SAMPLE CONTENT

# SOLUTIONS TO SSC BOARD QUESTION BANK

Based on Question Bank released by Maharashtra State Board

## STD X: ENGLISH / SEMI ENGLISH MEDIUM

Science (Part I&II) | Maths (Part I&II)

Target Publications® Pvt. Ltd.

**Written in accordance with the Question Bank released by Maharashtra State Board Secondary and Higher Secondary Education, Pune – 04 for Standard X Board Examination**

# SOLUTIONS TO SSC BOARD QUESTION BANK

**English Medium / Semi English**



## Salient Features

- Covers solutions to the Entire Question Bank of Std. X released by Maharashtra State Board in the March 2021
- Questions from reduced syllabus (2021-22) are marked with symbol (R)
- Includes Mathematics (Part I and II), Science and Technology (Part I and II)
- Answers framed for all questions are based on Government Textbook and as per the prescribed marking scheme
- Hints provided for questions wherever deemed necessary.

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# PREFACE

The Question Bank for Std. X was released by the Maharashtra State Board in the month of March 2021 as a respite to all the SSC students whose education had suffered due to the ongoing pandemic & the resultant restrictions at that point of time. The board exam for the year 2021 couldn't be conducted due to the pandemic but the question bank released by the Board remains a guiding light for all the students who will be appearing for the board exam in the year 2022 and the further years as well.

Target's **'Solutions to SSC Board Question Bank'** is intended for every state board student of standard X. As the name suggests, the book includes the solutions to each and every question that was provided in the question bank. The book encompasses all the question types as per the given sequence in the question bank for each subject, that is, for Mathematics (Part I and II), Science and Technology (Part 1 and 2). Keeping in the mind syllabus reduced for the academic year 2021-22, questions belonging to the reduced syllabus are marked with symbol (R).

The answers framed in the book are completely based on the Government Textbook. At certain points, we have simplified or modified the answers for the ease of understanding. We have ensured that the answers are as per the prescribed marking scheme so that the student's efforts bear the desired fruits.

To aid students, hints are provided for questions wherever deemed necessary.

We hope that the students find the book as one stop solution to the Question Bank .

- Publisher
  **Edition:** First

The journey to create a complete book is strewn with triumphs, failures and near misses. If you think we've nearly missed something or want to applaud us for our triumphs, we'd love to hear from you.

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*A book affects eternity; one can never tell where its influence stops*

# CONTENTS

# 01 Similarity

**Q.1. (A) MCQ [1 Mark]**

1. If $\Delta ABC \sim \Delta PQR$ and AB:PQ = 3 : 4 then $A(\Delta ABC) : A(\Delta PQR) = ?$
   (A) 9 : 25 (B) 9 : 16
   (C) 16 : 9 (D) 25 : 9

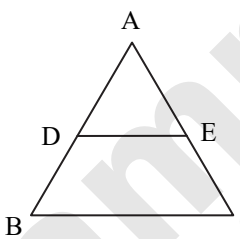
2. Which of the following is not a test of similarity?
   (A) AAA (B) SAS
   (C) SAA (D) SSS

3. If $\Delta XYZ \sim \Delta PQR$ and $A(\Delta XYZ) = 25cm^2$, $A(\Delta PQR) = 4cm^2$ then XY:PQ = ?
   (A) 4 : 25 (B) 2 : 5
   (C) 5 : 2 (D) 25 : 4

4. Ratio of areas of two similar triangles is 9 : 25. _____ is the ratio of their corresponding sides.
   (A) 3 : 4 (B) 3 : 5
   (C) 5 : 3 (D) 25 : 81

5. Given $\Delta ABC \sim \Delta DEF$, if $\angle A = 45°$ and $\angle E = 35°$ then $\angle B = ?$
   (A) 45° (B) 35°
   (C) 25° (D) 40°

6. In fig, seg DE || sec BC, identify correct statement.

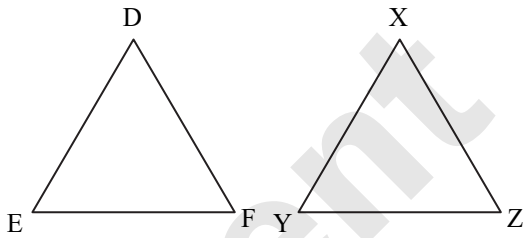



   (A) $\frac{AD}{DB} = \frac{AE}{AC}$ (B) $\frac{AD}{DB} = \frac{AB}{AC}$
   (C) $\frac{AD}{DB} = \frac{EC}{AC}$ (D) $\frac{AD}{DB} = \frac{AE}{EC}$

7. If $\Delta XYZ \sim \Delta PQR$ then $\frac{XY}{PQ} = \frac{YZ}{QR} = ?$
   (A) $\frac{XZ}{PR}$ (B) $\frac{XZ}{PQ}$
   (C) $\frac{XZ}{QR}$ (D) $\frac{YZ}{PQ}$

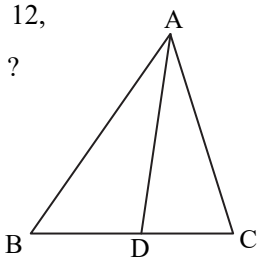
8. If $\Delta ABC \sim \Delta LMN$ and $\angle A = 60°$ then $\angle L = ?$
   (A) 45° (B) 60°
   (C) 25° (D) 40°

9. In $\Delta DEF$ and $\Delta XYZ$, $\frac{DE}{XY} = \frac{FE}{YZ}$ and $\angle E \cong \angle Y$. _____ test gives similarity between $\Delta DEF$ and $\Delta XYZ$.




