

# Studymate Foundation Paper

Date : 23/12/2018  
Duration : 90 Min.  
Max. Marks : 90

**Science & Mathematics  
(Set-2)**

**CLASS**

**VII**

**General Instructions:**

- All questions are compulsory.
- Each question is allotted ONE mark for each correct response.
- No deduction from the total score will be made if no response is indicated for the question in the answer sheet.
- There is only **ONE** correct response for each question. Filling up **MORE THAN ONE** response in each question will be treated as wrong response and marks for wrong response will be deducted accordingly.
- Use of calculators is not allowed.

## Section A – Science

- A wooden spoon is dipped in a cup of ice-cream. Its other end
  - becomes cold by the process of conduction.
  - becomes cold by the process of convection.
  - becomes cold by the process of radiation.
  - does not become cold.
- Which of the following features are that of a clinical thermometer?
 

A. Short temperature range	B. Wide temperature range
C. Alcohol filled glass bulb	D. Constriction in glass tube

  - A and B
  - B and C
  - A and D
  - B and D
- The aqueous solution of one of the following will turn China rose indicator from light pink to green. This solution is of
  - vinegar
  - baking soda
  - lemon juice
  - carbonic acid
- The dilute solutions of which of the following are not harmful to drink?
 

A. Magnesium hydroxide	B. Potassium hydroxide
C. Sodium hydrogencarbonate	D. Sodium carbonate

  - A and B
  - B and C
  - A and C
  - B and D
- The two indicators which give red or pink colour on adding a basic solution are
 

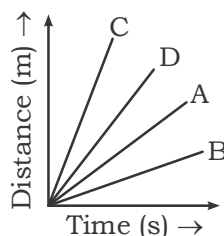
A. China rose indicator	B. Turmeric paper indicator
C. Phenolphthalein indicator	D. Blue litmus indicator

  - A and B
  - B and C
  - C and D
  - A and D
- Which of the following is a mineral acid?
  - citric acid
  - acetic acid
  - carbonic acid
  - oxalic acid
- Which of the following are chemical changes?
 

A. Decaying of wood	B. Burning of wood
C. Sawing of wood	D. Hammering of nail into wood

  - A and B
  - B and C
  - A and C
  - B and D

8. When ice-cream melts  
 A. Heat is lost from the ice-cream  
 B. Heat is gained by the ice-cream  
 C. Heat is lost from the surroundings  
 D. Heat is gained by the surroundings  
 (a) A and B (b) B and C (c) A and C (d) C and D
9. The gas we use in the kitchen is called liquefied petroleum gas (LPG). In the cylinder it exists as liquid. When it comes out from the cylinder, it becomes a gas (Process A) and then it burns (Process B). The following statements pertain to these changes. Choose the correct one.  
 (a) Process A is a chemical change.  
 (b) Process B is a physical change.  
 (c) Process A is a physical change but B is a chemical change.  
 (d) Process A is a chemical change but B is a physical change.
10. A violent storm lifts people and cars off the ground and hurls them hundreds of metres away. This storm is likely to be a  
 (a) thunderstorm (b) tornado (c) cyclone (d) typhoon
11. Which of the following process provides energy required to form and sustain a cyclone?  
 (a) condensation of water vapour (b) vaporisation of water  
 (c) kinetic energy of blowing wind (d) fast moving sea waves
12. The centre of a cyclonic storm called the 'eye of cyclone' is an area of  
 (a) very low air pressure (b) moderate air pressure  
 (c) very high air pressure (d) gradually rising air pressure
13. Thunderstorms develop very frequently in areas having  
 (a) polar climate (b) tropical climate (c) desert climate (d) temperate climate
14. Four cars A, B, C and D are moving on a levelled, straight road. Their distance-time graphs are shown in the given figure. Which of the following is the correct statement regarding the motion of these cars?

