



APTITUDE TEST FOR PLUS ONE ADMISSION (MODEL QUESTIONS)

SCIENCE STREAM

PHYSICS

1. A small object is placed 10cm in front of a plane mirror. If you stand behind the object, 30cm from the mirror and look at its image, for what distance must you focus your eyes?
A. 20cm
B. 60cm
C. 80cm
D. 40cm
E. 30cm
2. The engine of a car produces an acceleration of 6 ms^{-2} in the car. If this car pulls another car of the same mass, then the acceleration would be
A. 6 ms^{-2}
B. 12 ms^{-2}
C. 3 ms^{-2}
D. 1.5 ms^{-2}
E. 4.5 ms^{-2}
3. Two balls of different masses m_a and m_b are dropped from two different heights a and b . The ratio of time taken by the two balls to drop through these distances is
A. $a:b$
B. $b:a$
C. $\sqrt{a} : \sqrt{b}$
D. $a^2:b^2$
E. $a : b/2$
4. A body of mass 1kg is attracted by the earth with a force which is equal to
A. 9.8 N
B. $6.67 \times 10^{11} \text{ N}$
C. 1N
D. 4.9 N
E. 9.8 m
5. Electro magnetic waves are
A. mechanical waves
B. longitudinal waves
C. latitudinal waves
D. reversed waves
E. transverse waves
6. The density of ice is 0.9 g/cc and that of sea water is 1.1 g/cc. An ice berg of volume V is floating in sea water. The fraction of ice above water level is
A. 1/11
B. 2/11
C. 3/11
D. 4/11
E. 5/11
7. The number of images of an object held between two parallel plane mirrors is
A. infinity
B. 1
C. 3
D. 0
E. 4
8. If the velocity of light in a medium is $\frac{2}{3}$ times of the velocity of light in vacuum, then the refractive index of that medium is.
A. $3/2c$
B. $2c/3$
C. $2/3$
D. 1.5
E. 1.33

9. The magnetic field inside the solenoid is
 A) Non uniform
 B) same at all points
 C) Variable
 D) Zero
 E) Perpendicular to each other
10. A bullet of mass 100g moving with 20m/s strikes a wooden plank and penetrates up to 20cm. Calculate the resistance offered by the wooden plank.
 A. 200N
 B. 500N
 C. 300N
 D. 150 N
 E. 100N
11. Due to the increase of pressure, the boiling point of water
 A. decreases
 B. increases
 C. remains the same
 D. none of these
 E. depends on the material of the container
12. The lengths of three copper wires are in the ratio 5:3:1 and their masses are in the ratio 1:3:5. Their resistances are in the ratio:
 A. 1:3:5
 B. 5:3:1
 C. 1:15:125
 D. 125:15:1
 E. 1:9:5
13. While launching a rocket of mass 2×10^4 kg, a force of 5×10^5 N is applied for 20seconds. Calculate the velocity attained by the rocket at the end of 20seconds.
 A. 500m/s
 B. 450m/s
 C. 300m/s
 D. 350m/s
 E. 550 m/s
14. When a ray of light enters a glass slab from air
 A. It's wavelength decreases
 B. It's wavelength increases
 C. It's frequency increases
 D. Neither its wavelength nor its frequency changes
 E. It gets diffracted.
15. Three copper wires have lengths and cross-sectional areas as (l, A) , $(2l, A/2)$ and $(l/2, 2A)$. Resistance is minimum in
 A. wire of cross-sectional area $A/2$
 B. wire of cross-sectional area A
 C. wire of cross-sectional area $2A$
 D. same in all three cases.
 E. Cannot determine

CHEMISTRY

16. Sodium carbonate is a basic salt because it is a salt of
 A. Strong acid and strong base
 B. Weak acid and weak base
 C. Strong acid and weak base
 D. Weak acid and strong base
 E. None of these
17. Which of the following remains unchanged on descending a group in the periodic table
 A. Valence electrons
 B. Atomic size
 C. Density
 D. Electronegativity
 E. None of these