   (A) AAA (B) SAS
   (C) SAA (D) SSS

10. In fig. BD = 8, BC = 12, B-D-C, then $\frac{A(\Delta ABC)}{A(\Delta ABD)} = ?$
   (A) 2 : 3
   (B) 3 : 2
   (C) 5 : 3
   (D) 3 : 4




**Answers:**

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

**Hints:**

1. $\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{AB^2}{PQ^2}$

$= \frac{3^2}{4^2} = \frac{9}{16}$

…[Theorem of areas of similar triangles]

$\therefore$ $A(\Delta ABC) : A(\Delta PQR) = 9 : 16$

3. $\frac{A(\Delta XYZ)}{A(\Delta PQR)} = \frac{XY^2}{PQ^2}$

…[Theorem of areas of similar triangles]

$\therefore$ $\frac{25}{4} = \frac{XY^2}{PQ^2}$

$\therefore$ $\frac{XY}{PQ} = \frac{5}{2}$

$\therefore$ XY : PQ = 5 : 2

4. Let $\Delta ABC$ and $\Delta PQR$ be two similar triangles. According to the given condition,

$\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{9}{25}$

But $\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{AB^2}{PQ^2}$

…[Theorem of areas of similar triangles]

$\therefore \quad \frac{AB^2}{PQ^2} = \frac{9}{25}$

$\therefore \quad \frac{AB}{PQ} = \frac{3}{5}$

$\therefore$ 3 : 5 is the ratio of their corresponding sides.

5. $\Delta ABC \sim \Delta DEF$

$\therefore \quad \angle B \cong \angle E$

…[Corresponding angles of similar triangles]

But $\angle E = 35°$ …[Given]

$\therefore \quad \angle B = 35°$

6. Basic proportionality theorem

8. $\Delta ABC \sim \Delta LMN$

$\therefore \quad \angle A \cong \angle L$

…[Corresponding angles of similar triangles]

But $\angle A = 60°$ …[Given]

$\therefore \quad \angle L = 60°$

10. Note that $\Delta ABC$ and $\Delta ABD$ have same height.

$\therefore \quad \frac{A(\Delta ABC)}{A(\Delta ABD)} = \frac{BC}{BD}$ ... [The ratio of the areas of two triangles with equal heights is equal to the ratio of their corresponding bases.]

$\therefore \quad \frac{A(\Delta ABC)}{A(\Delta ABD)} = \frac{12}{8} = \frac{3}{2}$

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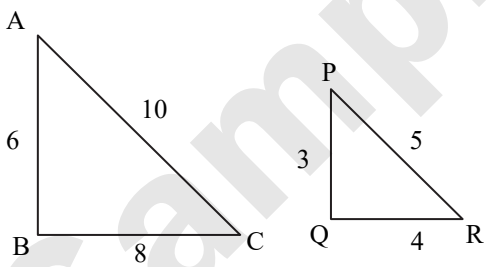
**Q.1 (B) Solve [1 Mark]**

**1. Are triangles in figure similar? If yes, then write the test of similarity.**




***Solution:***

In $\Delta ABC$ and $\Delta PQR$,

$\frac{AB}{PQ} = \frac{6}{3} = \frac{2}{1}$ ...(i)

$\frac{BC}{QR} = \frac{8}{4} = \frac{2}{1}$ …(ii)

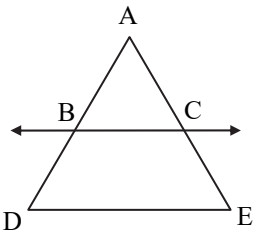
$\frac{AC}{PR} = \frac{10}{5} = \frac{2}{1}$ …(iii)

$\therefore \quad \frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR}$ ...[From (i), (ii) and (iii)]

$\therefore \quad \Delta ABC \sim \Delta PQR$ ...[SSS test of similarity]

$\therefore$ The triangles in the figure are similar by SSS test of similarity.

**2. In fig., line BC || line DE, AB = 2, BD = 3, AC = 4 and CE = *x*, then find the value of *x*.**




***Solution:***

In $\Delta ADE$, line BC || seg DE …[Given]

$\therefore \quad \frac{AB}{BD} = \frac{AC}{CE}$ …[Basic proportionality theorem]

$\therefore \quad \frac{2}{3} = \frac{4}{x}$ …[Given]

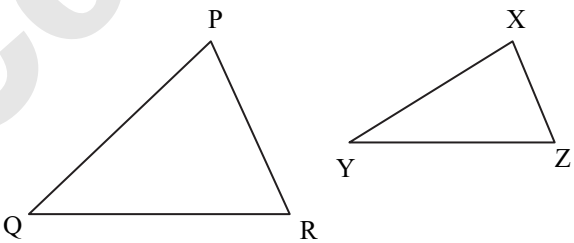
$\therefore \quad x = 4 \times \frac{3}{2}$

$= 2 \times 3$

$\therefore \quad x = 6$

**3. State whether the following triangles are similar or not: If yes, then write the test of similarity.**

**$\angle P = 35°$, $\angle X = 35°$ and $\angle Q = 60°$, $\angle Y = 60°$**




***Solution*:**

In $\Delta PQR$ and $\Delta XYZ$,

$\angle P = 35°$, $\angle X = 35°$, $\angle Q = 60°$ and $\angle Y = 60°$ …[Given]

$\therefore \quad \angle P \cong \angle X$ and $\angle Q \cong \angle Y$

$\therefore \quad \Delta PQR \sim \Delta XYZ$ …[AA test of similarity]

$\therefore$ The triangles in the figure are similar by AA test of similarity.

