KTST (Knewton's Trend Setter Test)

KNEWTON ACADEMY
for
IIT/JEE/NEET/NDA/FOUNDATION

Class: X   **Duration: 60 Min**   **M.M: 150**

Subjects			
Mental Ability	Mathematics	Science	Social Science

General Instructions:

1. The Test is of 1 hour duration.
2. This Test Consist of three sections, section-A (Mental Ability), section-B (Mathematics), Section-C (Science) & Section-D (Social Science).
3. All three sections Consist of 5 Marks for each question.
4. There will be only one correct choice in the given Sections for each questions.
5. Use Blue/Black Ball Point Pen only for writing particulars/making responses on side-1 and side-2 of the answer sheet. Use of Pencil is strictly prohibited.
6. No candidate is allowed to carry any textual material, printed or written, bits of papers, pagers, any electronic device, etc. Except the admit card inside the examination hall/room.
7. Rough work is to be done on the space provided for this purpose on this test booklet only.
8. On completion of the test, the candidate must handover the answer sheet to the invigilator on duty in the room/hall. Candidates are allowed to take away the test booklet with them.
9. Do not fold or make any stray marks on the Answer Sheet
10. Make sure to fill all you details properly in OMR SHEET/Answer Sheet as per the given columns.

SECTION I-MENTAL ABILITY

1. Find the letter which comes next in the series given.

Z	U	Q	(?)	L

   A) I   B) K   C) M   D) N

2. School begins at 09:00. To get there on time, Pandey leaves home at 08:45. Manasa leaves home 5 minutes later than Pandey. It takes David 10 minutes longer than Manasa to walk to school. What time must David leave home?
   A) 8:45   B) 8:40   C) 9:00   D) 8:50

3. In the contest for school house points. Green got twice as many as Blue, who were 25 points below Red. Red got 32 points more than Yellow who came last with 54 points. Which house won?
   A) Yellow   B) Blue   C) Red   D) Green

4. All living things have:
   A) horn   B) heart   C) hair   D) cell   E) None of these

5. Should the parents in India In future be forced to opt for only one child as against the two or many at present?
   Argument:
   I- Yes. This is the only way to check the ever-increasing population of India.
   II- No. This type of pressure tactic is not adopted by any other country in the world.
   A) only argument I is strong   B) only argument II Is strong
   C) either I or II is strong   D) neither I nor II Is strong
   E) both I and II are strong

SECTION B-MATHEMATICS

1.

If a and b are the roots of the equation $5x^2 - x - 2 = 0$, then the equation for which roots are $\frac{2}{\alpha}$ and $\frac{2}{\beta}$ is

A) $x^2 - x + 10 = 0$

B) $x^2 - x - 10 = 0$

C) $x^2 + x + 10 = 0$

D) $x^2 + x - 10 = 0$

2.

The sum of all terms of the arithmetic progression having ten terms except for the first term, is 99, and except for the sixth term, is 89. Find the 8th term of the progression if the sum of the first and the fifth term is equal to 10.

A) 15   B) 25   C) 18   D) 10

3.

Find the value of, $\sqrt{\dfrac{1+\cos\theta}{1-\cos\theta}} + \sqrt{\dfrac{1-\cos\theta}{1+\cos\theta}}$

A) $2\sec\theta$

B) $\sec\theta$

C) $2\cos\sec\theta$

D) None of these

4.

Find the area of the triangle formed by the line $5x - 3y + 15 = 0$ with coordinate axes.

A) 15 Sq. unit

B) 5 Sq. unit

C) 8 Sq. unit

D) $\dfrac{15}{2}$ Sq. unit

5. Points (6,8),(3,7),(−2,−2) and (1,−1) are joined to form a quadrilateral. What will be the structure of quadrilateral?

A) Rhombus   B) Parallelogram   C) Square   D) Rectangle

6. Four vertices of a parallelogram taken in order are (−3,−1),(a,b),(3,3)and(4,3). What will be the ratio of a and b?

A) 4:1   B) 1:2   C) 1:3   D) 3:1

The coordinates of the third vertex of an equilateral triangle whose two vertices are at $(3, 4)$, $(-2, 3)$ are ____.