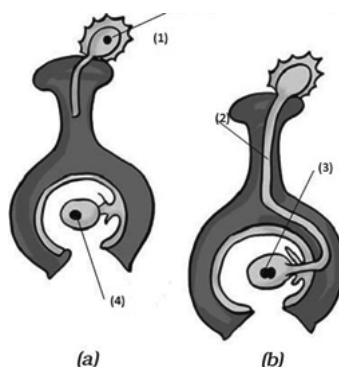


- (a) car A is faster than car D (b) car B is the slowest  
 (c) car D is faster than the car C (d) car C is the slowest
15. The sundial is a device for measuring:  
 (a) speed (b) distance (c) time (d) height
16. The distance-time graph of a car which comes to a stop after covering a certain distance will be:  
 (a) a straight line sloping upwards (b) a curved line sloping downwards  
 (c) a straight line parallel to time axis (d) a straight line parallel to distance axis
17. Materials trapped air by fur, feathers, wool and sawdust are heat  
 (a) insulators (b) conductors (c) gainers (d) losers
18. When gases are heated, they  
 (a) expand more than solids but less than liquids  
 (b) expand more than liquids but less than solids  
 (c) expand the least  
 (d) expand the most

19. Point at which solid substance changes into liquid state it is called  
(a) melting point      (b) boiling point      (c) power point      (d) complex point
20. A component which is used to close or break a circuit is  
(a) bulb      (b) switch      (c) wire      (d) electric cell
21. The Department which prepares weather report is  
(a) Telecom Department      (b) Electrical Department  
(c) Civil Department      (d) Meteorological Department
22. The amount of humidity in the atmosphere is a measure of \_\_\_\_\_ in air  
(a) Heat      (b) Moisture      (c) Chemicals      (d) Temperature
23. The wind speed during the second cyclone that hit Orissa during the year 1999 on 29<sup>th</sup> October was  
(a) 260km/hr      (b) 200km/hr      (c) 150km/hr      (d) 100km/hr
24. The substances that are used to test whether a substance is acidic or basic is called  
(a) Acid      (b) Base      (c) Salt      (d) Indicator
25. Name the device used for measuring Temperature  
(a) Ammeter      (b) Thermometer      (c) Anemometer      (d) Ammeter
26. The instrument used to measure rainfall is called  
(a) Rain Gauge      (b) Barometer  
(c) Thermometer      (d) maximum-minimum thermometer
27. The change in shape of a hot tin can when pored with cold water on it is due to the  
(a) pressure inside the can is less than that outside  
(b) pressure outside the can is same as that inside  
(c) pressure inside the can is more than that outside  
(d) pressure inside the can is equal to the atmospheric pressure
28. The paper ball kept near the mouth of a plastic bottle will be pushed out because  
(a) the air pressure inside the bottle is same as that at the mouth.  
(b) the air pressure inside the bottle is more than that at the mouth.  
(c) the pressure inside and outside the bottle same.  
(d) the air pressure inside the bottle is less than that at the mouth.
29. A change in which a substance undergoes changes in its physical properties is called  
(a) Physical change      (b) Chemical change      (c) No change      (d) Biological change
30. The regular vibrations of which of the following electrically driven crystals are used for measuring time very accurately?  
(a) calcite crystals      (b) quadric crystals      (c) chrome crystals      (d) quartz crystals
31. Select the incorrect statement from the given option.  
I. An adult human being, under normal condition, passes out 1-1.8 L of urine per day.  
II. Excretion is removal of undigested food.  
III. Urine passes from urinary bladder to ureter.  
IV. Kidney filters the blood.  
(a) IV and III only      (b) II only  
(c) II and III only      (d) I and III only
32. Select the correct sequence for passage of air during inhalation in humans.  
(a) Nostrils → Windpipe → Diaphragm → Lungs  
(b) Nasal cavity → Nostrils → Lungs → Windpipe

