

Syllabus

- ✓ Syllabus is based on integrated T.S. & A.P. State Boards
- ✓ Competence and knowledge in Mathematics & Science is assessed yearly at the State Level Olympiad.
- ✓ 75% of total syllabus (syllabus covered till 30th November as per Government schedule) from the respective state board is considered for this olympiad.

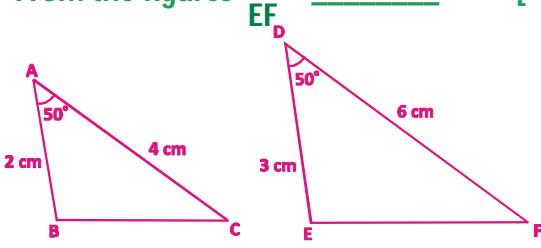
Exam pattern

Class	No. of Questions	Total Marks	Duration (min.)
Class - 10	100	100	90

For Class 10

Mathematics	: 50
Physics	: 15
Chemistry	: 15
Biology	: 20

Mathematics

- A rational number in the form $\frac{p}{q}$, the prime factorization of 'q' will be in the form of _____ []
 (A) $2^{n-m}5^m$ (B) $12^n 5^{m+1}$
 (C) $2^n 5^m$ (D) $2^2 \times 5^{m-2}$
- $A = \{x : x \text{ is a letter in the word ASSASSINATION}\}$
 $B = \{x : x \text{ is a letter in the word STATION}\}$ then which of the following is correct []
 (A) $n(A) = n(B)$ (B) $n(A) > n(B)$
 (C) $n(A) < n(B)$ (D) $n(A) \leq n(B)$
- $y = ax^2 + bx + c$ is parabola open either upwards like \cup (or) downwards like \cap , depends on the following respectively conditions. []
 (A) $a < 0, a > 0$ (B) $a > 0, a < 0$
 (C) $a > 0, a = 0$ (D) $a < 0, a = 0$
- Which cubic polynomial example is not correct? []
 (A) $2x^3 - 5x^2 + 3x - 2$ (B) $-x^3 - 2x^2 - 5x + 2$
 (C) $-2x^3 + 5x^2 + 3x - 2$ (D) $l^3 - l^2 - l + 5$
- From the figures $\frac{BC}{EF} =$ _____ []


(A) $\frac{1}{2}$ (B) $\frac{2}{3}$ (C) $\frac{3}{2}$ (D) $\frac{4}{3}$
- If $0^\circ < A < 90^\circ, 0^\circ < B < 90^\circ$ $\sin A = \cos B$, the $A + B =$ []
 (A) 0° (B) 60° (C) 180° (D) 90°
- $l = 4 \text{ cm}, b = 2 \text{ cm}, h = 1 \text{ cm}$ then total surface area of cuboid _____ []
 (A) 28 cm (B) 28 cm^2 (C) 28 cm^3 (D) 14 cm^3
- If A, B, C are interior angles of $\triangle ABC$, then $\sin(A + B) =$ _____ []
 (A) $\sin C$ (B) $\sin A$
 (C) $\cos \frac{A}{2}$ (D) $\cos C$
- $\sqrt{\frac{1 + \cos \theta}{1 - \cos \theta}} =$ _____ []
 (A) $\sin \theta + \cos \theta$
 (B) $\sin \theta - \cos \theta$
 (C) $\operatorname{cosec} \theta + \cot \theta$
 (D) $\operatorname{cosec} \theta - \cot \theta$
- Cylindrical bottle diameter 5 cm, height 6 cm, then volume of bottle _____ []
 (A) $\frac{75\pi}{2} \text{ cm}^3$ (B) 75 cm^3
 (C) $150\pi \text{ cm}^3$ (D) 150 cm^3