A) $(1,7)$

B) $(5,1)$

C) $\left(\dfrac{1+\sqrt{3}}{2}, \dfrac{7-5\sqrt{3}}{2}\right)$ or $\left(\dfrac{1-\sqrt{3}}{2}, \dfrac{7+5\sqrt{3}}{2}\right)$

D) $(-5,5)$

7.

8. Select the incorrect statement:

A) A parallelogram circumscribing a circle is a rhombus.   B) From any point inside the given circle one and only tangent can be drawn to the given circle.   C) The opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.   D) In two concentric circles, the chord of the larger circle which touches the smaller circle is bisected at the point of contact.

9. For what value of k, do the equations 3(k−1)x+4y=24 and 15x+20y=8(k+13)have infinite solutions?

A) 1/2   B) 6   C) 1/3   D) 2

10.   From a distance of 100 m from the foot of a building, the angle of elevation of its top is 30^0. What is the height of the building?

A) $57.7\,m$

B) $100\sqrt{3}\,m$

C) $5.77\,m$

D) $\dfrac{100}{3}\,m$

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SECTION C-SCIENCE

1. Which one of the following is true about the reaction taking place in photosynthesis process?
A) It is an endothermic reaction.   B) It is an exothermic reaction.   C) This reaction does not consume or release energy.   D) This reaction releases large amount of energy.   E) None of these

2. Which one of the following acids is used in the treatment of bone marrow and scurvy diseases?
A) Acetic acid   B) Hydrochloric acid C) Ascorbic acid   D) Nitric acid   E) None of these

3. Which of the following metals is the most reactive metal among the following?
A) Lead   B) Iron   C) Copper   D) Mercury   E) None of these

4. Which of the following is the common name of ethyne?
A) Propylene   B) Ethylene   C) Acetylene   D) Methyl-acetylene   E) None of these

5. Which of the following groups of periodic table does an element belong, if it has an atomic number of 10?
A) 1   B) 2   C) 18   D) 17   E) None of these

6. Which of the following is true about an element that belongs to the group 1 of the periodic table?
A) It is a metal.   B) It is a non-metal.   C) It is a noble gas. D) Both [b] and [c]   E) None of these

7.
Which of the following is the molecular formula of urea?

A) $CO(NH_2)_2$

B) NH_4CNO

C) CH_3CHO

D) CH_3COOH

E) None of these

8. Which one of the following statements is incorrect?
A) An unsaturated hydrocarbon containing a triple bond is an alkyne.   B) An unsaturated hydrocarbon containing a single bond is an alkane.   C) An unsaturated hydrocarbon containing a double bond is an alkene.
D) All the above   E) None of these

9. Which one of the following cell organelles contain the light- absorbing green pigment chlorophyll?
A) Mitochondria   B) Ribosomes   C) Chloroplast   D) Nucleolus   E) None of these

10. The characteristic which is visible in an organism is called its:
A) Phenotype   B) Genotype   C) Chromosomes   D) Genes   E) None of these

SECTION D-SOCIAL SCIENCE

1. In dealing with social divisions which one of the following statements is not correct about democracy?
A) Due to political competition in a democracy, social divisions get reflected in politics.
B) In a democracy it is possible for communities to voice their grievances in a peaceful manner.
C) Democracy is the best way to accommodate social diversity.
D) Democracy always leads to disintegrate of society on the basis of social division.

2. Which of these is not a good argument in favour of democracy? Why?

A) People feel free and equal in a democracy.   B) Democracies resolve conflict in a better way than others.
C) Democratic government is more accountable to the people.   D) Democracies are more prosperous than others.

3. When did Vietnam get independence?
A) 1887   B) 1945   C) 1873   D) 1858

4. What was Thailand then called?

A) Yunan   B) Mekong   C) Siam   D) None of these

5. In terms of GDP the share of tertiary sector in 2003 is:

A) between 20 per cent to 30 per cent   B) between 30 per cent to 40 per cent

C) between 50 per cent to 60 per cent   D) 70 percent

****The End***