iQuest
An Initiative by IITians

iSMART
iQuest Scholastic & Mental Aptitude Reward Test

FOR MOVING TO CLASS 10TH (EQUIP)
SAMPLE TEST

Time: 1 Hr	Max Marks : 180

The Test Consists of Four Sections : (TOTAL 45 QUESTIONS)		
Section	**No. of Questions**	**Section D : Syllabus**
Section A : Calculation	10 Q.	Physics – Motion, Force, Momentum, Gravitation
Section B : Reasoning	10 Q.	Chemistry – Matter in our surroundings, Is matter Around us Pure
Section C : Scholastic Aptitude	25 Q.	Biology – Cell, Tissues
		Maths – Exponents, Number System, Linear Equations, Lines and Angles, Areas of 2 D figures

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 Actual Paper Pattern may vary.**

Name:_____Student ID_____

1. 63% of 735 – ?% of 398 = 295.89

    (A) 42   (B) 44

    (C) 46   (D) 48

2. $1152 \div 36 + (9)^3 = ?$

    (A) 749   (B) 7231

    (C) 738   (D) 761

3. $69.2 \times 18.4 \times 4.5 = ?$

    (A) 5729.76   (B) 5972.76

    (C) 5279.76   (D) 5792.76

4. $[(11)^3 \times (6)^2] \div (4)^3 = ?$

    (A) 2994.75   (B) 748.6875

    (C) 272.25   (D) 4492.125

5. $748 \times 362 = (520)^2 + (?)$

    (A) 382   (B) 374

    (C) 365   (D) 376

6. $3525 \div 25 - 8640 \div 144 = ?$

    (A) 81   (B) 91

    (C) 102   (D) 60

7. $676.66 \times 0.76 + 06.66 - 76.76 = ?$

    (A) 444.1616   (B) 444.1515

    (C) 444.1414   (D) 444.1313

8. 38% of 818 – ?% of 636 = 158.2

    (A) 12   (B) 24

    (C) 36   (D) 48

9. $13.8 \times 16.7 \times 21.4 - 2931.844 = ?$

    (A) 1800   (B) 1900

    (C) 2000   (D) 2100

10. $13498 + 8932 - 1159 = ? \times 89$

    (A) 231   (B) 233

    (C) 237   (D) 239

11. Paul takes the underground train to work and uses an escalator at the railway station. If Paul runs up 7 steps of the escalator, then it takes him 43.5 seconds to reach the top of the escalator. If he runs up 14 steps of the escalator, then it takes him only 33.0 seconds to reach the top.

How many seconds would it take Paul to reach the top if he did not run up any steps of the escalator at all?

    (A) 54   (B) 56

    (C) 57   (D) 60

12. If you Arrange these scrambled letters to make simple English words – linges, nnuo, mader, troac, elitlt, centis, pick the FIRST letters from the above words, then which word will be formed after unscrambling those first letters?

    (A) ground   (B) island

    (C) louder   (D) stound

13. Grandpa: "My grandson is about as many days as my son is weeks, and my grandson is as many months as I am in years. My grandson, my son and I together are 100 years. Can you tell me my age in years?"

    (A) 50   (B) 60

    (C) 65   (D) 70

14. *Find the logically consistent pair of sentences on the basis of the given information*

If Anita and Sheila are not dancing, Anjali cannot dance.

A. Anita and Sheila are dancing.

B. Anjali cannot dance.

C. Anita and Sheila are not dancing.

D. Anjali is dancing.

    (A) DA   (B) BA

    (C) DB   (D) BD

15. **Fact 1:** Pictures can tell a story.

Fact 2: All storybooks have pictures.

Fact 3: Some storybooks have words.

If the first three statements are facts, which of the following statements must also be a fact?

I: Pictures can tell a story better than words can.

II: The stories in storybooks are very simple.

III: Some storybooks have both words and pictures.

(A) I only   (B) II only

(C) III only

(D) None of the statements is known fact

16. Which letter replaces the question mark?

(A) E   (B) F

(C) I   (D) P

Directions : (Q17-18)The triangle stands for sportsmen. The circle stands for cricketers. The rectangle stands for boys. The square stands for non-urban. Study the diagram carefully and answer each question.
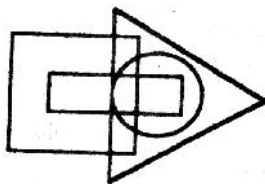
17. In the above diagram which one of the following statements is true?

(A) All non urban persons are sportsmen

(B) There are boys who are sportsmen and do not play cricket

(C) All urban boys are not sportsmen

(D) All urban boys play cricket

18. In the above diagram which one of the following statements is true?

(A) There are some non urban non boys who are sportsmen but not cricketers.