**4. If $\Delta ABC \sim \Delta LMN$ and $\angle B = 40°$, then $\angle M$ = ? Give reason.**

***Solution*:**

$\Delta ABC \sim \Delta LMN$ …[Given]

$\therefore \quad \angle B \cong \angle M$

…(i)[Corresponding angles of similar triangles]

But $\angle B = 40°$ …[Given]

$\therefore \quad \angle M = 40°$ …[From (i)]

**5. Areas of two similar triangles are in the ratio 144:49. Find the ratio of their corresponding sides.**

***Solution*:**

Let the areas of two similar triangles be $A_1$, $A_2$ and their corresponding sides be $S_1$, $S_2$ respectively.

$\therefore \quad \frac{A_1}{A_2} = \frac{144}{49}$ …(i)[Given]

$\frac{A_1}{A_2} = \frac{S_1^2}{S_2^2}$

…[Theorem of areas of similar triangles]

$\therefore \quad \frac{144}{49} = \frac{S_1^2}{S_2^2}$ ….[From (i)]

$\therefore \quad \frac{S_1}{S_2} = \frac{12}{7}$ …[Taking square root of both sides]

$\therefore$ The ratio of the corresponding sides of the given triangles is 12:7.

**6. ΔPQR ~ ΔSUV. Write pairs of congruent angles.**

***Solution*:**

ΔPQR ~ ΔSUV …[Given]

$\therefore$ $\angle P \cong \angle S, \angle Q \cong \angle U, \angle R \cong \angle V$

…[Corresponding angles of similar triangles]

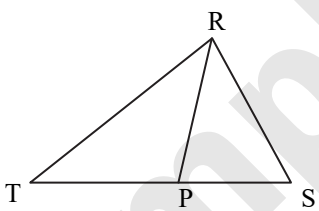
**7. ΔABC ~ ΔDEF. Write the ratios of their corresponding sides.**

***Solution*:**

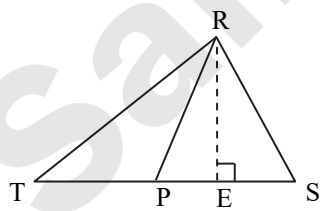
ΔABC ~ ΔDEF …[Given]

$\therefore$ The ratios of corresponding sides of the given triangles are $\frac{AB}{DE}$, $\frac{BC}{EF}$ and $\frac{AC}{DF}$.

**8. In fig., TP = 10 cm, PS = 6 cm. $\frac{A(\Delta RTP)}{A(\Delta RPS)}$ = ?**




***Solution*:**




Draw RE ⊥ TS, T-E-S

ΔRTP and ΔRPS have same height RE.

$\frac{A(\Delta RTP)}{A(\Delta RPS)} = \frac{TP}{PS}$

…[Triangles having equal height]

$= \frac{10}{6}$ …[Given]

$\therefore \quad \frac{A(\Delta RTP)}{A(\Delta RPS)} = \frac{5}{3}$

**9. Ratio of corresponding sides of two similar triangles is 4:7, then find the ratio of their areas.**

***Solution*:**

Let the corresponding sides of similar triangles be $s_1$ and $s_2$.

Let $A_1$ and $A_2$ be their corresponding areas.

$s_1 : s_2 = 4:7$ …[Given]

$\therefore \quad \frac{s_1}{s_2} = \frac{4}{7}$ …(i)

$\frac{A_1}{A_2} = \frac{s_1^2}{s_2^2}$

…[Theorem of areas of similar triangles]

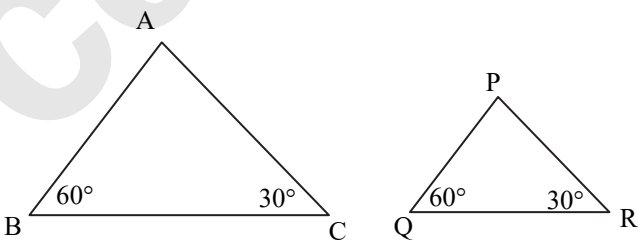
$= \left(\frac{s_1}{s_2}\right)^2$

$= \left(\frac{4}{7}\right)^2$ …[From (i)]

$= \frac{16}{49}$

$\therefore$ Ratio of areas of similar triangles = 16:49

**10. Write the test of similarity for triangles given in figure.**




***Solution*:**

In ΔABC and ΔPQR

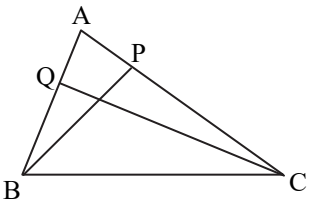
$\angle ABC \cong \angle PQR$ …[Each of measure 60°]

$\angle ACB \cong \angle PRQ$ …[Each of measure 30°]

$\therefore$ ΔABC ~ ΔPQR …[AA test of similarity]

**Q.2 (A) Complete the activities. [2 Marks]**

1. In fig. BP ⊥ AC, CQ⊥AB, A-P-C and A-Q-B then show that ΔAPB and ΔAQC are similar.




In ΔAPB and ΔAQC

$\angle APB = \square^0$ …(i)

$\angle AQC = \square^0$ …(ii)

$\angle APB \cong \angle AQC$ …[From (i) and (ii)]

$\angle PAB \cong \angle QAC$ … ☐

ΔAPB ~ ΔAQC … ☐

***Solution*:**

In ΔAPB and ΔAQC

∠APB = [90]° …(i)

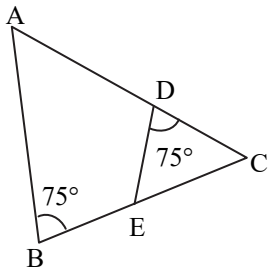
∠AQC = [90]° …(ii)

∴ ∠APB ≅ ∠AQC …[From (i) and (ii)]

∠PAB ≅ ∠QAC … [Common angle]

∴ ΔAPB ~ ΔAQC … [AA test of similarity]

