A collection of Board 1996 to 2023 Ouestions With Solutions

Chapterwise & Subtopicwise compilation of relevant board questions from 1996 to 2023

Std. XII Sci.

PHYSICS

CHEMISTRY

MATHEMATICS

BIOLOGY



A collection of Board 1996 to 2023 **Questions** With Solutions Physics • Chemistry • Mathematics & Statistics (Part I & II) • Biology

STD. XII Sci.

Chapterwise compilation of relevant board questions with solutions from 1996 to 2023

Salient Features

- Subjects covered: Physics, Chemistry, Mathematics & Statistics (Part I & II) and Biology
- Covers questions from previous curriculum which fall under the latest syllabus from 1996 to 2023.
- Chapter wise and Subtopic wise segregation of Theory questions and Numericals.
- Detailed solutions are provided to difficult MCQs
- Important Inclusion: Log calculations for selective numericals.
- Answers and precise solutions provided to the questions as per *latest edition* of the textbook.

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PREFACE

Target's 'Board Questions with Solutions : Std. XII Sci.' is a compilation of all the relevant questions (MCQs + Theory Questions + Numericals) that have been asked in the previous year's HSC Maharashtra Board Papers of science stream for Physics, Chemistry, Mathematics & Statistics (Part I & II) and Biology. The objective of this book is to offer students quick access to previous year's relevant board questions along with their answers.

The chapter wise and subtopic wise (for Theory Questions & Numericals) segregation of questions enable students gauge the weightage given and type of questions preferred for a chapter. Flow of questions is set year wise with questions from the most recent examination placed last in a subtopic. Only those questions from previous years which fall under the latest syllabus prescribed by Maharashtra State Board of Secondary and Higher Secondary Education are included. The solutions are precise and supplied with suitable diagrams and graphs. Detailed solutions are provided to difficult MCQs. Log calculations are included for selective numericals to aid students.

Constructive criticism and feedback for improving the book are always appreciated. Please write to us on: mail@targetpublications.org

Best of luck to all the aspirants!

Publisher

Edition: Second

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[Oct 14]

Rotational Dynamics

Multiple Choice Questions

- 1. A car is moving along a horizontal curve of radius 20 m and coefficient of friction between the road and wheels of the car is 0.25. If acceleration due to gravity is 9.8 m/s², then its maximum speed is [Mar 08] (A) 3 m/s (B) 5 m/s (C) 7 m/s (D) 9 m/s
- 2. A body is acted upon by a constant torque. In 4 seconds its angular momentum changes from L to 4L. The magnitude of the torque is

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[Oct 08]

(A)
$$\frac{L}{4}$$
 (B) $\frac{3L}{4}$ (C) 3L (D) 12L

- 3. Radius of gyration of a ring about a transverse axis passing through its centre is _____. [Mar 09]
 - (A) $0.5 \times$ diameter of ring
 - diameter of ring (B)
 - (C) $2 \times$ diameter of ring
 - $(\text{diameter of ring})^2$ (D)
- 4. A stone is tied to a string and rotated in a horizontal circle with constant angular velocity. If the string is released, the stone flies [Oct 09, Mar 10]
 - (A) radially inward
 - radially outward **(B)**
 - (C) tangentially forward
 - tangentially backward (D)
- The radius of gyration of a solid sphere of mass 5. M and radius R rotating about an axis with its diameter N is [Mar 10]

(A)
$$\sqrt{\frac{1}{5}} \cdot R$$
 (B) $\sqrt{\frac{2}{5}} \cdot R$
(C) $\sqrt{\frac{3}{5}} \cdot R$ (D) $\sqrt{\frac{7}{5}} \cdot R$

The moment of inertia of a thin uniform rod of 6. mass M and length L, about an axis passing through a point, midway between the centre and one end, perpendicular to its length is [Mar 13]

(A)
$$\frac{48}{7}$$
 ML²
(B) $\frac{7}{48}$ ML²
(C) $\frac{1}{48}$ ML²
(D) $\frac{1}{16}$ ML²

7. If 'L' is the angular momentum and 'I' is the moment of inertia of a rotating body, then represents its [Oct 13]

- (A) rotational P.E. (B) total energy
- rotational K.E. translational K.E. (C) (D)
- A thin wire of length L and uniform linear mass density ρ is bent into a circular coil. Moment of inertia of the coil about tangential axis in its plane is

8.