- (c) Nostrils → Nasal cavity → Pharynx → Trachea  
(d) Nostrils → Nasal cavity → Trachea → Pharynx
- 33.** Transpiration in plants helps in  
(a) Removing of extra food (b) Generating suction pull in tall plants  
(c) Increasing temperature (d) Absorption of water
- 34.** Yeast and bread moulds are  
(a) Parasites (b) Saprophytes  
(c) Autotrophs (d) Both (b) and (c) are correct
- 35.** Select the heterotrophic plant  
(a) Pitcher plant only (b) Cuscuta and Pitcher plant  
(c) Amaranth and Mushroom (d) Cactus and Cuscuta
- 36.** Respiratory structure in insects is  
(a) Lungs (b) Gills (c) Tracheae (d) Skin
- 37.** Read the following statement with reference to the tongue present in oral cavity  
(i) Tongue mixes the saliva with foods  
(ii) Muscular organ attached with buccal cavity  
(iii) Taste buds on tongue detect same taste  
(iv) Helps in swallowing of food  
Select the correct option from the following  
(a) Only IV is correct (b) Only II and III are correct  
(c) Only III is incorrect (d) Only III and IV incorrect
- 38.** X is a substance synthesized by Y gland. X has important role in digestion of fat. Select the correct option for X and Y.  
(a) X - digestive juice; Y - Stomach (b) X - pancreatic juice; Y - Pancreas  
(c) X - Bile juice; Y - Liver (d) X - bile juice; Y - gall bladder
- 39.** Match the following columns
- | <b>Column - A</b>                  | <b>Column - B</b>                  |
|------------------------------------|------------------------------------|
| 1. Yeast                           | i. Fragmentation                   |
| 2. Spirogyra                       | ii. Asexual reproductive buds      |
| 3. Spores                          | iii. Budding                       |
| 4. Dahlia                          | iv. Grows from root                |
| (a) 1 (ii), 2 (iii), 3(i), 4 (iv)  | (b) 1 (iii), 2 (i), 3 (ii), 4 (iv) |
| (c) 1 (iii), 2 (i), 3 (iv), 4 (ii) | (d) 1 (iii), 2 (i), 3 (iv), 4(i)   |
- 40.** Number of ovules present in an ovary is/are  
(a) Only one (b) Only two (c) Many (d) One to many
- 41.** Products that we obtain from forest include  
(a) Gum and catechu (b) Woods and steel  
(c) Wax and cement (d) Rubber and plastic
- 42.** Which of the following statement is incorrect related to sexual reproduction in plants  
(a) Fusion of gamete is fertilization (b) Zygote develops into embryo  
(c) Two plants are always required (d) Pollination is essential for fertilization
- 43.** World water day is observed on  
(a) 14 March (b) 22 March (c) 22 December (d) 5 May

44. Look at the given diagram and select the correct option for labelling



S. no	1	2	3	4
(a)	Ovum	Pollen tube	Pollen grain	Zygote Formation
(b)	Pollen tube	ovum	Pollen grain	Zygote formation
(c)	Pollen tube	Pollen grrain	Zygote formation	ovum
(d)	Pollen grains	Pollen tube	Zygote formation	ovum

45. During inhalation, ribs

- (a) Move up and outwards (b) Move down  
(c) Move down and inwards (d) Do not move

### Section – B (Mathematics)

46. Which pair of numbers does not have a product equal to 36?

- (a)  $\left(\frac{1}{2}, -72\right)$  (b)  $(-4, -9)$  (c)  $(-3, -12)$  (d)  $(1, 36)$

47. Which of the following number is prime?

- (a) 179 (b) 187 (c) 247 (d) 119

48. The value of  $(-5) \times (-4) \times (-3) \times (-2) \times (-1) \times 0 + 0 \times (1) \times (2) \times (3) \times (4) \times (5)$  is \_\_\_\_\_

- (a) 240 (b) 120 (c) -120 (d) 0

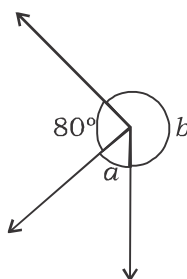
49. The value of  $|-6| + |-5| - |7| - |3|$ , where  $|\cdot|$  is absolute value of an integer is \_\_\_\_\_