2. Observe the figure and complete following activity.




In fig, ∠B = 75°, ∠D = 75°

∠B ≅ [ ] …[each of 75°]

∠C ≅ ∠C … [ ]

ΔABC ~ Δ[ ] … [ ] similarity test

***Solution*:**

In fig, ∠B = 75°, ∠D = 75°

∠B ≅ [∠D] …[each of 75°]

∠C ≅ ∠C … [Common angle]

ΔABC ~ Δ[EDC] … [AA] similarity test

3. ΔABC ~ ΔPQR, A(ΔABC) = 80sq.cm, A(ΔPQR) = 125sq.cm, then complete $\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{80}{125} = \frac{\square}{\square}$, hence $\frac{AB}{PQ} = \frac{\square}{\square}$

***Solution*:**

$\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{80}{125} = \frac{16}{25}$ …(i)[Given]

$\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{AB^2}{PQ^2}$

…(ii)[Theorem of areas of similar triangles]

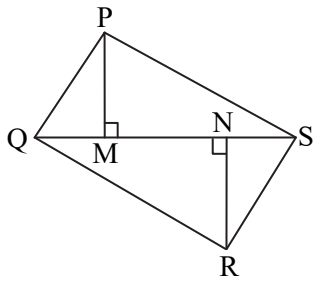
∴ $\frac{AB^2}{PQ^2} = \frac{16}{25}$ …[From (i) and (ii)]

Hence $\frac{AB}{PQ} = \frac{4}{5}$

…[Taking square root of both sides]

4. In fig., PM = 10 cm, A(ΔPQS) = 100 sq.cm, A(ΔQRS) = 110 sq.cm, then NR?

ΔPQS and ΔQRS having seg QS common base.




Areas of two triangles whose base is common are in proportion of their corresponding [ ].

$\frac{A(\Delta PQS)}{A(\Delta QRS)} = \frac{\square}{NR}$,

$\frac{100}{110} = \frac{\square}{NR}$,

NR = [ ] cm

***Solution*:**

ΔPQS and ΔQRS having seg QS common base.

Areas of two triangles whose base is common are in proportion of their corresponding [heights].

$\frac{A(\Delta PQS)}{A(\Delta QRS)} = \frac{PM}{NR}$,

$\frac{100}{110} = \frac{10}{NR}$

∴ $NR = \frac{110 \times 10}{100}$

∴ NR = [11] cm

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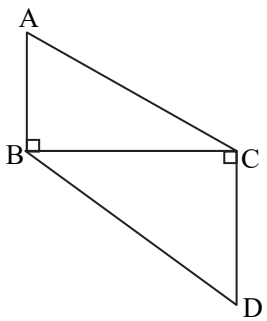
**Q.2 (B)**

**1. In fig., AB ⊥ BC and DC ⊥ BC, AB = 6, DC = 4 then $\frac{A(\Delta ABC)}{A(\Delta BCD)}$ = ?**




***Solution*:**

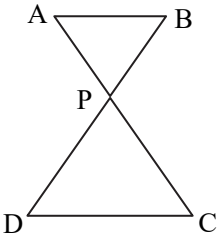
ΔABC and ΔBCD have same base BC.

∴ $\frac{A(\Delta ABC)}{A(\Delta BCD)} = \frac{AB}{DC}$ …[Triangles having equal base]

$= \frac{6}{4}$ …[Given]

∴ $\frac{A(\Delta ABC)}{A(\Delta BCD)} = \frac{3}{2}$

**2. In fig., seg AC and seg BD intersect each other at point P.**
**$\frac{AP}{PC} = \frac{BP}{PD}$, then prove that $\Delta ABP \sim \Delta CDP$**




***Proof*:**

In $\Delta ABP$ and $\Delta CDP$,

$\frac{AP}{PC} = \frac{BP}{PD}$ ...[Given]

$\angle APB \cong \angle CPD$ ...[Vertically opposite angles]

$\therefore$ $\Delta ABP \sim \Delta CDP$ ...[SAS test of similarity]

[**Note:** *The question has been modified.*]

**3. $\Delta ABP \sim \Delta DEF$ and**
**$A(\Delta ABP) : A(\Delta DEF) = 144 : 81$, then AB : DE = ?**

***Solution*:**

$\frac{A(\Delta ABP)}{A(\Delta DEF)} = \frac{144}{81}$ ...(i)[Given]

$\frac{A(\Delta ABP)}{A(\Delta DEF)} = \frac{AB^2}{DE^2}$

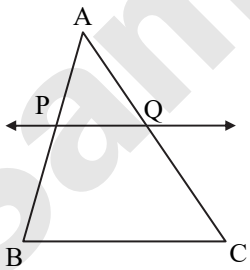
...(ii)[Theorem of areas of similar triangles]

$\therefore$ $\frac{AB^2}{DE^2} = \frac{144}{81}$ ...[From (i) and (ii)]

$\therefore$ $\frac{AB}{DE} = \frac{12}{9}$ or $\frac{4}{3}$

...[Taking square root of both sides]

**4. From given information, is PQ || BC?**
**AP = 2, PB = 4, AQ = 3, QC = 6**




***Solution*:**

$\frac{AP}{PB} = \frac{2}{4} = \frac{1}{2}$ ...(i)[Given]

$\frac{AQ}{QC} = \frac{3}{6} = \frac{1}{2}$ ...(ii)

In $\Delta ABC$,

$\frac{AP}{PB} = \frac{AQ}{QC} = \frac{1}{2}$ ...[From (i) and (ii)]

$\therefore$ line PQ || side BC

...[Converse of basic proportionality theorem]

**5. Areas of two similar triangles are $225 cm^2$ and $81 cm^2$. If side of smaller triangle is 12 cm, find corresponding side of major triangle.**

***Solution*:**

Let the areas of two similar triangles be $A_1$ and $A_2$.