(A)
$$\frac{3\rho L^2}{8\pi^2}$$
 (B) $\frac{8\pi^2}{3\rho L^3}$ (C) $\frac{3\rho L^3}{8\pi^2}$ (D) $\frac{8\pi}{3\rho L^2}$

9. The period of a conical pendulum in terms of its length (l), semivertical angle (θ) and acceleration due to gravity (g) is: [Mar 15]

(A)
$$\frac{1}{2\pi}\sqrt{\frac{l\cos\theta}{g}}$$
 (B) $\frac{1}{2\pi}\sqrt{\frac{l\sin\theta}{g}}$
(C) $4\pi\sqrt{\frac{l\cos\theta}{4g}}$ (D) $4\pi\sqrt{\frac{l\tan\theta}{g}}$

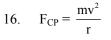
- 10. The kinetic energy of a rotating body depends upon [Mar 15]
 - (A) distribution of mass only.
 - (B) angular speed only.
 - distribution of mass and angular speed. (C)
 - angular acceleration only. (D)
- A particle rotates in U.C.M. with tangential 11. velocity 'v' along a horizontal circle of diameter 'D'. Total angular displacement of the particle in time 't' is [Mar 16] $\frac{1}{(B)} \left(\frac{v}{D}\right) - t(C) = \frac{vt}{2D} \quad (D)$ 2vt (A) vt
- A body of moment of inertia 5 kgm² rotating 12. with an angular velocity 6 rad/s has the same kinetic energy as a mass of 20 kg moving with a

velocity of _____. [Mar 16]
(A)
$$5 \text{ m/s}$$
 (B) 4 m/s
(C) 3 m/s (D) 2 m/s

- 13. The difference in tensions in the string at lowest and highest points in the path of the particle of mass 'm' performing vertical circular motion is [July 16] (A) 2 mg (B) 4 mg (C) 6 mg (D) 8 mg
- 14. The body is rotating with uniform angular velocity (ω) having rotational kinetic energy (E). Its angular momentum (L) is: [July 16]

(A)
$$\frac{2E}{\omega}$$
 (B) $\frac{E^2}{\omega}$ (C) $\frac{E}{\omega^2}$ (D) $\frac{E}{2\omega}$

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Multiplying and dividing the equation by mr^2 , we get,

 $F_{CP} = \frac{m^2 v^2 r^2}{mr^3}$ $F_{CP} =$

$$= \frac{L^2}{mr^3} \qquad \dots (\because L = mvr)$$

- 18. P.E. = mghAt highest point, h = 2r
- P.E. = 2 mgr*.*..

...

 $I_c = MR^2 = 0.25 \times 0.5^2 = 0.0625 \text{ kgm}^2$ 19

Theory Questions

1.2 **Characteristics of Circular Motion**

1. Explain the concept of centripetal force. [Mar 17]

Ans: Centripetal force:

- The force providing centripetal or radial i. acceleration is called as centripetal or radial force.
 - $F_{CPF} = -m\omega^2 r$

where, r = radius of circular path.

- In magnitude, $F_{CPF} = mr\omega^2 = \frac{mv^2}{r} = mv\omega$ ii.
- iii. The direction of this force is along the radius and towards centre (centre seeking).

Distinguish between centripetal force and 2. centrifugal force. [Mar 10, 18]

Ans:

Sr. No.	Centripetal force	Centrifugal force
i.	Centripetal force is directed along the radius towards the centre of a circle.	Centrifugal force is directed along the radius away from the centre of a circle.
ii.	It is a real force.	It is a pseudo force.
iii.	It is considered in inertial frame of reference.	It is considered in non-inertial frame of reference.
iv.	In vector form, it is given by $\vec{F} = -\frac{mv^2}{r}\hat{r}_0$ with usual notations.	In vector form, it is given by $\vec{F} = + \frac{mv^2}{r}\hat{r}_0$ with usual notations.

