is

(1) 42 (2) 35

(3) 28 (4) 34

48. Which of the following is not a good option for representing discrete data?

(1) Bar graph (2) Double bar graph

(3) Histogram (4) All of these

49. Which is the largest among the following?

$\sqrt[4]{6}, \sqrt{2}, \sqrt[3]{4}, \sqrt[8]{25}$

(1) $\sqrt[8]{25}$ (2) $\sqrt[3]{4}$

(3) $\sqrt{2}$ (4) $\sqrt[4]{6}$

50. Square root of $abcdefghi$, where $a \dots i$ are digits, will contain x digits. The value of x is

(1) 3 (2) 4

(3) 5 (4) 6

51. In how many years will a sum of ₹ 800 at 10% per annum compounded semi-annually becomes ₹ 926.10?

(1) $1\frac{1}{3}$ years (2) $2\frac{1}{3}$ years

(3) $1\frac{1}{2}$ years (4) $2\frac{1}{2}$ years

Space For Rough Work

52. In a pie-chart, if a component is represented by a sector of angle 96° , then the percentage of the component value in the total is
- 25.8%
 - 24.6%
 - 28.9%
 - 26.7%
53. Observe the pattern :
- $$1^2 + 2^2 + 2^2 = 3^2$$
- $$5^2 + 6^2 + 30^2 = 31^2$$
- $$19^2 + x + y = z$$
- Here, the values of x, y and z respectively are
- $19^2, 21^2, 380^2$
 - $20^2, 20^2, 21^2$
 - $20^2, 21^2, 381^2$
 - $20^2, 380^2, 381^2$
54. Of the two square fields, the area of one is 1 hectare while the area of the other one is greater by 1%. The difference in their areas is
- 100 m^2
 - 201 m^2
 - 101 m^2
 - 202 m^2
55. From a bag containing 15 red balls, 12 green balls, 18 black balls and 9 blue balls, a ball is drawn at random. If the probability of drawing that specific coloured ball is 0.28, then ball of which colour has been drawn?
- Red
 - Green
 - Black
 - Blue
56. If $x - \frac{1}{x} = \sqrt{79}$, then the value of $\left(x^2 + \frac{1}{x^2} + 19\right)^{\frac{1}{2}}$ is
- 9
 - 10
 - 3
 - 100
57. The diameter of a cylindrical jar is increased by 25%. By what percent must the height of the jar be decreased so that there is no change in its volume?
- 32%
 - 25%
 - 36%
 - 28%
58. Which of the following is/are closed under subtraction?
- Integers
 - Natural numbers
 - Rational numbers
 - Whole numbers
- a, b & c
 - b & d
 - a & c
 - b, c & d
59. Water is pouring into a cuboidal tank at the rate of 100 litres per second. If the capacity of the tank is 180 m^3 , then the total number of hours in which the reservoir will be full is
- 0.5 hour
 - 1 hour
 - 2 hours
 - 3 hours
60. A trader mixes 26 kg of rice at ₹ 20/kg with 30 kg of rice of other variety at ₹ 36/kg and sells the mixture at ₹ 30/kg. His loss/gain percentage is
- 5% gain
 - 10% gain
 - 5% loss
 - 10% loss



Space For Rough Work



Test Booklet Code: **A**

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Answers

- | | | | | |
|---------|---------|---------|---------|---------|
| 1. (4) | 13. (4) | 25. (2) | 37. (1) | 49. (2) |
| 2. (3) | 14. (3) | 26. (4) | 38. (4) | 50. (3) |
| 3. (4) | 15. (3) | 27. (3) | 39. (3) | 51. (3) |
| 4. (2) | 16. (4) | 28. (1) | 40. (1) | 52. (4) |
| 5. (1) | 17. (3) | 29. (2) | 41. (3) | 53. (4) |
| 6. (4) | 18. (1) | 30. (2) | 42. (2) | 54. (1) |
| 7. (4) | 19. (2) | 31. (4) | 43. (2) | 55. (1) |
| 8. (2) | 20. (1) | 32. (1) | 44. (4) | 56. (2) |
| 9. (1) | 21. (2) | 33. (3) | 45. (3) | 57. (3) |
| 10. (1) | 22. (1) | 34. (2) | 46. (2) | 58. (3) |
| 11. (2) | 23. (4) | 35. (3) | 47. (2) | 59. (1) |
| 12. (2) | 24. (2) | 36. (1) | 48. (3) | 60. (1) |