18. The percentage of hydrogen in water is
 A. 8.88
B. 11.12
 C. 20.60
 D. 80
 E. 70.4
19. Kalium is the Latin name of
A. Potassium
 B. Krypton
 C. Calcium
 D. Phosphorous
 E. Silver
20. An atom is 15 times heavier than $\frac{1}{12}^{th}$ of the mass of carbon atom (C – 12 isotope).
 The mass in a.m.u is
 A. 1.25
B. 15
 C. 14
 D. 12
 E. 7.5
21. The atomic number of an element is 11 and its mass number is 23. The correct order representing the number of electrons, protons and neutrons respectively in this atom is
A. 11, 11, 12
 B. 11, 12, 11
 C. 12, 11, 11
 D. 23, 11, 23
 E. 11, 12, 13
22. Choose the correct Balanced equation of the reaction $Al_4C_3 + H_2O \rightarrow Al(OH)_3 + CH_4$
A. $Al_4C_3 + 12H_2O \rightarrow 4Al(OH)_3 + 3CH_4$
 B. $2Al_4C_3 + 6H_2O \rightarrow 2Al(OH)_3 + CH_4$
 C. $3Al_4C_3 + 12H_2O \rightarrow 3Al_4(OH)_3 + 3CH_4$
 D. $Al_4C_3 + 2H_2O \rightarrow Al(OH)_3 + CH_4$
 E. None of these
23. Acid used in the manufacturing of fertilizers and explosives is
A. HNO_3
 B. H_2SO_4
 C. H_3PO_4
 D. HCl
 E. HNO_2
24. When acid react with metal carbonates products are
 A. Salt
 B. Water
 C. CO_2
 D. CO_2 and Water
E. Salt, CO_2 and Water
25. Periodic number of ${}_{13}Al^{27}$ is
 A. 1
 B. 2
 C. 4
D. 3
 E. 5
26. Which of the following statement is not true about true solution
 A. It can pass through filter paper
 B. It is homogeneous in nature
C. At constant temperature particles of solute settle down
 D. From a true solution the solute can be easily reversed by evaporation or crystallization
 E. None of the above

27. If the molecular mass of a compound is 74.5, then the compound is
 A. KCl
 B. HCl
 C. NaCl
 D. LiCl
 E. CaCO₃
28. The reaction of Cl₂ with X gives bleaching powder. X is
 A. CaO
 B. Ca(OH)₂
 C. Ca(OCl)₂
 D. Ca(ClO₃)₂
 E. CaCO₃
29. Hydrogen gas is not liberated when the following metal added to dil. HCl
 A. Mg
 B. Sn
 C. Ag
 D. Zn
 E. None of the above
30. Ozone in the stratosphere is depleted by
 A. CF₂Cl₂
 B. C₇F₁₆
 C. C₆H₆Cl₆
 D. C₆F₆
 E. None of these

MATHEMATICS

31. If $\sin\theta$ and $\cos\theta$ are the roots of the equation $ax^2 + bx + c = 0$, then
 A. $(a - c)^2 = b^2 - c^2$
 B. $(a - c)^2 = b^2 + c^2$
 C. $(a + c)^2 = b^2 - c^2$
 D. $(a + c)^2 = b^2 + c^2$
 E. $b^2 = 4ac$
32. If one root of the equation $x^2 + Ax + 12 = 0$ is 4 and the roots of $x^2 + 2Ax + B = 0$ are equal, then value of B is
 A. 49
 B. 4
 C. $\frac{4}{49}$
 D. $\frac{49}{4}$
 E. None of these
33. If $\sin x + \sin^2 x = 1$, then $\cos^8 x + 2\cos^6 x + \cos^4 x =$
 A. 0
 B. -1
 C. 2
 D. -2
 E. 1
34. The sum of first 24 terms of an A.P a_1, a_2, a_3, \dots ; if it is known that $a_1 + a_5 + a_{10} + a_{15} + a_{20} + a_{24} = 225$, is equal to
 A. 90
 B. 180
 C. 900
 D. 1800
 E. 1900

35. If a vertex of a triangle is (1, 1) and the midpoints of the two sides through this vertex are (-1, 2) and (3, 2), then the centroid of the triangle is

A. $\left(1, \frac{7}{3}\right)$

D. $\left(-\frac{1}{3}, \frac{7}{3}\right)$

B. $\left(\frac{1}{3}, \frac{7}{3}\right)$

E. $\left(\frac{-1}{3}, \frac{-7}{3}\right)$

C. $\left(-1, \frac{7}{3}\right)$

36. The number of points on X axis which are at a distance c units ($c < 3$) from (2,3) is

A. 1

D. 3

B. 2

E. 4

C. 0

37. If the mean of numbers $27 + x$, $31 + x$, $89 + x$, $107 + x$, $156 + x$ is 82, then the mean of $130 + x$, $126 + x$, $68 + x$, $50 + x$, $1 + x$ is

A. 75

D. 80

B. 157

E. None of these

C. 82

38. In a single throw of a pair of dice, the probability of getting the sum a perfect square is

A. $\frac{1}{18}$

D. $\frac{2}{9}$

B. $\frac{7}{36}$

E. $\frac{7}{9}$

C. $\frac{1}{6}$

39. A sphere of radius 6 cm is dropped into a cylindrical vessel partly filled with water. The radius of the vessel is 8 cm. If the sphere is submerged completely, then the surface of the water rises by