- 3. What is the value of tangential acceleration in [Mar 19] **U.C.M.**?
- Ans: Value of tangential acceleration in U.C.M. is always zero.

4.	Define U.C.M. Name the forces acting on a body executin		
	nonuniform circular motion. [July 19]		
Ans:	Definition: During circular motion, if the speed		
	of the particle remains constant, it is called Uniform Circular Motion (UCM).		
	Forces acting on the body executing non- uniform circular motion: Centripetal force provided partly by the weight of the body performing circular motion and partly by the normal reaction.		
5.	Define uniform circular motion. [Mar 20]		

Ans: Refer Subtopic 1.2: O. No. 4 (Definition only)

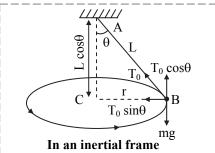
Applications of Uniform Circular Motion 1.3

1. Derive an expression for period of a conical pendulum. [Mar 08]

Ans:

i.

- Consider the vertical section of a conical pendulum having bob (point mass) of mass m and string of length 'L'.
- Here, θ is the angle made by the string with the ii. vertical, at any position (semi-vertical angle of the cone)
- iii. In a given position B, the forces acting on the bob are
- its weight 'mg' directed vertically downwards a.
- the force ' T_0 ' due to the tension in the string, b. directed along the string, towards the support A.



- As the motion of the bob is a horizontal circular iv. motion, the resultant force must be horizontal and directed towards the centre C of the circular motion.
- For this, tension (T_0) in the string is resolved into v.
- $T_0 \cos \theta$: vertical component a.
- b. $T_0 \sin \theta$: horizontal component
- The vertical component ($T_0 \cos \theta$) balances the vi. weight 'mg'.
- *.*.. $mg = T_0 \cos\theta$(1)
- The horizontal component $T_0 \sin \theta$ then becomes vii. the resultant force which is centripetal. $mr\omega^2 = T_0 \sin \theta$ (2)

Dividing equation (2) by equation (1),

$$\omega^{2} = \frac{g \sin \theta}{r \cos \theta} \qquad \dots (3)$$

3

Page no. 4 to 9 are purposely left blank.

