

iQuest Scholarship Cum Admission Test

**FOR CLASS 10<sup>th</sup>  
MOVING TO CLASS 11<sup>th</sup> (ASPIRE NM)  
SAMPLE TEST**

Time: 1.5 Hrs

Max Marks : 220

SYLLABUS & SCHEME		
SUBJECTS	Qs.	SYLLABUS
PHYSICS	20	Full Syllabus
CHEMISTRY	20	Full Syllabus
MATHEMATICS	15	Full Syllabus

**INSTRUCTIONS TO CANDIDATE**

- Each subject in this paper consists of multiple choice questions with only one correct answer. **+4 marks** will be awarded for correct answer and **-1 mark** for wrong answer.
- Please read the instructions given for each question carefully and fill the correct answer against the question numbers on the answer sheet in the respective subject.
- Use blue or black ball point pen to darken the appropriate circle & mark should completely fill the circle.
- The Question paper contains blank spaces for your rough work. No additional sheet will be provided for rough work.
- Blank papers, Clipboards, Log Tables, Slide rule, Calculators, Cellular phones, Pagers and Electronic gadgets in any form are not allowed.
- Write your Name, Student ID in the block at the top of the Answer Sheet. Also write your Name & Student ID in the space provided on this cover page of question paper.
- **This is a Sample Test Paper. The actual Paper Pattern may vary in terms of duration and sections. However the syllabus will be same.**

Name: \_\_\_\_\_ Student ID \_\_\_\_\_



12. For a solenoid carrying a current  $I$  and having  $n$  turns per unit length, wrapped on a core of permeability  $\mu$ , the correct expression for magnetic field intensity (B) is
- (A)  $B = \frac{\mu_0}{\mu} nI$       (B)  $B = \frac{\mu_0 \mu I}{n}$   
 (C)  $B = \mu_0 m n I$       (D)  $B = \frac{\mu_0 \mu n}{I}$
13. A mirror forms a virtual image of a real object.  
 (A) It must be a convex mirror.  
 (B) It must be a concave mirror.  
 (C) It must be a plane mirror.  
 (D) It may be any of the mirrors mentioned above.
14. The angle of incidence is the angle between  
 (A) the incident ray and the surface of the mirror  
 (B) the reflected ray and the surface of the mirror  
 (C) the normal to the surface and the incident ray  
 (D) the normal to the surface and the reflected ray
15. A ray of light is incident on a concave mirror. If it is parallel to the principal axis, the reflected ray will  
 (A) pass through the focus  
 (B) pass through the centre of curvature  
 (C) pass through the pole  
 (D) retrace its path
16. If an incident ray passes through the centre of curvature of a spherical mirror, the reflected ray will  
 (A) pass through the pole  
 (B) pass through the focus  
 (C) retrace its path  
 (D) be parallel to the principal axis
17. Other names for myopia are  
 (A) hyperopia and hypermetropia  
 (B) long-sightedness and hyperopia  
 (C) near-sightedness and presbyopia  
 (D) near-sightedness and short-sightedness
18. The wavelengths corresponding to violet, yellow and red lights are  $\lambda_v$ ,  $\lambda_y$  and  $\lambda_r$  respectively.  
 (A)  $\lambda_v > \lambda_y > \lambda_r$       (B)  $\lambda_v < \lambda_y < \lambda_r$   
 (C)  $\lambda_y < \lambda_v < \lambda_r$       (D)  $\lambda_y < \lambda_r < \lambda_v$
19. When light rays enter the eye, most of the refraction occurs at the :  
 (A) crystalline lens  
 (B) outer surface of the cornea  
 (C) iris  
 (D) pupil
20. Which of the following phenomena contributes significantly to the reddish appearance of the sun at sunrise or sunset?  
 (A) Dispersion of light  
 (B) Scattering of light  
 (C) Total internal reflection of light  
 (D) Reflection of light from the earth

