

**SITE -2011**  
**SCIENCE**  
**Class: VII**

**PHYSICS and CHEMISTRY**

**1. Deceleration of a body is expressed in**

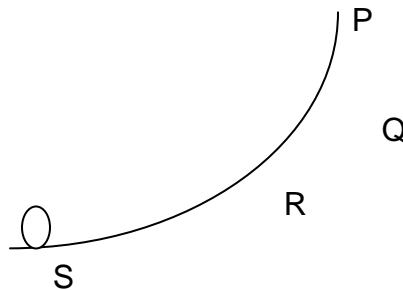
- a. m
- b. m/s
- c. m/s<sup>2</sup>
- d. -ms<sup>-2</sup>

**2. A car X is overtaking car Y at a given time such that both cars move in same direction. Which of**

the following statements is true?

- a. Car X is accelerating while car Y is decelerating
- b. Car Y is decelerating while car X is accelerating
- c. Both cars are moving with same velocity
- d. None of these.

**3. A ball was rolled down a slope as shown in the diagram below.**



At which point did the ball have the greatest potential energy?

- a. P
- b. Q
- c. R
- d. S

**4. The table below shows the energy conversion of four devices M, N, O, P**

Device	Energy Conversion
M	Electrical Energy → Kinetic Energy
N	Potential Energy → Kinetic Energy
O	Kinetic Energy → Sound Energy
P	Electrical Energy → Heat Energy

Which of the following correctly represent the device in the table

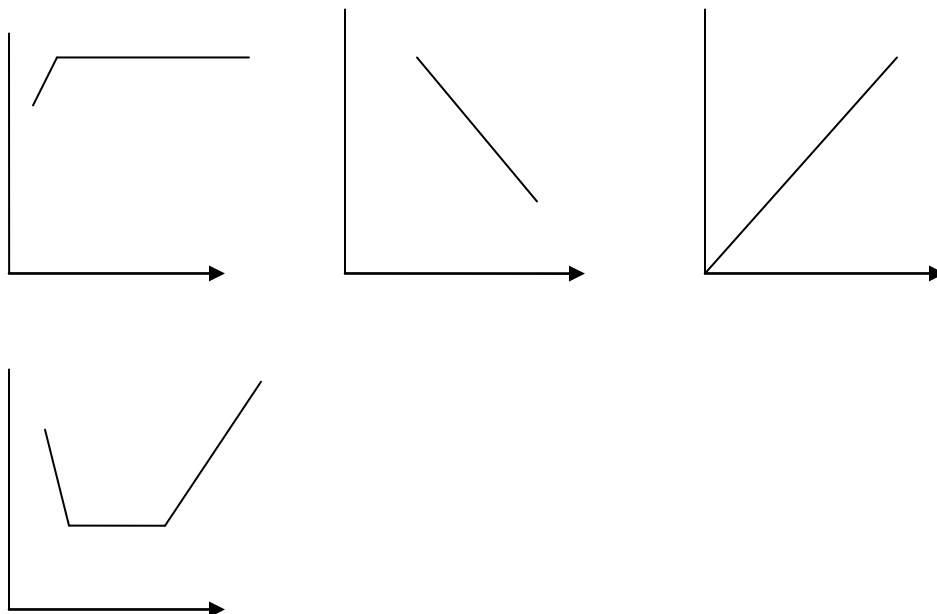
M	N	O	P
a. Drill	Washing Machine	Telephone	Vacuum pump
b. Vacuum Cleaner	Torchlight	Discman	Refrigerator
c. To aster	Battery operated fan	Radio	Solar cooker
d. Escalator	Catapult	Drum	Microwave oven

**5. Choose the correct answer among the following**

- a. Heat flow between 2 bodies is due to difference in temperature
- b. The change in temperature in Kelvin & Celsius scale are same.
- c. Kelvin is the standard temperature scale.
- d. Heat is cause while temperature is the effect.

- i) a & b only ii) b & c only iii) a, b and c only iv) All statements are correct.

**6. A pot full of water is put to boil on the stove. Which one of the graph below shows the correct change in temperature over time**



**7. Science fiction films often show battles between spaceships. Four friends were arguing what would someone in space hear if an enemy spaceship exploded?**

Rekha said, “ They would hear a big explosion”.