3.	State and prove principle of conservation of angular momentum. [Mar 18, 23]	Nu	imerical	s
Ans:	Statement: Refer Subtopic 1.10: Q. No. 1	1.2	Chara	ncteristics of Circular Motion
	Proof: Refer Subtopic 1.10: Q. No. 2	1.		oject of mass 2 kg attached to wire of
4.	Explain the principle of conservation of angular momentum with the help of two appropriate examples. [July 19]	i. ii.	circle. angul	n 5 m is revolved in a horizontal . If it makes 60 r.p.m. Find its ar speed • speed
Ans:	Statement and explanation:	iii.	centri	petal acceleration
	<i>Refer Subtopic 1.10: Q. No. 1 and Q. No. 2</i> Examples:	iv.	centri	petal force
i.	The angular velocity of revolution of a planet	Solı	ution:	[Mar 09
	around the sun in an elliptical orbit increases,	Give		m = 2 kg, r = 5 m, n = 60 r.p.m. = 1 r.p.
	when the planet comes closer to the sun and	To f	ìnd:	i. Angular Speed (ω)
	vice-versa.	, i i i i i i i i i i i i i i i i i i i		ii. Linear Speed (v)
ii.	A person carrying heavy weights in his hands and			iii. Centripetal acceleration (a _{cp})
	standing on a rotating platform can change the		1	iv. Centripetal Force (F_{cp})
iii.	speed of the platform. A diver performs somersaults by jumping from	Fori	mulae:	i. $\omega = 2\pi n$ ii. $v = r\omega$ iii. $a_{cp} = r\omega^2$ iv. $F_{cp} = mr\omega^2$
	a high diving board keeping his legs and arms	Cal	culation:	CP CP
	out stretched first, and then curling his body.	Cuit	.uuunon.	$\omega = 2 \times 3.142 \times 1 = 6.284 \text{ rad/s}$
5.				$60 = 2 \times 3.142 \times 1 = 0.204$ rad/s From formula (ii),
5.	State the law of conservation of angular momentum. [July 22]			$v = 5 \times 6.284 = 31.42 \text{ m/s}$
Ance				From formula (iii),
Ans:	Statement: Refer Subtopic 1.10: Q. No. 1			$a = r\omega^2 = 5 \times (6.284)^2 = 197.44 \text{ m/s}^2$
1.11	Rolling Motion			From formula (iv),
1.	Derive an expression for kinetic energy, when			$F_{cp} = mr\omega^2 = 2 \times 197.44 = 394.88 N$
1.	a rigid body is rolling on a horizontal surface	Ans	: i.	The angular speed id 6.284 rad/s.
	without slipping. Hence find kinetic energy for		ii.	The linear speed of an object id 31.42 m/s
	a solid sphere. [Mar 13]		iii.	The centripetal acceleration of an object
	Expression for kinetic energy of rolling sphere:			is 197.44 m/s².
i.	Mass of the sphere is given to be M.		iv.	The centripetal force is 394.88 N.
	Let, $v =$ linear velocity of the sphere	2.	A	· of mass 1500 kg rounds a curve of
	ω = angular velocity of the sphere	2.		s 250 m at 90 km/hour. Calculate the
	I = moment of inertia of the sphere K = reduce of sumption		centri	petal force acting on it. [Mar 13]
ii.	K = radius of gyration Total K.E of rolling body		ition:	m = 1500 kg, $n = 250 m$
	$= (K.E)_{\text{translational}} + (K.E)_{\text{rotational}}$	Give	en.	m = 1500 kg, r = 250 m,
				$v = 90 \text{ km/h} = 90 \times \frac{5}{18} = 25 \text{ m/s}$
÷	$(K.E)_{\text{rolling}} = \frac{1}{2} Mv^2 + \frac{1}{2} I\omega^2$	To f	ìnd:	Centripetal force (F _{CP})
	1 2 1 2 $\begin{bmatrix} y^2 \end{bmatrix}$	-		
	$=\frac{1}{2} Mv^2 + \frac{1}{2} MK^2 \left[\frac{v^2}{r^2}\right]$	FON	mula:	$F_{CP} = \frac{mv^2}{r}$
		Calc	culation:	From formula,
	\dots (:: I = MK ² and v = r ω)			$F_{CP} = \frac{1500 \times (25)^2}{250}$
	$1 \qquad [V^2]$	ł		$P_{CP} = \frac{1}{250}$
	$(K E) = -\frac{1}{Mv^2} Mv^2 (1 + K)$ (1)	1		230
	(K.E) _{rolling} = $\frac{1}{2}$ Mv ² $\left[1 + \frac{K^2}{r^2}\right]$ (1)		<i>.</i>	$F_{CP} = 3750 \text{ N}$

3.

Solution:

Given:

To find:

A racing car completes 5 rounds of a circular track in 2 minutes. Find the radius of the

track if the car has uniform centripetal

5 rounds = $2\pi r(5)$, t = 2 minutes = 120 s

[Oct 13]

acceleration of π^2 m/s².

Radius (r)

Since the value of 'K' is different for different bodies, so $(K.E)_{rolling}$ also varies from body to body.