$A_1 = 225 cm^2$ and $A_2 = 81 cm^2$

Let the corresponding sides of triangles be $s_1$ and $s_2$ respectively.

$s_1 = 12$ cm

$\frac{A_1}{A_2} = \frac{s_1^2}{s_2^2}$

...[Theorem of areas of similar triangles]

$\therefore$ $\frac{225}{81} = \frac{s_1^2}{12^2}$

$\therefore$ $s_1^2 = \frac{225 \times 12^2}{81}$

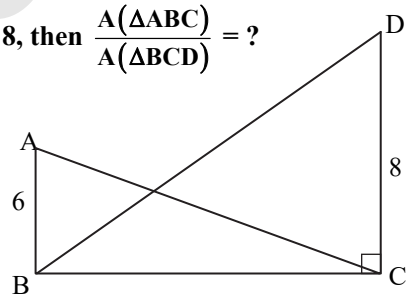
$\therefore$ $s_1 = \frac{15 \times 12}{9}$

...[Taking square root of both sides]

$\therefore$ $s_1 = 20$ cm

$\therefore$ The length of the corresponding side of the bigger triangle is 20 cm.

**6. In fig., $\angle ABC = 90°$, $\angle DCB = 90°$, AB = 6, DC = 8, then $\frac{A(\Delta ABC)}{A(\Delta BCD)}$ = ?**




***Solution*:**

$\Delta ABC$ and $\Delta BCD$ have same base BC.

$\therefore$ $\frac{A(\Delta ABC)}{A(\Delta BCD)} = \frac{AB}{DC}$ ...[Triangles having equal base]

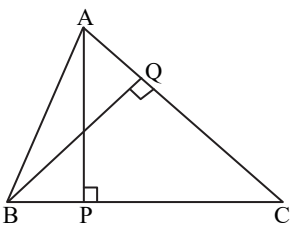
$= \frac{6}{8}$

$\therefore$ $\frac{A(\Delta ABC)}{A(\Delta DCB)} = \frac{3}{4}$

---

**Q.3 (A) Complete the following activities.** **[3 Marks]**

1. In $\Delta ABC$, AP $\perp$ BC and BQ $\perp$ AC, B-P-C, A-Q-C, then show that $\Delta CPA \sim \Delta CQB$. If AP = 7, BQ = 8, BC = 12, then AC = ?



In ΔCPA and ΔCQB

∠CPA ≅ ∠ [ ] …[each 90°]

∠ACP ≅ ∠ [ ] . …[common angle]

ΔCPA ~ ΔCQB …[ [ ] similarity test]

$\frac{AP}{BQ} = \frac{[\ ]}{BC}$

…[corresponding sides of similar triangles]

$\frac{7}{8} = \frac{[\ ]}{12}$

AC × [ ] = 7 × 12

AC = 10.5

***Solution*:**

In ΔCPA and ΔCQB

∠CPA ≅ ∠ [**CQB**] . …[each 90°]

∠ACP ≅ ∠ [**BCQ**] . …[common angle]

ΔCPA ~ ΔCQB …[ [**AA**] similarity test]

$\frac{AP}{BQ} = \frac{[\mathbf{AC}]}{BC}$

…[corresponding sides of similar triangle]

$\frac{7}{8} = \frac{[\mathbf{AC}]}{12}$

AC × [**8**] = 7 × 12

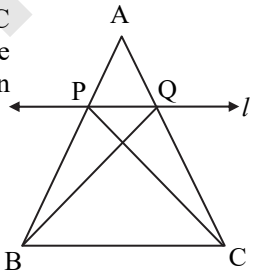
$AC = \frac{7\times12}{8}$

$= \frac{7\times3}{2} = \frac{21}{2}$

AC = 10.5

2. A line is parallel to one side of triangle which intersects remaining two sides in two distinct points then that line divides sides in same proportion.

Given: In ΔABC line *l* || side BC and line *l* intersect side AB in P and side AC in Q.




To prove: $\frac{AP}{PB} = \frac{AQ}{QC}$

Construction: Draw CP and BQ

*Proof*:

ΔAPQ and ΔPQB have equal height.

$\frac{A(\Delta APQ)}{A(\Delta PQB)} = \frac{[\ ]}{PB}$

…[areas in proportion of base](i)

$\frac{A(\Delta APQ)}{A(\Delta PQC)} = \frac{[\ ]}{QC}$

…[areas in proportion of base](ii)

ΔPQC and ΔPQB have [ ] is common base.

Seg PQ || Seg BC, hence height of ΔAPQ and ΔPQB.

$A(\Delta PQC) = A(\Delta[\ ])$ …(iii)

$\frac{A(\Delta APQ)}{A(\Delta PQB)} = \frac{A(\Delta[\ ])}{A(\Delta[\ ])}$ …[(i), (ii), and (iii)]

$\frac{AP}{PB} = \frac{AQ}{QC}$ …[(i) and (ii)]

***Solution*:**

*Proof*:

ΔAPQ and ΔPQB have equal height.

$\frac{A(\Delta APQ)}{A(\Delta PQB)} = \frac{[\mathbf{AP}]}{PB}$

…[areas in proportion of base](i)

$\frac{A(\Delta APQ)}{A(\Delta PQC)} = \frac{[\mathbf{AQ}]}{QC}$

…[areas in proportion of base](ii)

ΔPQC and ΔPQB have [**PQ**] is common base.

Seg PQ || Seg BC, hence height of ΔAPQ and ΔPQB.