(B) There are some urban boys who are not cricketers but who are sportsmen.

(C) There are non - cricketer sportsmen among the non urban boys.

(D) There are some urban boys who are not cricketers

Directions : (Q. 19-20) : Each of the problem below consists of a question and three statements, I, II and III given below it. Read all the statements carefully and seek all possible combinations which could be sufficient for answering the question. A single statement or statements with least combinations which could be sufficient for answering the question would be your answer.

19. In which year was Tarun born?

I. Tarun is six years older than Rabin.

II. Rabin's brother was born in 1982.

III. Tarun's brother is two years younger than Rabin's borther who was eight years younger than him.

(A) I and III only   (B) II and III only

(C) All I, II and III   (D) I and II only

20. Who among P, Q, R, S and T is in the middle while standing in a line?

I. Q is to the right of T.

II. S is between P and T.

III. Q is between T and R.

(A) I and II only   (B) II and III only

(C) I and III only   (D) All I, II, III

21. If a body is moving at constant speed in a circular path, its–
   (A) velocity is constant and its acceleration is zero
   (B) velocity and acceleration are both changing direction only
   (C) velocity and acceleration are both increasing
   (D) velocity is constant and acceleration is changing direction

22. If a velocity of 3 meters per second is added to another of 5 meters per second, the sum is –
   (A) 2 meters per second
   (B) 4 meters per second
   (C) anything over 3 meters per second
   (D) between 2 meters per second and 8 meters per second

23. You are on an ocean liner that is going eastward at 12.0 meters per second, and you run southward at 3.6 meters per second. The magnitude and direction of your resulting velocity.
   (A) 15.6 m/s, E/W   (B) 18.4 m/s, W/E
   (C) 12.5 m/s, S/E   (D) 13.5 m/s, S/E

24. A frictionless wagon is pushed, from rest, with a force of 60 newtons for 14 seconds. If it then strikes a wall and comes to rest in 0.15 second, how much average force does the wall exert on it ?
   (A) 6000 N   (B) 5600 N
   (C) 4500 N   (D) 4000 N

25. A 35 kg girl on roller skates, standing still, throws a 6 kg medicine ball forward at 3.5 meters per second. How much is her recoil velocity (the backward speed she acquires as a result of the throw)–
   (A) – 0.6 m/s   (B) – 1.6 m/s
   (C) – 2.6 m/s   (D) – 5.6 m/s

26. Which of the following is the evidence to show that there must be a force acting on earth and directed towards the sun–
   (A) Deviation of the falling bodies towards east
   (B) Revolution of the earth round the sun
   (C) Phenomenon of day and night
   (D) Apparent motion of sun round the earth

27. Which one of the following sets of phenomena would increase on raising the temperature?
   (A) Diffusion, evaporation, compression of gases
   (B) Evaporation, compression of gases, solubility
   (C) Evaporation, diffusion, expansion of gases
   (D) Evaporation, solubility, diffusion, compression of gases

28. Seema visited a Natural Gas Compressing Unit and found that the gas can be liquefied under specific conditions of temperature and pressure. While sharing her experience with friends she got confused. Help her to identify the correct set of conditions
   (A) Low temperature, low pressure
   (B) High temperature, low pressure
   (C) Low temperature, high pressure
   (D) High temperature, high pressure

29. The property to flow is unique to fluids. Which one of the following statements is correct?
   (A) Only gases behave like fluids
   (B) Gases and solids behave like fluids
   (C) Gases and liquids behave like fluids
   (D) Only liquids are fluids

30. Which of the following statements are true for pure substances?
   (i) Pure substances contain only one kind of particles
   (ii) Pure substances may be compounds or mixtures
   (iii) Pure substances have the same composition throughout
   (iv) Pure substances can be exemplified by all elements other than nickel

(A) (i) and (ii) (B) (i) and (iii)

(C) (iii) and (iv) (D) (ii) and (iii)

31. Rusting of an article made up of iron is called

(A) corrosion and it is a physical as well as chemical change

(B) dissolution and it is a physical change

(C) corrosion and it is a chemical change

(D) dissolution and it is a chemical change

32. A mixture of sulphur and carbon disulphide is

(A) heterogeneous and shows Tyndall effect

(B) homogeneous and shows Tyndall effect

(C) heterogeneous and does not show Tyndall effect

(D) homogeneous and does not show Tyndall effect

33. Which of the following can be made into crystal?

(A) A Bacterium (B) An Amoeba

(C) A Virus (D) A Sperm

34. A cell will swell up if

(A) The concentration of water molecules in the cell is higher than the concentration of water molecules in surrounding medium