A. 4.5 cm

D. 2 cm

B. 3 cm

E. 5 cm

C. 4 cm

40. In two concentric circles with centre O, the radius of the outer circle is 25 cm. Chord AB of the outer circle is tangent to the inner circle, at D. If $AB=48$ cm, then the radius of the inner circle is

A. 7 cm

D. 15 cm

B. 12 cm

E. 18 cm

C. 24 cm

41. The values of α and β for which the pair of linear equations $2x+3y=7$, $2\alpha x+(\alpha+\beta)y=28$ has infinite number of solution is
- A. $\alpha=4$ & $\beta=8$ D. $\alpha=4$ & $\beta=-8$
 B. $\alpha=5$ & $\beta=-2$ E. $\alpha=-5$ & $\beta=-2$
 C. $\alpha=-4$ & $\beta=8$
42. If the three sides of a triangle are a , $\sqrt{3}a$ and $\sqrt{2}a$ then the measure of the angle opposite to the longest side is
- A. 45° D. 90°
 B. 30° E. 75°
 C. 60°
43. If the median of the data $6, 7, x-2, x, 17, 20$ written in ascending order is 16 . Then x is
- A. 15 D. 18
 B. 16 E. 14
 C. 17
44. A pole of 6m high casts a shadow $2\sqrt{3}\text{ m}$ long on the ground, then the Sun's elevation is
- A. 60° D. 90°
 B. 45° E. 15°
 C. 30°
45. A solid sphere of radius r is melted and cast into shape of a solid cone of height r , then radius of the base of the cone is
- A. $5r$ D. $4r$
 B. $3r$ E. $2r$
 C. r

COMPUTER SCIENCE

46. What will be the output of the following Python statement?
- ```
>>>"a"+"bc"
```
- A. A D. abc  
 B. Bc E. None of the above  
 C. Bca
47. `for(i=8;i>=6;i- -)`  
`{ print(i); }` How many times the loop will execute?
- A. 2 D. 3  
 B. 0 E. 1  
 C. Infinite
48. Who was the father of Punched Card Processing?
- A. J Presper Eckert D. Blaise Pascal  
 B. Charles Babbage E. Steven Spielberg  
 C. Dr. Herman Hollerith

49. WAN stands for
- A. Wap Area Network
  - B. Wide Area Network
  - C. Wide Array Net
  - D. **Wireless Area Network**
  - E. World Area Network
50. Different components of the motherboard of a computer are linked together by parallel electrical lines called -----
- A. Conductors
  - B. **Buses**
  - C. Connectors
  - D. Wires
  - E. USB
51. A pixel is a -----
- A. A computer program which draw picture
  - B. A picture stored in the computer's memory
  - C. **The smallest resolvable unit of a picture**
  - D. The biggest resolvable unit of a picture
  - E. None of the above
52. What is the full form of UPS?
- A. Uniform Power Supply
  - B. **Uninterruptable Power Supply**
  - C. Universal Power Supply
  - D. Unidirectional Power Supply
  - E. United power supply
53. The domain name for government institutions:
- A. org
  - B. firm
  - C. com
  - D. **gov**
  - E. in
54. Find the output of the following code segment
- ```
void main()
{
int opt=3;
switch(opt)
{
case 1:
cout<<"case 1";
case 2:
cout<<"case 2";
default:
cout<<"default";
}
cout<<"out of case";
}
```
- A. case 1, case 2
 - B. case 2, default
 - C. **default, out of case**
 - D. case 1, case 2, out of case
 - E. case 1,default

55. What is the output of the statement $22.2\%2$?

- A. 0
- B. .2
- C. 1
- D. Error
- E. 22

56. What is the value of A?

$$A=2+4-8/2+3$$

- A. 5
- B. 2
- C. -4
- D. 3
- E. 4

57. WWW stands for?

- A. World Whole Web
- B. Wide World Web
- C. Web World Wide
- D. World Wide Web
- E. Wide web world

58. Full form of URL is?

- A. Uniform Resource Locator
- B. Uniform Resource Link
- C. Uniform Registered Link
- D. Unified Resource Link
- E. Universal resource locator

```
59. public class Loop {  
    public static void main(String[] args) {  
        int a=12,b;  
        for(b=0;b<=a;b++);  
        System.out.print(b);  }  
}
```

What will be the output of above java program?

- A. 10
- B. 13
- C. 12
- D. Compiler error
- E. 11

```
60. public class Loop {  
    public static void main(String[] args){  
        int b=0;  
        do{  
            int a=2;  
            b++;  
            System.out.println(a++);    }  
        while(b!=3);  }  
}
```

What will be the output of above java program?

- A. 2
 - B. 3
 - C. 3
 - D. Declaration is not allowed here, Compiler error
 - E. 2
- 2
 - 2
 - 3
 - 3
 - 4