2. Obtain an expression for total kinetic energy of a rolling body in the form $\frac{1}{2}$ MV² $\left[1 + \frac{K^2}{R^2}\right]$. [Mar 16]

Ans: Refer Subtopic 1.11: Q. No. 1

10

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O1 Solid State

Multiple Choice Questions

- In body centred cubic structure, the space occupied is about _____.
 [Mar 13]

 (A) 68 %
 (B) 53 %

 (C) 38 %
 (D) 32 %
- To prepare n-type semiconductor, the impurity to be added to silicon should have the following number of valence electrons: [Mar 14]
 (A) 2
 (B) 3
 (C) 4
 (D) 5
- 3. The major binding force in diamond is _____

[Oct 14]

- (A) covalent bond
- (B) ionic bond
- (C) metallic bond
- (D) coordinate covalent bond
- 4. p-type semi-conductors are made by mixing silicon with impurities of _____. [Mar 15]
 (A) germanium (B) boron
 (C) arsenic (D) antimony

(A)
$$AB_4$$
 (B) A_3B (C) AB (D) AB_4
Number of types of orthorhombia unit call

- 7. The number of atoms per unit cell of body centred cube is: [Mar 20] (A) 1 (B) 2 (C) 4 (D) 6
- 8. The co-ordination number of atoms in body centred cubic structure (bcc) is

- (A) 4 (B) 6 (C) 8 (D) 12
 9. The CORRECT relation between edge length and radius of an atom in simple cubic lattice is _____. [July 22]
 - (A) 2a = r (B) $\sqrt{3}a = 4r$ (C) a = 2r (D) $\sqrt{2}a = 4r$
- 10. The relation between radius of sphere and edge length in body centered cubic lattice is given by formula: [Mar 23]

(A)
$$\sqrt{3}r = 4a$$
 (B) $r = \frac{\sqrt{3}}{a} \times 4$
(C) $r = \frac{\sqrt{3}}{4}a$ (D) $r = \frac{\sqrt{2}}{4} \times a$

Answers:

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

Solution:

5. As 'A' ions are present at the face centres of the 6 faces of the cube, the number of ions of

A' in the unit cell =
$$\frac{1}{2} \times 6 = 3$$

As 'B' is present at the 8 corners of the cube, number of ions of B in the unit cell

$$=\frac{1}{8}\times 8=1$$

:. Ratio of atoms A : B = 3 : 1. The formula of the compound is A_3B .

Theory Questions

1.2 Types of solids

1.	Distinguish	between	crystalline	solids	and
	amorphous	solids.	[Mar 13	, 14, 17	, 19]

Ans:	
------	--

	Crystalline solids	Amorphous solids
i.	The constituent	The constituent particles
	particles are arranged	are arranged randomly.
	in a regular and	
	periodic manner.	
ii.	They have sharp and	They do not have sharp
	characteristic	melting point. They
	melting point.	gradually soften over a
		range of temperature.
iii.	They are anisotropic,	They are isotropic, i.e.,
	i.e., have different	have same physical
	physical properties in	properties in all
	different direction.	directions.
iv.	They have long	They have only short
	range order.	range order.
e.g.	Ice, NaCl, etc.	Glass, rubber, plastics, etc.

1.3 Classification of crystalline solids

- Classify the following molecular solids into different types:
 i. HCl
 ii. CO₂
- iii. Solid ice iv. SO₂

[July 18]

Ans:

iv.

- i. HCl Polar molecular solid
- ii. CO₂ Non-polar molecular solid
- iii. Solid ice Hydrogen bonded molecular solid
 - SO_2 Polar molecular solid

Page no. 170 to 296 are purposely left blank.

O1 Mathematical Logic

Multiple Choice Questions

- 1. If $A = \{2, 3, 4, 5, 6\}$, then which of the following is not true? [Oct 13]
 - (A) $\exists x \in A \text{ such that } x + 3 = 8$
 - (B) $\exists x \in A \text{ such that } x + 2 < 5$
 - (C) $\exists x \in A \text{ such that } x + 2 < 9$
 - (D) $\forall x \in A \text{ such that } x + 6 \ge 9$
- 2. If $p \land q = F$, $p \rightarrow q = F$, then the truth values of p and q are : [Oct 15] (A) T, T (B) T, F (C) F T (B) T F
 - (C) F, T (D) F, F

OR

If $p \land q$ is F, $p \rightarrow q$ is F then the truth values of					
p and q are	_ respectively.	[Mar 23]			
(A) T, T	(B) T, F				
(C) F, T	(D) F, F				