- (a) 2 (b) 3 (c) 1 (d) 0

50. The value of A in  $A \times (3 + 4) = 10 \times 4 + 10 \times 3$ , is

- (a) 10 (b) -10 (c) -20 (d) 20

51. Find the measure of  $(a + b)$



- (a)  $277^\circ$  (b)  $267^\circ$  (c)  $280^\circ$  (d)  $285^\circ$

52. If base and height of a right angled triangle are 27 m and 36 m, respectively, then its hypotenuse is

- (a) 40 m (b) 50 m (c) 70 m (d) 45 m

- 53.** Write the number for the following expanded from:  
 $0 \times 10^8 + 2 \times 10^9 + 8 \times 10^3 + 8 \times 10^4 + 0 \times 10^6 + 4 \times 10^1 + 0 \times 10^7$   
 (a) 82140 (b) 81240 (c) 82240 (d) 82244
- 54.** The ages of Sunil and Mohit are in the ratio 5:7. If sum of their ages is 72 year. Age of Mohit is:  
 (a) 42 years (b) 40 years (c) 24 years (d) 44 years
- 55.** The average of the two middle rational numbers if  $\frac{1}{3}, \frac{1}{4}, \frac{1}{2}, \frac{1}{6}$  are arranged in descending order is \_\_\_\_\_  
 (a)  $\frac{4}{3}$  (b)  $\frac{3}{8}$  (c)  $\frac{7}{8}$  (d)  $\frac{7}{24}$
- 56.** How many edges does a cube have?  
 (a) 8 (b) 6 (c) 12 (d) 10
- 57.** The number of lines of symmetry existing in an isosceles triangle is \_\_\_\_\_.  
 (a) 0 (b) 1 (c) 2 (d) 3
- 58.** The cost of an article has increased from Rs. 450 to Rs. 495. What is the increase percent?  
 (a) 10 (b) 20 (c) 30 (d) 50
- 59.** The median of 2, 1, 5, 2, 3, 6 and 2 is \_\_\_\_\_.  
 (a) 2 (b) 3 (c) 5 (d) 6
- 60.** The coefficient of  $x$  in  $-7x^3y$  is \_\_\_\_\_.  
 (a) -7 (b)  $-7xy$  (c)  $-7x^2y$  (d)  $-7x^3y$
- 61.** A fraction  $x$  can be expressed as a terminating decimal if  $y$  has no prime factors other than \_\_\_\_\_.  
 (a) 2, 3 (b) 2, 3, 5 (c) 2, 5 (d) 3, 5
- 62.** Which of the following statement is correct?  
 (a) All natural numbers are whole numbers, all whole numbers are integers.  
 (b) All integer are whole numbers, all natural numbers are integers.  
 (c) All whole numbers are integers, all integers are natural numbers.  
 (d) All integer are whole numbers, all integers are all natural numbers.
- 63.** What is the half of  $2^{100}$ ?  
 (a)  $2^{50}$  (b)  $2^{99}$  (c) 2 (d) 100
- 64.** What % of 45 is 36?  
 (a) 8 (b) 20 (c) 25 (d) 80
- 65.** The perimeter of a square is 26.8 cm, then area of square will be \_\_\_\_\_.  
 (a)  $44.89 \text{ cm}^2$  (b)  $12.29 \text{ cm}^2$  (c)  $4.489 \text{ cm}^2$  (d)  $33.29 \text{ cm}^2$
- 66.** What is the word that means to "cross over"?  
 (a) Interscope (b) intersect (c) interverse (d) transverse
- 67.** What is the reciprocal of  $-11\frac{6}{15}$ ?  
 (a)  $\frac{15}{-171}$  (b)  $\frac{15}{159}$  (c)  $\frac{15}{171}$  (d)  $\frac{15}{-159}$
- 68.**  $78 + 2(x^2 + x^2) + 13 + 2(9y^3) + 5(5y^3) =$   
 (a)  $91 + 4x^2 + 43y^3$  (b)  $91 + 2x^2 + 43y^3$  (c)  $93 + 4x^2 + 43y^3$  (d)  $91 + 4x^2 + 28y^3$
- 69.** The 2nd and 3rd multiples of a number are 22 and 33. What is the number?  
 (a) 5 (b) 6 (c) 9 (d) 11