Key for 10th Mathematics

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

1. A diminished image is formed when the object placed []
 (A) on C
 (B) beyond C
 (C) between F & C
 (D) At F
-
2. Formation of NO from N₂ and O₂ is an endothermic reaction. It is represented as []
 (A) $N_2(g) + O_2(g) \rightarrow 2NO + Q$
 (B) $N_2(g) + O_2(g) \rightarrow 2NO(g) - Q$
 (C) $N_2(g) + O_2(g) \rightarrow 2NO(g)/Q$
 (D) $N_2(g) + O_2(g) \rightarrow 2NO(g) \times Q$
-
3. Which one of the following is a natural acid base indicator? []
 (A) extract of red cabbage
 (B) phenolphthalein
 (C) methyl orange
 (D) hydrochloric acid
-
4. Select the true statement []
 (A) Hydrogen gas has strong odour
 (B) Hydrogen gas burns with a pop sound
 (C) Hydrogen gas supports combustion
 (D) Hydrogen gas extinguishes a burning flame
-
5. Speed of light is []
 (A) $3 \times 10^8 \text{ ms}^{-1}$ (B) $3 \times 10^9 \text{ ms}^{-1}$
 (C) $4 \times 10^8 \text{ ms}^{-1}$ (D) $3 \times 10^{-8} \text{ ms}^{-1}$
-
6. If $l = 2$, the maximum number of electron is []
 (A) 2 (B) 6
 (C) 10 (D) 14
-
7. Which of the following is false []
 (A) $1s < 2s < 2p < 3s$
 (B) $6p < 7s < 5f < 6d$
 (C) $4d < 5p < 6s < 4f$
 (D) $3p < 3s < 4s < 3d$
-
8. The Lewis dot structure for "Argon" is []
 (A) $\cdot\ddot{A}:$ (B) $:\ddot{A}:$
 (C) $:\ddot{A}:$ (D) $:\ddot{A}:$
-
9. Valence bond theory was proposed by []
 (A) Linus Pauling (B) Sidgwick
 (C) Gillespie (D) Powell
-
10. Formation of NO from N₂ and O₂ is an endothermic reaction. It is represented as []
 (A) $N_2(g) + O_2(g) \rightarrow 2NO + Q$
 (B) $N_2(g) + O_2(g) \rightarrow 2NO(g) - Q$
 (C) $N_2(g) + O_2(g) \rightarrow 2NO(g)/Q$
 (D) $N_2(g) + O_2(g) \rightarrow 2NO(g) \times Q$

Key for 10th Physical Science

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

1. Observe the diagrams. What does A and B indicate? []



- (A) A- swallowing; B- breathing
- (B) A – swallowing ; B – peristalsis
- (C) A – breathing ; B – swallowing
- (D) A – peristalsis; B – breathing

2. If a person has been advised to take insulin injection by a doctor, then he/she would be suffering from this disease. []

- (A) Dwarfism
- (B) Diabetes mellitus
- (C) Diabetes insipidus
- (D) Tetany

3. Which of the following statement is true? []

- (A) Inter ventricular septum divides two atria
- (B) Interventricular septum divides two ventricles
- (C) Inter ventricular septum divides right ventricle and right atrium
- (D) Inter ventricular septum divides left ventricle and left atrium

4. Which of the following combinations is true? []

- i. ascorbic acid – vitamin C
- ii. scurvy – vitamin C
- iii. citrus fruits – vitamin c
- iv. rickets – vitamin C

- (A) i, ii, iii
- (B) i, iv, ii
- (C) iv, ii, i
- (D) iv, i, iii

5. Arrange the given substances in order []

Lactic acid → pyruvate → glucose → ethanol

- (A) Glucose → lactic acid → pyruvate → ethanol
- (B) Glucose → pyruvate → lactic acid → ethanol
- (C) Ethanol → lactic acid → pyruvate → glucose
- (D) Pyruvate → glucose → lactic acid → ethanol

6. []

Group A	Group B
i. Cerebrum	a. 31 pairs
ii. Cerebellum	b. pancreas
iii. Insulin	c. pulvini
iv. Mimosa pudica	d. 12 pairs
v. Cranial nerves	e. reasoning.
	f. sensory impulse
	g. equilibrium

- (A) i – e; ii – g; iii – b; iv – c; v – d
- (B) i – g; ii – e; iii – b; iv – c; v – d
- (C) i – e; ii – g; iii – b; iv – c; v – a
- (D) i – e; ii – g; iii – f; iv – c; v – d

7. Ranbir strikes bat on ground in anger whenever he gets out in a cricket match. What hormone might have increased in him at that time? []

- (A) Adrenaline
- (B) Thyroxine
- (C) Testosterone
- (D) Ghrelin

8. To remove chlorophyll, the leaf is boiled in this liquid []

- (A) iodine
- (B) Methylated spirit
- (C) H₂O₂
- (D) KOH

9. A female baby having 23 pairs of autosomes at the age of 18 years has how many pairs of autosomes and sex chromosomes? []

- (A) 22 pairs of autosomes and 1 pair of sex chromosomes
- (B) 20 pairs of autosomes and 3 pairs of sex chromosomes
- (C) 22 pairs of sex chromosomes and 1 pair of autosomes
- (D) 20 pairs of sex chromosomes and 3 pairs of autosomes

10. Success of grafting between two grafts depends upon the formation of []

- (A) Secondary tissue in stock part
- (B) New tissue in stock part
- (C) New tissue in scion part
- (D) New tissue between the grafts

Key for 10th Biology

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