- 3. The negation of $p \land (q \rightarrow r)$ is [Mar 16] (A) $p \lor (\sim q \lor r)$ (B) $\sim p \land (q \rightarrow r)$ (C) $\sim p \land (\sim q \rightarrow \sim r)$ (D) $\sim p \lor (q \land \sim r)$
- 4. Inverse of the statement pattern $(p \lor q) \rightarrow (p \land q)$ is [July 16] (A) $(p \land q) \rightarrow (p \lor q)$ (B) $\sim (p \lor q) \rightarrow (p \land q)$ (C) $(\sim p \lor \sim q) \rightarrow (\sim p \land \sim q)$ (D) $(\sim p \land \sim q) \rightarrow (\sim p \lor \sim q)$
- 5. The negation of $p \land (q \rightarrow r)$ is _____.
 - $\begin{array}{ccc} [Mar \ 22] \\ (A) & \sim p \land (\sim q \rightarrow \sim r) \\ (C) & \sim p \land (\sim q \rightarrow r) \\ \end{array} \begin{array}{ccc} (B) & p \lor (\sim q \lor r) \\ (D) & p \rightarrow (q \land \sim r) \\ \end{array}$
- 6. The negation of $(p \lor \sim q) \land r$ is _____.

(A)
$$(\sim p \land q) \land r$$

(B) $(\sim p \land q) \lor r$
(C) $(\sim p \land q) \lor \sim r$
(D) $(\sim p \lor q) \land \sim r$

Answers:

1. (D) 2. (B) 3. (D) 4. (D) 5. (D) 6. (C)

Hints:

1. Consider option (D) For $x = 2 \in A$, we have x + 6 = 8 < 9i.e., x = 2 does not satisfy the condition $x + 6 \ge 9$

2. $p \rightarrow q = F \Rightarrow p \equiv T \text{ and } q \equiv F$

3. $\sim [p \land (q \rightarrow r)]$ $\equiv \sim p \lor \sim (q \rightarrow r)$...[De-Morgan's Law] $\equiv \sim p \lor (q \land \sim r)$...[Negation of implication] iii

- 4. Inverse of $(p \lor q) \to (p \land q)$ is $\sim (p \lor q) \to \sim (p \land q)$ $\equiv (\sim p \land \sim q) \to (\sim p \lor \sim q)$
- 5. $\sim [p \land (q \rightarrow r)]$ $\equiv \sim p \lor \sim (q \rightarrow r)$ $\equiv p \rightarrow [\sim (q \rightarrow r)]$...[$\because p \rightarrow q \equiv \sim p \lor q]$ $\equiv p \rightarrow [\sim (\sim q \lor r)]$ $\equiv p \rightarrow (q \land \sim r)$
- 6. $\sim [(p \lor \sim q) \land r]$ $\equiv \sim (p \lor \sim q) \lor \sim r$...[De Morgan's law] $\equiv (\sim p \land q) \lor \sim r$...[De Morgan's law]

Questions

Based on Exercise 1.1

1. Write down the following statements in symbolic form: i. A triangle is equilateral if and only if it is equiangular. ii. Price increases and demand falls. [Mar 13] Solution: Let p : A triangle is equilateral i. q: A triangle is equiangular *.*.. Symbolic form of the given statement is $p \leftrightarrow q$. ii. Let p : Price increases q: Demand falls Symbolic form of the given statement is $p \land q$. *.*.. 2. If p : It is a day time, q : It is warm, write the compound statements in verbal form denoted byi. p ∧ ~q ii. iii. $q \leftrightarrow p$ $\sim p \rightarrow q$ [Oct 14] Solution: We have p: It is day time q: It is warm ~p : It is not daytime *.*.. $\sim q$: It is not warm ÷. Verbal forms of the given statements are It is daytime but it is not warm. If it is not daytime, then it is warm. ii. iii. It is warm if and only if it is daytime.

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Reproduction in Lower and Higher Plants

11

Multiple Choice Questions

1.	The types of pollination exhibited by <i>Vallisneria</i> and <i>Zea mays</i> respectively are [Oct 08]		(A)Salvia(C)Bougainvillea
	 (A) Anemophily and Hydrophily (B) Entomophily and Hydrophily (C) Hydrophily and Anemophily (D) Hydrophily and Entomophily 	12.	Vegetative propagation of leaves in pla (A) Kalanchoe (C) Cynodon
2.	The endosperm cells in an angiospermic plant has 18 chromosomes, the number of chromosomes in its roots cells will be	13.	How many meiotic div produce 44 femal angiosperms? (A) 11 (B) 22
3.	In porogamy, the pollen tube enters into the ovule through [Mar 09] (A) micropyle (B) integument (C) chalaza (D) funicle	14.	Endosperm of angiosper(A) haploid(C) triploid
4.	Egg apparatus consists of [Oct 09] (A) egg and antipodals (B) egg and polar nuclei (C) egg and synergids (D) egg and secondary nucleus	15. 16.	 A versatile anther is an type of pollination. (A) anemophilous (C) hydrophilous During double fertilizat fuses with .
5.	Synergids are[Mar 10](A) haploid(B) triploid(C) diploid(D) tetraploid		 (A) antipodal cell (B) egg cell (C) secondary nucleus
6.	How many meiotic divisions are required for the formation of 100 seeds?(A)25(B)50(C)100(D)125	17.	(D) synergidsHow many meiotic an required for the formati
7.	During fertilization, male gametes are carried by pollen tube. This is called [Oct 13](A) Syngamy(B) Mesogamy(C) Polygamy(D) Siphonogamy		 from pollen mother cell⁶ (A) 2 meiotic and 1 m (B) 1 meiotic and 1 m (C) 1 meiotic and 2 m (D) 2 meiotic and 2 m
8.	For formation of 50 seeds, how many minimummeiotic divisions are necessary?[Mar 14](A) 25(B) 50(C) 75(D) 63	18.	How many meiotic and during the developmen from the microspore mo
9.	In bisexual flowers, maturation of gynoecium before androecium is known as [Mar 14]		(A) One meiotic and t(B) Two meiotic only(C) Two mitotic only
10	 (A) protandry (B) protogyny (C) gynandry (D) dicliny 	19.	(D) One mitotic and o How many mitotic div
10.	If the number of chromosomes in an endosperm cell is 27, what will be the chromosome number in the definitive nucleus? [Mar 15] (A) 9 (B) 18 (C) 27 (D) 36		the formation of a fem functional megaspore?(A) One(C) Three

Leve	r mechanism of po	ollinati	
	Salvia Bougainvillea	(B) (D)	[Mar 15] Jasmine Butea
of lea (A)	tative propagation to twes in pla <i>Kalanchoe</i> <i>Cynodon</i>	int. (B)	Dace with the help [Oct 15] Oxalis Dahlia
produ angic	many meiotic divi ace 44 female psperms? 11 (B) 22	e g	ametophytes in [Oct 15]
Endo	sperm of angiosper	m is _	
	haploid triploid		[July 16] diploid tetraploid
type (A)	rsatile anther is an of pollination. anemophilous hydrophilous	(B)	[July 18]
fuses (A) (B) (C)	ng double fertilizati with antipodal cell egg cell secondary nucleus synergids		cond male gamete [Mar 19]
requi from (A) (B) (C)	many meiotic an red for the formatic pollen mother cell? 2 meiotic and 1 m 1 meiotic and 2 m 2 meiotic and 2 m	on of i itotic itotic itotic itotic	
durin from (A) (B) (C)	many meiotic and g the developmen the microspore mor One meiotic and t Two meiotic only Two mitotic only One mitotic and o	t of r ther ce wo mi	nale gametophyte ell? [Mar 22] totic
How	many mitotic divi	sions	take place during

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(A)- 40"

(B)+ 40°

(C)- 80°

(0)-20

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3 AP

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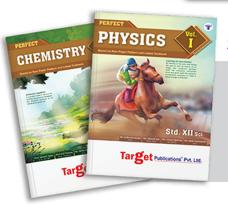
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