



## 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  $6 \text{ ms}^{-2}$  in the car. If this car pulls another car of the same mass, then the acceleration would be  
A.  $6 \text{ ms}^{-2}$   
B.  $12 \text{ ms}^{-2}$   
C.  $3 \text{ ms}^{-2}$   
D.  $1.5 \text{ ms}^{-2}$   
E.  $4.5 \text{ ms}^{-2}$
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  $2 \times 10^4$  kg, a force of  $5 \times 10^5$ 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  $\frac{1}{12}$ <sup>th</sup> 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  $\text{Al}_4\text{C}_3 + \text{H}_2\text{O} \rightarrow \text{Al}(\text{OH})_3 + \text{CH}_4$   
**A.  $\text{Al}_4\text{C}_3 + 12\text{H}_2\text{O} \rightarrow 4\text{Al}(\text{OH})_3 + 3\text{CH}_4$**   
 B.  $2\text{Al}_4\text{C}_3 + 6\text{H}_2\text{O} \rightarrow 2\text{Al}(\text{OH})_3 + \text{CH}_4$   
 C.  $3\text{Al}_4\text{C}_3 + 12\text{H}_2\text{O} \rightarrow 3\text{Al}_4(\text{OH})_3 + 3\text{CH}_4$   
 D.  $\text{Al}_4\text{C}_3 + 2\text{H}_2\text{O} \rightarrow \text{Al}(\text{OH})_3 + \text{CH}_4$   
 E. None of these
23. Acid used in the manufacturing of fertilizers and explosives is  
**A.  $\text{HNO}_3$**   
 B.  $\text{H}_2\text{SO}_4$   
 C.  $\text{H}_3\text{PO}_4$   
 D. HCl  
 E.  $\text{HNO}_2$
24. When acid react with metal carbonates products are  
 A. Salt  
 B. Water  
 C.  $\text{CO}_2$   
 D.  $\text{CO}_2$  and Water  
**E. Salt,  $\text{CO}_2$  and Water**
25. Periodic number of  ${}_{13}\text{Al}^{27}$  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. CaCO<sub>3</sub>
28. The reaction of Cl<sub>2</sub> with X gives bleaching powder. X is
- A. CaO  
B. Ca(OH)<sub>2</sub>  
C. Ca(OCl)<sub>2</sub>  
D. Ca(ClO<sub>3</sub>)<sub>2</sub>  
E. CaCO<sub>3</sub>
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. CF<sub>2</sub>Cl<sub>2</sub>  
B. C<sub>7</sub>F<sub>16</sub>  
C. C<sub>6</sub>H<sub>6</sub>Cl<sub>6</sub>  
D. C<sub>6</sub>F<sub>6</sub>  
E. None of these

### BIOLOGY

31. The reason for diffusion inefficiency in multicellular organisms is:
- A. cell diffusion is a complex process.  
B. big size and complex body designs.  
C. cell diffusion requires lot of time.  
D. cell diffusion is rather a simple process to be carried out in multicellular organisms.  
E. None of these
32. A few drops of iodine solution were added to rice water. The solution turned blue-black in colour. This indicates that rice water contains:
- A. complex proteins  
B. simple proteins  
C. fats  
D. starch  
E. All of the above
33. Sensory nerve of a reflex arc carries information from the receptor cells to the :
- A. spinal cord  
B. brain  
C. muscles of the effector organ  
D. bones of the receptor organ  
E. None of these
34. Electrical impulse travels in a neuron from:
- A. Dendrite → axon → axonal end → cell body  
B. Cell body → dendrite → axon → axonal end  
C. Dendrite → cell body → axon → axonal end  
D. Axonal end → axon → cell body → dendrite  
E. Dendrite → Cell body → Dendrite → Axonal end
35. Select the mismatched pair
- A. Adrenaline: Pituitary gland  
B. Testosterone: Testes  
C. Estrogen : Ovary  
D. Thyroxin: Thyroid gland  
E. Estrogen: Thyroxin
36. In plants the role of cytokinin is:
- A. Promote cell division.  
B. Wilting of leaves.  
C. Promote the opening of stomatal pore.  
D. Help in the growth of stem.  
E. None of the above

37. What is the cause behind the fast-spreading of bread mould on bread slices?
- (i) Numerous pores present in the air
  - (ii) Due to the presence of thread-like hyphae
  - (iii) Traces of moisture and essential nutrients
  - (iv) Formation of round shaped sporangia
- A. (i) and (iii) D. (iii) and (iv)  
 B. (ii) and (iv) E. (ii) and (iii)  
 C. (i) and (ii)
38. The number of chromosomes in parents and off springs of a particular species remains constant due to:
- A. Doubling of chromosomes after zygote formation.
  - B. Halving of chromosomes during gamete formation.
  - C. Doubling of chromosomes after gamete formation.
  - D. Halving of chromosomes after gamete formation.
  - E. None of these
39. The alternative form of gene is called:
- A. dominant character D. allele.
  - B. recessive character E. None of these
  - C. alternative genes
40. A recessive homozygotes is crossed with a heterozygote of the same gene. What will be the phenotype of the F1 generation?
- A. All dominant
  - B. 75% dominant, 25% recessive
  - C. 50% dominant, 50% recessive
  - D. 25% dominant, 50% heterozygous, 25% recessive
  - E. 30% dominant, 10% recessive
41. A pea plant is represented by Rr. This represents the:
- A. Genetic composition of an individual
  - B. Characteristics which are visible in an organism.
  - C. Alternate form of genes
  - D. Number of chromosomes
  - E. None of these
42. Mendel proposed that every character is controlled by-
- A. one factor D. two chromosomes
  - B. two factors E. None of these
  - C. one chromosome
43. What happens to the earth's temperature due to the greenhouse effect?
- A. Increases D. Increase and decrease
  - B. Decreases E. All of the above
  - C. Remains the same
44. Why is it difficult to degrade non-biodegradable wastes?
- A. Because non-biodegradable wastes cannot be recycled.
  - B. Because microorganisms cannot decompose it.
  - C. They can be made into organic wastes.
  - D. Because they get accumulated.
  - E. All of the above
45. Which of the following is not due to man's activities?
- A. Volcanic eruption C. Thinning of the ozone layer
  - B. Global warming D. Pollution of the environment

E. None of these

### COMPUTER SCIENCE

46. What will be the output of the following Python statement?

```
>>>"a"+"bc"
```

A. A

B. Bc

C. Bca

D. abc

E. None of the above

47. for(i=8;i>=6;i- -)

```
{ print(i); }
```

 How many times the loop will execute?

A. 2

B. 0

C. Infinite

D. 3

E. 1

48. Who was the father of Punched Card Processing?

A. J Presper Eckert

B. Charles Babbage

C. Dr. Herman Hollerith

D. Blaise Pascal

E. Steven Spielberg

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**
- 2**
- 2**
- B. 3
- 3
- 3
- C. 3
- 4
- 5
- D. Declaration is not allowed here, Compiler error
- E. 2
- 3
- 4