## CHEMISTRY

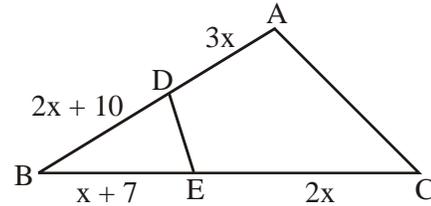
21. The following reaction is an example of a  
 $4\text{NH}_3(\text{g}) + 5\text{O}_2(\text{g}) \rightarrow 4\text{NO}(\text{g}) + 6\text{H}_2\text{O}(\text{g})$   
(i) displacement reaction (ii) combination reaction  
(iii) redox reaction  
(iv) neutralisation reaction  
(A) (i) and (iv) (B) (ii) and (iii)  
(C) (i) and (iii) (D) (iii) and (iv)
22. Which of the following are exothermic processes?  
(i) Reaction of water with quick lime  
(ii) Dilution of an acid  
(iii) Evaporation of water  
(iv) Sublimation of camphor (crystals)  
(A) (i) and (ii) (B) (ii) and (iii)  
(C) (i) and (iv) (D) (iii) and (iv)
23. What happens when a solution of an acid is mixed with a solution of a base in a test tube?  
(i) The temperature of the solution increases  
(ii) The temperature of the solution decreases  
(iii) The temperature of the solution remains the same  
(iv) Salt formation takes place  
(A) (i) only (B) (i) and (iii)  
(C) (ii) and (iii) (D) (i) and (iv)
24. During the preparation of hydrogen chloride gas on a humid day, the gas is usually passed through the guard tube containing calcium chloride. The role of calcium chloride taken in the guard tube is to  
(A) absorb the evolved gas  
(B) moisten the gas  
(C) absorb moisture from the gas  
(D) absorb  $\text{Cl}^-$  ions from the evolved gas
25. Aluminium is used for making cooking utensils. Which of the following properties of aluminium are responsible for the same?  
(i) Good thermal conductivity  
(ii) Good electrical conductivity  
(iii) Ductility  
(iv) High melting point  
(A) (i) and (ii) (B) (i) and (iii)  
(C) (ii) and (iii) (D) (i) and (iv)
26. What happens when calcium is treated with water?  
(i) It does not react with water  
(ii) It reacts violently with water  
(iii) It reacts less violently with water  
(iv) Bubbles of hydrogen gas formed stick to the surface of calcium  
(A) (i) and (iv) (B) (ii) and (iii)  
(C) (i) and (ii) (D) (iii) and (iv)
27. Which of the following is an example of a 'decomposition' reaction -  
(A)  $\text{CaO} + \text{CO}_2 \rightarrow \text{CaCO}_3$   
(B)  $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$   
(C)  $\text{Cu} + 2\text{Ag}^+ \rightarrow \text{Cu}^{2+} + 2\text{Ag}$   
(D)  $\text{CuSO}_4 + \text{H}_2\text{S} \rightarrow \text{CuS} + \text{H}_2\text{SO}_4$
28. The process of oxidation involves -  
(A) The absorption of hydrogen atoms  
(B) The absorption of electrons  
(C) The release of electrons  
(D) Neither absorption nor release of electrons
29. The number of molecules of water of crystallisation present in washing soda crystals is:  
(A) five (B) two  
(C) ten (D) seven
-



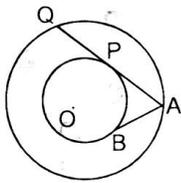
# MATHEMATICS

41. Three bells, toll at intervals of 36 sec, 40 sec and 48 sec respectively. They start ringing toll at particular time. They next toll together after -  
 (A) 18 minutes (B) 12 minutes  
 (C) 6 minutes (D) 24 minutes
42. Find the remainder obtained when  $x^{2007}$  is divisible by  $x^2 - 1$ .  
 (A)  $x^2$  (B)  $x$   
 (C)  $x + 1$  (D)  $-x$
43. The fare of 3 full tickets and 2 half tickets is Rs 204 and the fare of 2 full tickets and 2 half tickets is Rs. 186. Find the fare of a full ticket and a half ticket.  
 (A) Rs 94 (B) Rs 93  
 (C) Rs 86 (D) Rs 62
44. Quadratic equation whose one of the roots is  $4 + \sqrt{5}$  is :  
 (A)  $x^2 + 8x - 1 = 0$  (B)  $x^2 + 8x + 18 = 0$   
 (C)  $x^2 - 8x + 1 = 0$  (D)  $x^2 - 8x + 11 = 0$
45. If  $\sin^2 \theta + \sin^2 \theta = 1$  then  $\cos^2 \theta + \cos^4 \theta =$   
 (A) 1 (B)  $\frac{\sin \theta}{\cos^2 \theta}$   
 (C)  $\frac{\cos^2 \theta}{\sin \theta}$  (D) one
46. The area of a rhombus is  $2016 \text{ cm}^2$  and its side is 65 cm. The lengths of the diagonals (in cm) respectively are :  
 (A) 125, 35 (B) 126, 32  
 (C) 132, 26 (D) 135, 25

47. In the given figure,  $\overline{DE} \parallel \overline{AC}$ . Find the value of  $x$ .

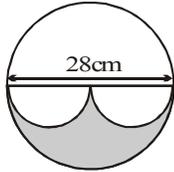


- (A) 1 (B) 2  
 (C) 3 (D) 4
48. 8<sup>th</sup> term of the series  $2\sqrt{2}, \sqrt{2}, 0, \dots$  will be -  
 (A)  $-5\sqrt{2}$  (B)  $5\sqrt{2}$   
 (C)  $10\sqrt{2}$  (D)  $-10\sqrt{2}$
49. There are 60 terms in an A.P. of which the first term is 8 and the last term is 185. The 31<sup>st</sup> term is  
 (A) 56 (B) 94 (C) 85 (D) 98
50. The centroid of a triangle, whose vertices are (2, 1), (5, 2) and (3, 4) is -  
 (A)  $\left(\frac{8}{3}, \frac{7}{3}\right)$  (B)  $\left(\frac{10}{3}, \frac{7}{3}\right)$   
 (C)  $\left(-\frac{10}{3}, \frac{7}{3}\right)$  (D)  $\left(\frac{10}{3}, -\frac{7}{3}\right)$
51. The angle of elevation of the top of a building 50 m high, from a point on the ground is  $45^\circ$ . The distance of the point from the foot of the building is :  
 (A) 100 m (B) 50 m  
 (C) 45 m (D) 60 m
52. The figure, shows two concentric circles with centre O. AB and AP are tangents to the inner circle from point A lying on the outer circle. If  $AB = 7.5 \text{ cm}$ , then AQ is equal to :



- (A) 18 cm                      (B) 15 cm  
 (C) 12 cm                      (D) 10cm

53. In the given figure, the area of shaded region is



- (A) 462 cm<sup>2</sup>                      (B) 308 cm<sup>2</sup>  
 (C) 616 cm<sup>2</sup>                      (D) 154 cm<sup>2</sup>

54. A cone, a hemisphere and a cylinder stand on equal bases and have the same height. The ratio of their volumes is :

- (A) 3 : 2 : 1                      (B) 1 : 3 : 2  
 (C) 2 : 3 : 1                      (D) 1 : 2 : 3

55. If a letter of English alphabet is chosen at random, then the probability that the letter is a consonant is

- (A)  $\frac{5}{26}$                               (B)  $\frac{21}{26}$   
 (C)  $\frac{10}{13}$                               (D)  $\frac{11}{13}$

# ANSWER KEY

## PHYSICS

1. (C) 2. (C) 3. (C) 4. (A) 5. (B) 6. (C)  
7. (B) 8. (C) 9. (A) 10. (B) 11. (D) 12. (C)  
13. (D) 14. (C) 15. (A) 16. (C) 17. (D) 18. (B)  
19. (B) 20. (B)

## Chemistry

21. (C) 22. (A) 23. (D) 24. (C) 25. (B) 26. (D)  
27. (B) 28. (C) 29. (C) 30. (C) 31. (B) 32. (C)  
33. (B) 34. (A) 35. (A) 36. (B) 37. (C) 38. (B)  
39. (B) 40. (D)

## Mathematics

41. (C) 42. (B) 43. (B) 44. (D) 45. (A) 46. (B)  
47. (A) 48. (A) 49. (D) 50. (B) 51. (B) 52. (B)  
53. (D) 54. (D) 55. (B)