Renu said, “They will not hear anything as there is no medium for sound to travel but they can see the explosion.

Ramesh said, “Yes they will neither hear nor see the explosion”.

Raghav said, “ The explosion produces sound of frequency above 20,000 HZ , hence we cannot hear it

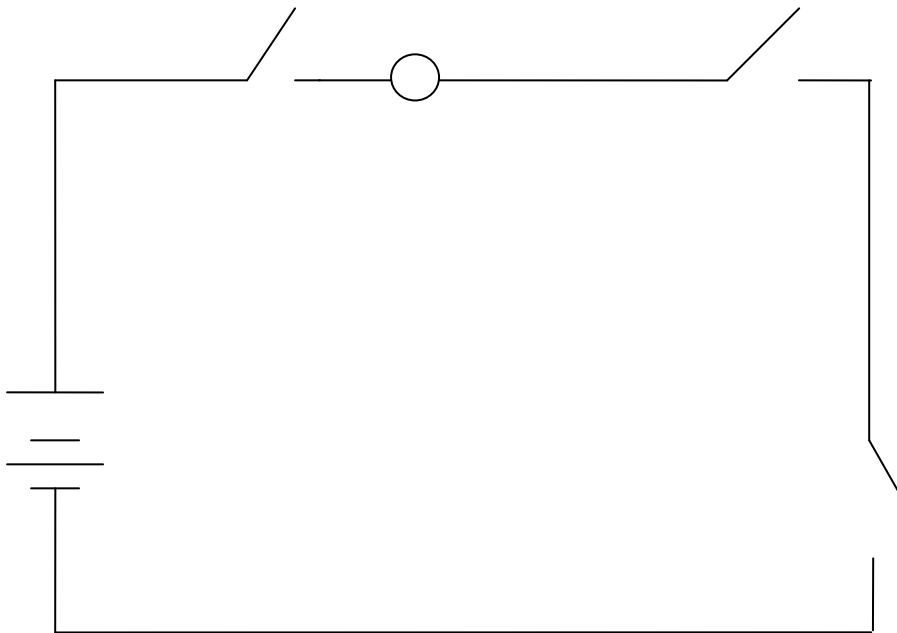
Who is correct?

- a) Ramesh                      b) Raghav                      c) Rekha                      d) Renu

**8. Rahul is playing the drums. Which of the following characteristics of sound would result in an increase in loudness.**

- a) Amplitude                      b) Speed                      c) Pitch                      d) Quality

**9. Study the circuit diagram given below. Which switch I, II or must be closed so as to light up only bulb A**



- a) Switch I only                      b) Switches I and II only  
c) Switches I and III only                      d) Switches I, II and III only

**10) Which of the following statements is true about the circuit drawn here.**

- a. Bulbs A, B, C are connected in parallel.  
b. If Bulb A is fused, B & C will not glow.  
c. Bulb A, B, C are connected in series.

d. The current has only one path to flow through this circuit.

- i) A only                      ii) A & B only                      iii) A, B, C                      iv) B, C, D

**11. Train A travels with a speed of 90 km/h from Hyderabad to Bangalore. Train B travels with a speed of 90 km/h from Bangalore to Hyderabad. Which of these statements is true?**

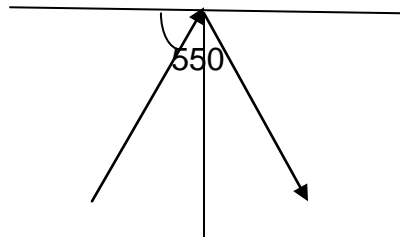
- a. Both trains are traveling with same speed.  
b. Both trains have the same velocity.  
c. Trains A & B have the same speed, but different velocities.  
d. Trains A & B have the same velocity but different speeds.

- i) A only                      ii) B only                      iii) A & C only                      iv) B & D only

**12. Periscope is used to**

- a. magnify extremely small objects into bigger images  
b. observe the distant images such as planets and stars.  
c. analyse the spectrum formed by the sunlight.  
d. view objects placed at a higher level from a position at lower level.

**13. Find the angle of incidence in the following figure?**



- a) 45°                      b) 90°                      c) 35°                      d) 60°

**14. A marathon runs at an average speed of 15 km/h. How long would it take for him to complete a marathon of 75 km.**

- a) 2hrs                      b) 3hrs                      c) 5hrs                      d) 10hrs

**15. What is the density of oil in the bottle shown here?**

- a) 0.9 g/ml  
b) 0.1 g/ml  
c) 1.9 g/ml  
d) 1.1 g/ml

**16. The mirror which is used for side view mirror in vehicles is**

- a) Plane mirror
- b) Convex mirror
- c) Concave mirror
- d) None of these

**17. The balloon shown here is full of water Dhruv wants to make a hole in the balloon so that the water comes out with max pressure. At which point should he make the hole.**

- a) A
- b) B
- c) C
- d) D

**18. A Bicycle increases its velocity from 10 km/h to 15 km/h in 6 seconds. Its acceleration is**

- a) 3000 m/s<sup>2</sup>
- b) 25/108 m/s<sup>2</sup>
- c) 5/6 m/s<sup>2</sup>
- d) 10 m/s<sup>2</sup>

**19. Ram & Ravi pull a table in opposite direction with equal force then**

- a) Work is said to be done
- b) No work is done
- c) Double work is done
- d) None of these

**20. Which of the following statements is correct about virtual image?**

- a) It can be formed on a screen but cannot be seen
- b) It cannot be formed on a screen but is inverted
- c) It cannot be formed on a screen but is inverted but is inverted
- d) It can only be formed with a concave mirror.

**21. A non metal which is a good conductor of electricity**

- a) Chlorine
- b) Oxygen
- c) Graphite
- d) Sulphur

**22. Which out of the following is a polymer?**

- a) Duralumin
- b) Soda glass

- c) Cement                      d) Plastic

**23. Water evaporates from plant by a process known as**

- a) Transpiration      b) Transportation  
c) Infiltration      d) Photosynthesis

**24. The sharp pain caused by the sting of an ant is due to**

- a) Maleic acid                      b) nitric acid  
c) Formic acid                      d) lactic acid

**25. Which of the following acids is used in car batteries?**

- a) Nitric acid              b) Hydrochloric acid  
c) Carbonic acid      d) Sulphuric acid

**26. Which of the following acid is weak?**

- a) Sulphuric acid      b) Hydrochloric acid  
c) Nitric acid              d) Acetic acid

**27. X is present in stomach. However presence of excess of its causes indigestion which requires**

the intake of Y to undo the effect of X. Identify X & Y from the given pairs

- a) dil HCL & milk of magnesia  
b) conc HCL & milk of magnesia  
c) dil H<sub>2</sub>SO<sub>4</sub> & milk of magnesia  
d) dil HCL & sodium hydroxide

**28. Which of the following properties of IRON is not a physical property**

- a) Electrical conductivity                      b) Magnetic



- 3. Tip of the roots, stem and leaves are rich in \_\_\_\_\_.**
- Ground tissues
  - Vascular tissues
  - Meristematic tissues
  - Dermal tissues
- 4. \_\_\_\_\_ carries the oxygen from the lungs to the tissues.**
- White blood cells
  - Haemoglobin
  - Platelets
  - Plasma
- 5. Ethyl alcohol is produced during \_\_\_\_\_.**
- Aerobic respiration
  - Combustion
  - Breathing
  - Fermentation
- 6. \_\_\_\_\_ is called as the voice box and \_\_\_\_\_ is the actual site of gaseous exchange.**
- Larynx ; Alveoli
  - Larynx : bronchioles
  - Trachea : Alveoli
  - Trachea : Bronchioles
- 7. \_\_\_\_\_ collects the deoxygenated blood from lower parts of the body and carries it to the right auricles.**
- Superior vena cava
  - inferior vena cava
  - pulmonary vein
  - Hepatic vein
- 8. In humans, the sperms are temporarily stored in the \_\_\_\_\_.**
- Epididymis
  - Scrotum
  - Vas deferens
  - Penis
- 9. \_\_\_\_\_ is necessary for the effective functioning of the digestive system. It absorbs water and poisonous wastes from the food we eat.**
- |             |              |
|-------------|--------------|
| a. minerals | b. Vitamins  |
| c. Proteins | d. Roughage. |
- 10. \_\_\_\_\_ is needed for the healing of wounds and \_\_\_\_\_ is necessary for healthy bones and skin**
- Vitamin A ; Vitamin C
  - Vitamin C ; Vitamin A
  - Vitamin C ; Calcium
  - Vitamin A ; Calcium

# SMART INDIA TALENT EXAMINATION-2011

Std: VII

MATHEMATICS

Marks: 40marks

Time : 60 min.

Choose the correct answer from the given four alternatives.

1) The value of  $[(-4) \times (-9)] \div [(2) \times (-3) \times (-5)]$  is \_\_\_\_\_.

- (a) 10                      (b) 20                      (c) 30                      (d) 40

2) The difference of the sum of even number and sum of odd number between 10 and 20 is

- (a) 13                      (b) 14                      (c) 15                      (d) 16

3) Which of the following statements is correct?

A: Rational numbers are always closed under division

R: Division by zero is not defined

- (a) *A is true R is correct explanation of A*  
(b) *A is false R is correct explanation of A*  
(c) *A is true R is false*  
(d) *A is false and R is false*

4) Value of  $1 + \frac{1}{1 + \frac{1}{1 - \frac{1}{16}}}$  is

(a)  $\frac{6}{11}$

(b)  $\frac{16}{11}$

(c)  $\frac{7}{6}$

(d)  $\frac{1}{6}$

5) The value of  $x$  so that  $14(2x - 3) - 60x = 5(15 - 9x)$

(a)  $-9$

(b)  $9$

(c)  $-117$

(d)  $117$

6) Which value of  $P$  makes the following true?

$$P - \{-4 - (2 - 8 \div 4)\} = 8$$

(a)  $-12$

(b)  $-4$

(c)  $4$

(d)  $12$

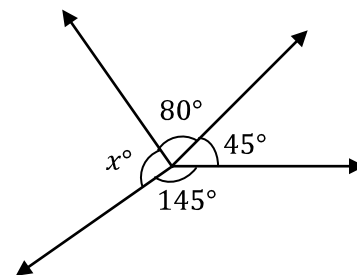
7) The value of  $x^\circ$  in the given diagram is

(a)  $90^\circ$

(b)  $45^\circ$

(c)  $80^\circ$

(d)  $145^\circ$



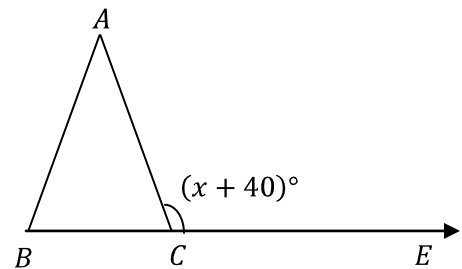
8) In the given diagram  $AB=AC$  then  $x$  is

(a)  $80^\circ$

(b)  $70^\circ$

(c)  $60^\circ$

(a)  $110^\circ$



9) The point at which the altitude of a triangle meet is

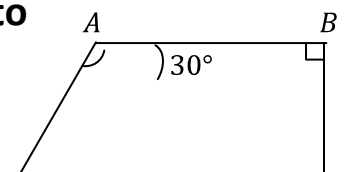
(a) *centroid*

(b) *incentre*

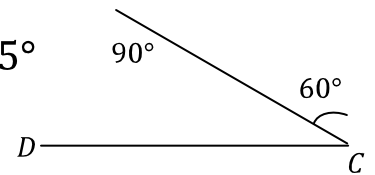
(c) *orthocentre*

(d) *circumcentre*

10) In the given diagram  $AB \parallel DC$  then  $\angle ADC$  is equal to



- (a)  $90^\circ$                       (b)  $45^\circ$                       (c)  $60^\circ$                       (d)  $75^\circ$



**11) Two numbers are in the ratio 1:2. If 7 be added to both, their ration changes to 3:5. The greater number is**

- (a) 28                      (b) 32                      (c) 36                      (d) 25

**12) The *C.P.* of 25 articles is equal to *S.P.* of 20 articles then *gain* % is**

- (a) 25                      (b) 20                      (c) 30                      (d) 10

**13) If  $x = 5$  and  $y = x + 7$  then the value of  $\sqrt{x^2 + y^2}$  is**

- (a) 65                      (b) 26                      (c) 17                      (d) 13

**14) Degree of zero is**

- (a) 0                      (b) 1                      (c) 2                      (d) *not defined*

**15)  $2^3 + 2^3 + 2^3 + 2^3$  is equal to**

- (a)  $2^5$                       (b)  $2^{12}$                       (c)  $2^{81}$                       (d)  $2^{16}$

**16) If  $8^{x-1} = 2^{x+3}$  then  $x$  is**

- (a) 2                      (b) 4                      (c) 1                      (d) 3

17) The value of  $\left(\left(\left(4^2\right)^{\frac{1}{2}}\right)^2\right)^{\frac{1}{2}}$  is

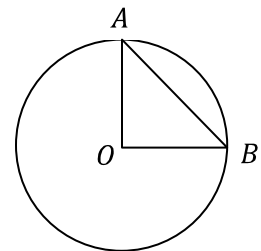
- (a) 4                      (b) 16                      (c) 2                      (d) 32

18) The height of an equilateral triangle is  $\sqrt{6}cm$  long. Its area is

- (a)  $3\sqrt{3}cm^2$               (b)  $2\sqrt{3}cm^2$               (c)  $2\sqrt{2}cm^2$               (d)  $6\sqrt{2}cm^2$

19) The radius of the given circle is  $7cm$  area of the shaded region is

- (a)  $14cm^2$                                       (b)  $28cm^2$   
(b)  $7cm^2$                                       (d)  $35cm^2$



20) Mean of the first six prime numbers is

- (a) 4.83                      (b) 6.83                      (c) 5.83                      (d) 7.83

21) The median value of the given data is

98, 75, 96, 180, 270, 102, 94, 100, 610, 200, 75, 80

- (a) 100                      (b) 98                      (c) 97                      (d) 99

**22) When a coin tossed probability of getting a head is**

- (a) 0                      (b)  $\frac{1}{2}$                       (c) 1                      (d) 2

**23) A mistake was made in simplifying the expression given below  
simplify                       $5 + 2(6 + 4) - 2^3$**

Step 1:                       $= 5 + 2(10) - 2^3$

Step 2:                       $= 7(10) - 2^3$

Step 3:                       $= 70 - 2^3$

Step 4:                       $= 70 - 8$

Step 5:                       $= 62$

- (a) *Step 1*                      (b) *Step 2*                      (c) *Step 3*                      (d) *Step 4*

**24) Every \_\_\_\_\_ number is smaller than 0.**

- (a) *Positive*                      (b) *Rational*                      (c) *Natural*                      (d) *Negative*

**25) Multiplicative inverse of  $\frac{1}{8}$  is**

- (a)  $-8$                       (b)  $8$                       (c)  $\frac{-1}{8}$                       (d)  $1$

**Fill in the blanks with correct answer**

26) The least number exactly divisible by 12, 15, 20 and 27 is \_\_\_\_\_.

27) The value of  $(0.3)^3$  is \_\_\_\_\_.

28)  $\frac{3}{48}$  is \_\_\_\_\_ part of  $\frac{1}{12}$

29) The principal is Rs. 250 and the rate of interest is 4% per annum. Simple interest for 6 years is \_\_\_\_\_

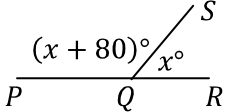
30)  $a^3 + b^3 =$  \_\_\_\_\_

31) The value of  $3a^3x^4y^7 \times a^2x^5y^8$  is \_\_\_\_\_.

32) If  $a^3 - b^3 = 27$ ,  $a - b = 1$  then  $ab$  is \_\_\_\_\_

33)  $a^4 - b^4 = (a^2 + b^2)(\quad)(\quad)$

34) If  $\frac{x}{4} = 7$  then  $x$  is \_\_\_\_\_.

35)  the value of  $x^\circ$

**SAY TRUE OR FALSE**

36) Sum of 3 angles of a triangle is  $360^\circ$

37) In a rhombus, diagonals bisect each other at  $90^\circ$

38) If  $3x + 4 = 2x + 7$  then the value of  $x$  is 3.

39) The value of  $(-2)^3$  is 8.

40)  $\sqrt{25 + 9}$  is 8.