(B) The concentration of water molecules in surrounding medium is higher than water molecules concentration in the cell

(C) The concentration of water molecules is same in the cell and in the surrounding medium

(D) Concentration of water molecules does not matter

35. Chromosomes are made up of

(A) DNA (B) protein

(C) DNA and protein (D) RNA

36. Which of the following tissues has dead cells?

(A) Parenchyma (B) Sclerenchyma

(C) Collenchyma (D) Epithelial tissue

37. Find out incorrect sentence

(A) Parenchymatous tissues have intercellular spaces

(B) Collenchymatous tissues are irregularly thickened at corners

(C) Apical and intercalary meristems are permanent tissues

(D) Meristematic tissues, in its early stage, lack vacuoles

38. Girth of stem increases due to

(A) apical meristem (B) lateral meristem

(C) intercalary meristem (D) vertical meristem

39. A circle is divided into four regions by radii. Angle A is $\frac{2}{3}$ the angle C while angle D is twice angle B. Angles B and C are supplementary. Angle C is
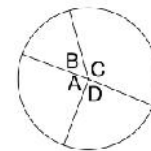
(A) 100° (B) 110°

(C) 120° (D) 135°

**40.** ABCD is a parallelogram. BP = DP = BC. The size of *x* is
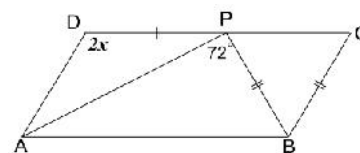
(A) 52° (B) 54°

(C) 56° (D) 58°

41. How many zeros are there in the result of $5675^2 - 4325^2$?

(A) 2 (B) 3

(C) 4 (D) 5

42. P is a point on side AB of the right-angled triangle ABC. The distances of P from the vertices of the triangle are as shown. The length of BC is
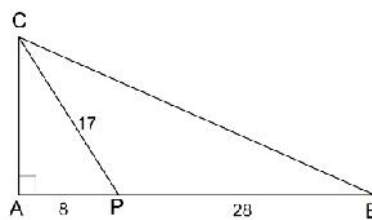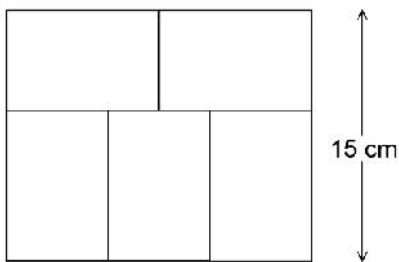

(A) 42 (B) 41

(C) 40 (D) 39

43. Two semicircles are placed in a rectangle of length A.
The shortest distance between the semicircles is a.
The total area of the semicircles (shaded) is
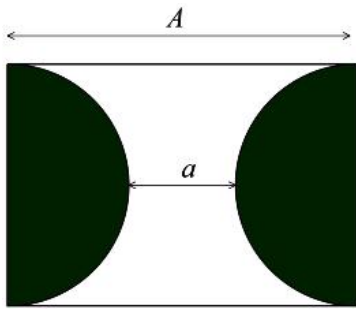
(A) $f\left(\dfrac{A+a}{2}\right)^{2}$ (B) $f\left(A-\dfrac{a}{2}\right)^{2}$

(C) $f\left(A-a\right)^{2}$ (D) $f\left(\dfrac{A-a}{2}\right)^{2}$

44. Five identical rectangles are placed to form a new rectangle. The width of the new rectangle is 15 cm. The area of the big rectangle (in cm^2) is

15 cm

(A) 270 (B) 300
(C) 330 (D) 360

45. The three digit number $7d2$ is divisible by 3 and by 11.
The digit d must be

(A) 1 (B) 2
(C) 6 (D) 9

ANSWER KEY

SECTION - A CALCULATION

1.	(A)	2.	(D)	3.	(A)	4.	(B)	5.	(D)	6.	(A)	7.	(A)
8.	(B)	9.	(C)	10.	(D)								

SECTION - B REASONING

11.	(A)	12.	(B)	13.	(B)	14.	(A)	15.	(C)	16.	(B)	17.	(D)
18.	(A)	19.	(C)	20.	(B)								

SECTION - C SCHOLASTIC APTITUDE

21.	(B)	22.	(D)	23.	(C)	24.	(B)	25.	(A)	26.	(B)	27.	(C)
28.	(C)	29.	(C)	30.	(B)	31.	(C)	32.	(D)	33.	(C)	34.	(B)
35.	(C)	36.	(B)	37.	(C)	38.	(B)	39.	(D)	40.	(B)	41.	(D)
42.	(D)	43.	(D)	44.	(A)	45.	(D)						