- 70.** Which of these sets of numbers are all factors of 80?  
(a) 2, 4, 8, 16 (b) 2, 4, 8, 12 (c) 2, 8, 16, 18 (d) 2, 4, 14, 20
- 71.** Subtract  $2x - y + z$  from  $3x - 2y - 2z$  to get:  
(a)  $x + y + z$  (b)  $x - y - z$  (c)  $x - y - 3z$  (d)  $x - y + 3z$
- 72.** Value of  $\frac{10^{22} + 10^{20}}{10^{20}}$  is  
(a) 10 (b)  $10^{42}$  (c)  $10^{22}$  (d) 101
- 73.** Which one is not equal to  $\left(\frac{-5}{4}\right)^4$ ?  
(a)  $\frac{(-5)^4}{4^4}$  (b)  $\frac{5^4}{(-4)^4}$   
(c)  $\frac{5^4}{4^4}$  (d)  $\left(\frac{-5}{4}\right) \times \left(\frac{-5}{4}\right) \times \left(\frac{-5}{4}\right) \times \left(\frac{-5}{4}\right)$
- 74.** If  $a^2 = 6b$  and  $a$  has the value of 6, what is the value of  $b$ ?  
(a) 3 (b) 6 (c) 9 (d) 12
- 75.** Which sign must be contained in a formula?  
(a) + (b) - (c)  $\times$  (d) =
- 76.** How many possible correspondences or matchings, two congruent triangles can have  
(a) 3 (b) 6 (c) 1 (d) Infinite
- 77.** How many parallel lines can be drawn, which are parallel to a given line segment.  
(a) 1 (b) 0 (c) Infinite (d) 2
- 78.** If two given ratios are equivalent, their fractions are  
(a) equal (b) not equal  
(c) one fraction is twice of the other (d) one fraction is 4 times of others
- 79.** Which of these triangles has equal sides as well as equal angles  
(a) isosceles triangle (b) right-angled triangle  
(c) equilateral triangle (d) scalene triangle
- 80.** By which property of a triangle, we can say that, the sum of all angles of a triangle is 180°?  
(a) Pythagoras property (b) Exterior angle property  
(c) Isosceles triangle property (d) Angle sum property
- 81.** Look at this fractional equation :  $\frac{a}{3} = \frac{9}{2}$ . to solve the equation what would you do first?  
(a) Multiply  $a \times 9$  (b) Multiply  $3 \times 2$   
(c) Multiply  $a \times 9$  and multiply  $3 \times 2$  (d) Multiply  $a \times 2$  and multiply  $3 \times 9$
- 82.** How many prime numbers are there from 1 to 100?  
(a) 15 (b) 50 (c) 25 (d) 22
- 83.** All the integers and fractions are rational numbers  
(a) True (b) False  
(c) Can't say (d) Can't be determined
- 84.** How many rational numbers are possible between two rational numbers?  
(a) Infinite (b) 1 (c) 2 (d) 0
- 85.** In which of the following, the sum of angles is 180°?  
(a) Co-interior angles (b) Alternate angles  
(c) Vertically - opposite angles (d) Corresponding angles

- 86.** Find the value of  $(2^4 \times 2^2 \times 2^6) \div (2 \times 2^5)$   
(a) 8 (b) 16 (c) 32 (d) 64
- 87.** What should be subtracted from  $4x^2 + 5y^2 + 8xy + 6$  to get  $-x^2 + 3y^2 + 10xy - 1$ .  
(a)  $5x^2 + 2y^2 - 2xy + 7$  (b)  $-5x - 2y^2 + 2xy - 7$   
(c)  $x^2 - 3y^2 - 10xy + 1$  (d)  $x^2 + 3y^2 - 6xy + 5$
- 88.** When  $a = 1$ ,  $b = 2$ , find the value of  $(2a^2 + b^2 + 1)$   
(a) 5 (b) 6 (c) 7 (d) 8
- 89.** Find the perimeter of rectangular sheet, if the area and the length of the rectangular sheet is  $400 \text{ cm}^2$  and  $10 \text{ cm}$ .  
(a)  $40 \text{ cm}$  (b)  $300 \text{ cm}$  (c)  $100 \text{ cm}$  (d)  $80 \text{ cm}$
- 90.** The perimeter of the square land is  $20 \text{ m}$ . Find the cost of the land, if  $1 \text{ m}^2$  of the land costs Rs. 1,000.  
(a) Rs. 2,500 (b) Rs. 25,000 (c) Rs. 10,000 (d) Rs. 15,000

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