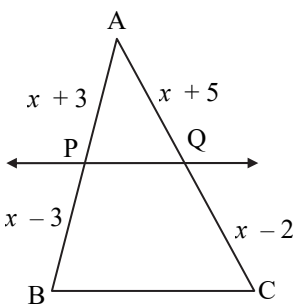
$A(\Delta PQC) = A(\Delta[\mathbf{PQB}])$

…[Areas of two triangles having equal base and height are equal](iii)

$\frac{A(\Delta APQ)}{A(\Delta PQB)} = \frac{A(\Delta[\mathbf{APQ}])}{A(\Delta[\mathbf{PQC}])}$ …[(i), (ii), and (iii)]

$\frac{AP}{PB} = \frac{AQ}{QC}$ …[(i) and (ii)]

3. From fig., seg PQ || side BC, AP = $x$ + 3, PB = $x$ – 3, AQ = $x$ + 5, QC = $x$ – 2, then complete the acitivity to find the vlaue of $x$.




In ΔPQB, PQ || side BC

$\frac{AP}{PB} = \frac{AQ}{[\ ]}$ …[ [ ] ]

$\frac{x+3}{x-3} = \frac{x+5}{[\ ]}$

$(x + 3)$ [ ] $= (x + 5)(x - 3)$

$x^2 + x -$ [ ] $= x^2 + 2x - 15$

$x =$ [ ]

***Solution*:**

In ΔPQB, PQ || side BC

$\frac{AP}{PB} = \frac{AQ}{\boxed{QC}}$ ...[**Basic proportionality theorem**]

$\frac{x+3}{x-3} = \frac{x+5}{\boxed{x-2}}$

$\therefore \quad (x+3)\ \boxed{x-2} = (x+5)(x-3)$

$\therefore \quad x^2 + x - \boxed{6} = x^2 + 2x - 15$

$\therefore \quad x - 6 = 2x - 15$

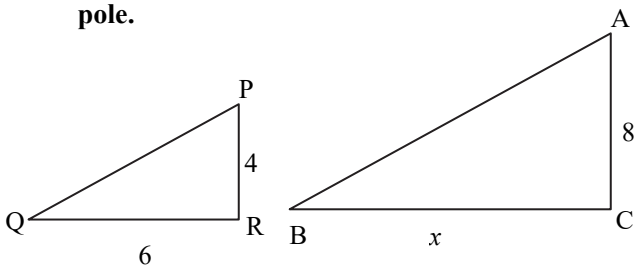
$\therefore \quad 2x - x = 15 - 6$

$\therefore \quad x = \boxed{9}$

---

**Q.3. (B) [3 Marks]**

**1. There are two poles having heights 8m and 4m on plane ground as shown in fig. Because of sunlight shadows of smaller pole is 6m long, then find the length of shadow of longer pole.**




***Solution*:**

Here, AC and PR represents the bigger and smaller poles, and BC and QR represents their shadows respectively.

Now, ΔACB ~ ΔPRQ

...[∵ Vertical poles and their shadows form similar figures]

$\therefore \quad \frac{CB}{RQ} = \frac{AC}{PR}$

...[Corresponding sides of similar triangles]

$\therefore \quad \frac{x}{6} = \frac{8}{4}$

$\therefore \quad x = \frac{8 \times 6}{4}$

$\therefore \quad x = 12$ m

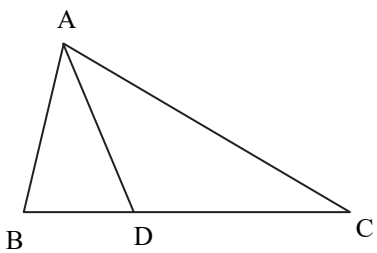
$\therefore$ The shadow of the bigger pole will be 12 metres long at that time.

**2. In ΔABC, B-D-C and BD = 7, BC = 20, then find the following ratio.**

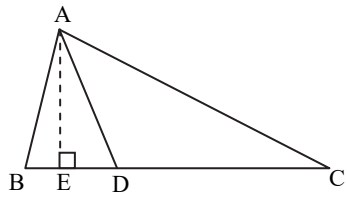
**i.** $\frac{A(\Delta ABD)}{A(\Delta ADC)}$

**ii.** $\frac{A(\Delta ABD)}{A(\Delta ABC)}$

**iii.** $\frac{A(\Delta ADC)}{A(\Delta ABC)}$




***Solution*:**




Draw AE ⊥ BC, B – E – C.

BC = BD + DC ...[B–D–C]

$\therefore \quad 20 = 7 + DC$

$\therefore \quad DC = 20 - 7 = 13$

i. ΔABD and ΔADC have same height AE.

$\frac{A(\Delta ABD)}{A(\Delta ADC)} = \frac{BD}{DC}$

...[Triangles having equal height]

$\therefore \quad \frac{A(\Delta ABD)}{A(\Delta ADC)} = \frac{7}{13}$

ii. ΔABD and ΔABC have same height AE.

$\frac{A(\Delta ABD)}{A(\Delta ABC)} = \frac{BD}{BC}$

...[Triangles having equal height]

$\therefore \quad \frac{A(\Delta ABD)}{A(\Delta ABC)} = \frac{7}{20}$

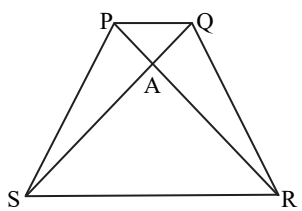
iii. ΔADC and ΔABC have same height AE.

$\frac{A(\Delta ADC)}{A(\Delta ABC)} = \frac{DC}{BC}$

...[Triangles having equal height]

$\therefore \quad \frac{A(\Delta ADC)}{A(\Delta ABC)} = \frac{13}{20}$

**3. In given fig., quadrilateral PQRS, side PQ || side SR, AR = 5 AP, then prove that, SR = 5PQ**




***Proof*:**

side PQ || side SR and

seg SQ is their transversal. ...[Given]

$\therefore \quad \angle QSR \cong \angle SQP$ ...[Alternate angles]

$\therefore \quad \angle ASR \cong \angle AQP$ ...(i) [Q–A–S]

In ΔASR and ΔAQP,

$\angle ASR \cong \angle AQP$ ...[From (i)]

$\angle SAR \cong \angle QAP$ ...[Vertically opposite angles]

$\therefore \quad \Delta ASR \sim \Delta AQP$ ...[AA test of similarity]

$\therefore \quad \frac{AR}{AP} = \frac{SR}{PQ}$

...(ii)[Corresponding sides of similar triangles]

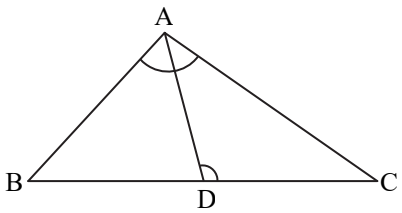
But, AR = 5 AP …[Given]

$\therefore \quad \frac{AR}{AP} = \frac{5}{1}$ …(iii)

$\therefore \quad \frac{SR}{PQ} = \frac{5}{1}$ …[From (ii) and (iii)]

$\therefore$ SR = 5 PQ

**4. In triangle ABC point D is on side BC (B-D-C) such that ∠BAC = ∠ADC then prove that $CA^2 = CB \times CD$**




***Proof*:**

In ΔBAC and ΔADC,

∠BAC ≅ ∠ADC …[Given]

∠BCA ≅ ∠ACD …[Common angle]

$\therefore$ ΔBAC ~ ΔADC …[AA test of similarity]

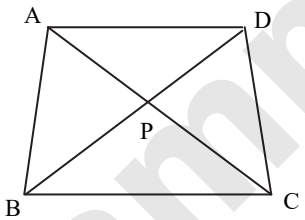
$\therefore \quad \frac{CA}{CD} = \frac{CB}{CA}$

…[Corresponding sides of similar triangles]

$\therefore \quad CA \times CA = CB \times CD$

$\therefore \quad CA^2 = CB \times CD$

**5. In Quadrilateral ABCD, side AD || BC, diagonal AC and BD intersect in point P, then prove that $\frac{AP}{PD} = \frac{PC}{BP}$**




***Proof*:**

seg AD || seg BC and

BD is their transversal. …[Given]

$\therefore$ ∠DBC ≅ ∠BDA …[Alternate angles]

$\therefore$ ∠PBC ≅ ∠PDA …(i)[D–P–B]

In ΔPBC and ΔPDA,

∠PBC ≅ ∠PDA …[From (i)]

∠BPC ≅ ∠DPA

…[Vertically opposite angles]

$\therefore$ ΔPBC ~ ΔPDA …[AA test of similarity]

$\therefore \quad \frac{BP}{PD} = \frac{PC}{AP}$

…[Corresponding sides of similar triangles]

$\therefore \quad \frac{AP}{PD} = \frac{PC}{BP}$ …[By alternendo]

**Q.4 [4 Marks]**

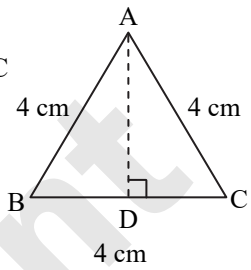
**1. Side of equilateral triangle PQR is 8 cm then find the area of triangle whose side is half of the side of triangle PQR.**

**Given:** ΔPQR is an equilateral triangle with PQ = QR = PR = 8cm and ΔABC is an equilateral triangle with AB = BC = AC = 4cm

**To find:** A(ΔABC)

**Construction:**

Draw seg AD ⊥ BC; B-D-C




***Solution*:**

In ΔABD,

∠ADB = 90°

…[construction]

∠ABD = 60°

…[Angle of an equilateral triangle]

∠BAD = 30° …[Remaining angle of a triangle]

$\therefore$ ΔABD is a 30° – 60°– 90° triangle.

$\therefore \quad AD = \frac{\sqrt{3}}{2} AB$ …[side opposite to 60°]

$= \frac{\sqrt{3}}{2} \times 4 = 2\sqrt{3}$ …(i)

Area of triangle = $\frac{1}{2}$ × base × height

$\therefore$ Area of ΔABC = $\frac{1}{2} \times AD \times BC$

$= \frac{1}{2} \times 2\sqrt{3} \times 4$

$= 2 \times 2\sqrt{3}$

$= 4\sqrt{3}$ …[From (i)]

$\therefore$ Area of the triangle whose side is half of the side of ΔPQR is $4\sqrt{3}$ sq.cm.

**2. Areas of two similar triangles are equal then prove that triangles are congruent.**

**Given:** ΔABC ~ ΔPQR and A(ΔABC) = A(ΔPQR)

**To prove:** ΔABC ≅ ΔPQR

***Proof:***

$\frac{A(\Delta ABC)}{A(\Delta PQR)} = 1$ …(i) [Given]

Also, $\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{AB^2}{PQ^2} = \frac{BC^2}{QR^2} = \frac{AC^2}{PR^2}$

…[Theorem of areas of similar triangles]

$\therefore \quad 1 = \frac{AB^2}{PQ^2} = \frac{BC^2}{QR^2} = \frac{AC^2}{PR^2}$ …[From (i)]

$\therefore \quad 1 = \frac{AB^2}{PQ^2}$

$\therefore \quad AB^2 = PQ^2$

$\therefore$ AB = PQ …[Taking square root of both sides]

i.e., seg AB ≅ seg PQ

Similarly, seg BC ≅ seg QR

and seg AC ≅ seg PR

$\therefore$ ΔABC ≅ ΔPQR …[SSS test of congruency]

**3. Two triangles are similar. Smaller triangle's sides are 4 cm, 5 cm, 6 cm. Perimeter of larger triangle is 90 cm then find the sides of larger triangle.**

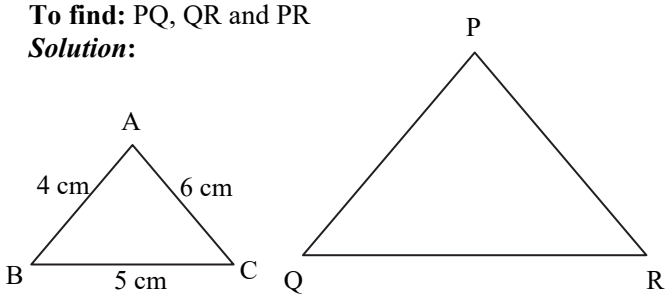
**Given:** $\Delta ABC \sim \Delta PQR$

In $\Delta ABC$, AB = 4cm, BC = 5cm, AC = 6cm

In $\Delta PQR$, PQ + QR + PR = 90cm

**To find:** PQ, QR and PR

***Solution*:**




$\Delta ABC \sim \Delta PQR$ …[Given]

$\therefore \quad \frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR}$

…[Corresponding sides of similar triangles]

Let $\frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR} = k$

$\therefore \quad \frac{4}{PQ} = \frac{5}{QR} = \frac{6}{PR} = k$ …[Given]

$\therefore \quad \frac{4}{PQ} = k, \frac{5}{QR} = k$ and $\frac{6}{PR} = k$

$\therefore \quad PQ = \frac{4}{k}, QR = \frac{5}{k}$ and $PR = \frac{6}{k}$ …(i)

$\therefore \quad PQ + QR + PR = \frac{4}{k} + \frac{5}{k} + \frac{6}{k}$

$\therefore \quad 90 = \frac{15}{k}$ …[Given]

$\therefore \quad k = \frac{15}{90} = \frac{1}{6}$

$\therefore \quad PQ = \frac{4}{\left(\frac{1}{6}\right)} = 4 \times 6 = 24cm$ …[From (i)]

$QR = \frac{5}{\left(\frac{1}{6}\right)} = 5 \times 6 = 30cm$ …[From (i)]

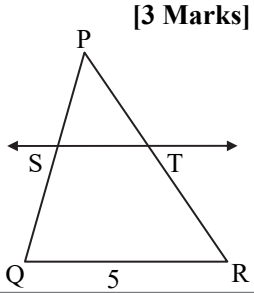
$PR = \frac{6}{\left(\frac{1}{6}\right)} = 6 \times 6 = 36cm$ …[From (i)]

$\therefore$ The sides of the larger triangle are 24cm, 30cm and 36cm.

---

**Q.5** **[3 Marks]**

**1. In fig., PS = 2, SQ = 6, QR = 5, PT = $x$ and TR = $y$. Then find the pair of value of $x$ and $y$ such that ST || side QR.**




***Solution*:**

In $\Delta PQR$,

line ST || side QR …[Given]

$\therefore \quad \frac{PS}{SQ} = \frac{PT}{TR}$ …[Basic proportionality theorem]

$\therefore \quad \frac{2}{6} = \frac{PT}{TR}$ …[Given]

$\therefore \quad \frac{1}{3} = \frac{x}{y}$

$\therefore \quad y = 3x$ …(i)

PR = PT + TR …[P-T-R]

$\therefore \quad PR = x + y$ …(ii)[Given]

In $\Delta PQR$, PQ + QR > PR

… [The sum of the lengths of any two sides of a triangle is greater than the third side]

$\therefore \quad (PS + SQ) + QR > PR$ …[P-S-Q]

$\therefore \quad 2 + 6 + 5 > PR$ …[Given]

$\therefore \quad 13 > PR$

$\therefore \quad x + y < 13$ …[From (ii)]

$\therefore \quad x + 3x < 13$ …[From (i)]

$\therefore \quad 4x < 13$ …(ii)

$\therefore$ Integer values of $x$ satisfying equation (ii) are 1, 2, 3.

$\therefore$ If $x = 1$, we get $y = 3x = 3$
If $x = 2$, we get $y = 3x = 6$
If $x = 3$, we get $y = 3x = 9$
} …[From (i)]

$\therefore$ Some of the pairs of values of $x$ and $y$ are (1, 3), (2, 6), (3, 9).

**2. An architecture have model of building. Length of building is 1m then length of model is 0.75cm. Then find length and height of model building whose actual length is 22.5m and height is 10m.**

***Solution*:**

Note that the dimensions of the actual building and the dimensions of the model must be in same proportion.

$\therefore \quad \frac{\text{Length of building}}{\text{Lenght of model building}}$

$= \frac{\text{Height of building}}{\text{Height of model building}} = \frac{1}{0.75}$ …[Given]

$\therefore \quad \frac{22.5}{\text{Length of model building}}$

$= \frac{10}{\text{Height of model building}} = \frac{1}{0.75}$ …[Given]

$\therefore \quad \frac{22.5}{\text{Legnth of model building}} = \frac{1}{0.75}$

$\therefore$ Length of the model building = 22.5 × 0.75
= 16.875m

Also, $\frac{10}{\text{Height of model building}} = \frac{1}{0.75}$

$\therefore$ Height of the model building = 10 × 0.75 = 7.5 m

$\therefore$ Length and height of the model building are 16.875m and 7.5m respectively.

# Q.1. (A) Choose the correct option

***Note:*** *The (R) marked questions are the part of reduced/non-evaluative portion for academic year 2020-21 only.*

1. Transfer of information from molecules of DNA to mRNA is called _____ process.
   (A) translocation (B) translation
   (C) transcription (D) differentiation

2. