

**PHYSICS****CHOOSE THE CORRECT OPTION:**

01. Angstrom is equals to :  
(a)  $10^{-9}\text{m}$                       (b)  $10^{-10}\text{m}$                       (c)  $10^{-8}\text{m}$                       (d)  $10^{-7}\text{m}$
02. 36 km/hour is same as:  
(a)  $36\text{ ms}^{-1}$                       (b)  $3.6\text{ms}^{-1}$                       (c)  $10\text{ms}^{-1}$                       (d)  $0.36\text{ms}^{-1}$
03. A 150 m long train is moving with a uniform velocity of 45 km/h. The time taken by the train to cross a bridge of length 850m is:  
(a) 56 s                      (b) 68 s                      (c) 80 s                      (d) 92 s
04. The necessary force required in Newton to produce a pressure of 50 Newton/metre<sup>2</sup> on a rectangle of area 10 square metre will be:  
(a) 500                      (b) 60                      (c) 5                      (d) 0.2
05. Which colour is the best radiator of heat:  
(a) Black                      (b) Green                      (c) Red                      (d) Yellow
06. A ray is incident perpendicular at a plane mirror. What will be the value of angle of reflection?  
(a)  $0^\circ$                       (b)  $45^\circ$                       (c)  $90^\circ$                       (d)  $30^\circ$
07. Velocity of light in vacuum is  $3 \times 10^8\text{ m/s}$ . What will be its velocity in a medium of refractive index 1.5?  
(a)  $1.5 \times 10^8\text{ m/s}$                       (b)  $4.5 \times 10^8\text{ m/s}$                       (c)  $2 \times 10^8\text{ m/s}$                       (d)  $3 \times 10^8\text{ m/s}$
08. Sound cannot travel through:  
(a) air                      (b) glass                      (c) water                      (d) vacuum

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# CHEMISTRY

## CHOOSE THE CORRECT OPTION:

09. The equation  $\text{Cu} + x\text{HNO}_3 \longrightarrow \text{Cu}(\text{NO}_3) + y\text{NO}_2 + 2\text{H}_2\text{O}$  the value of  $x$  and  $y$  are  
(a) 3 and 1                      (b) 8 and 6                      (c) 4 and 2                      (d) 7 and 1 respectively
10. A gaseous mixture of A, B and C is passed through water. The gaseous mixture B and C remains. If this gaseous mixture of B and C is subjected to sudden expansion followed by application of high pressure, B liquefies leaving behind C. Identify the set of gases.  
(a)  $\text{SO}_3, \text{NO}_2, \text{O}_2$                       (b)  $\text{Cl}_2, \text{SO}_2, \text{H}_2$                       (c)  $\text{CO}_2, \text{CO}, \text{N}_2$                       (d)  $\text{NH}_3, \text{N}_2, \text{H}_2$
11. Which of the following reaction is not a combination reaction?  
(a) Reaction of iodine with white phosphorus  
(b) Reaction of iron with sulphur  
(c) Addition of water to lime  
(d) Addition of concentrated sulphuric acid to sugar
12. A mixture of three liquids X, Y and Z when subject to fractional distillation, the order in which the vapours condense back to liquid state in fractionating tower is Y, X and Z. Arrange them in the correct order of vapour pressures.  
(a)  $Z < X < Y$                       (b)  $Y < X < Z$                       (c)  $X < Z < Y$                       (d)  $X < Y < Z$
13. **Assertion (A)** : An electron in the inner orbit is more tightly bound to the nucleus.  
**Reason (R)** : The greater the absolute value of energy of an electron the more tightly the electron is bound to the nucleus.  
(a) Both A and B are true but B is not the appropriate reason for A.  
(b) Both A and B are individually correct and B is the correct reason for A.  
(c) A is correct but B is not correct.  
(d) Both A and B are not correct.
14. If two naturally occurring isotopes of an element are  ${}_7\text{X}^{15}$ ,  ${}_7\text{X}^{11}$  what is the percentage composition of each isotope of X occurring respectively if the average atomic weight accounts to 14 ?  
(a) 95, 5                      (b) 80, 20                      (c) 75, 25                      (d) 65, 35
15. The properties which increase on going down the group are \_\_\_\_\_.  
(a) ionization energy and electro negativity    (b) atomic size and ionization energy  
(c) electro negativity and atomic size                      (d) metallic character and reducing power
16. Identify the oxide which forms the strongest base.  
(a) MgO                      (b)  $\text{Al}_2\text{O}_3$                       (c)  $\text{Na}_2\text{O}$                       (d) CaO

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# MATHEMATICS

CHOOSE THE CORRECT OPTION:

17. Which of the following is correct?

- (a)  $10^{200} > 5^{300}$       (b)  $10^{200} < 5^{300}$       (c)  $10^{200} = 5^{300}$       (d)  $10^{200} \geq 5^{300}$

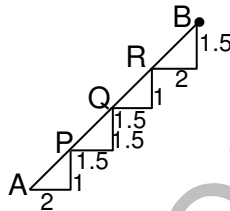
18. The expression  $\left[ \frac{a^2 - b^2}{ab} - \frac{(ab - b^2)}{ab - a^2} \right]$  when simplified equals to :

- (a)  $\frac{a}{b}$       (b)  $\frac{a^2 - b^2}{ab}$       (c)  $a - 2b$       (d)  $a + 2b$

19. The remainder when  $(2^{17} - 2^{13})$  is divided by 15 is equal to

- (a)  $2^{17}$       (b)  $2^{13}$       (c)  $2^{14}$       (d)  $2^4$

20. What is the distance between 'A' & 'B' in metres if A & B are connected by a staircase?



- (a) 9.6 m      (b) 8.6 m      (c) 7.6 m      (d) 6.6 m

21. In a  $\triangle ABC$ , if  $2\angle A = 3\angle B = 6\angle C$  then  $\angle A =$

- (a)  $45^\circ$       (b)  $60^\circ$       (c)  $90^\circ$       (d)  $0^\circ$

22. In  $\triangle ABC$ , if  $\angle A = 50^\circ$ ,  $\angle B = 60^\circ$ , which side of the triangle is the greatest ?

- (a)  $BC$       (b)  $CA$       (c)  $AB$       (d) None of these

23. If  $4^x - 4^{x-1} = 24$  then the value of  $x$  is :

- (a)  $\frac{7}{2}$       (b)  $\frac{5}{2}$       (c) 5      (d) None of these

24. A three digit number  $3a5$  is added to another 3-digit number  $933$  to give a 4-digit number  $12b8$ , which is divisible by 11. Then, find the value of  $a + b$ ?

- (a) 12      (b) 13      (c) 14      (d) 15

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## Answer Key

	Physics		Chemistry		Mathematics
1	b	9	c	17	b
2	c	10	d	18	a
3	c	11	d	19	b
4	a	12	c	20	b
5	a	13	a	21	c
6	a	14	c	22	c
7	c	15	d	23	b
8	d	16	c	24	d

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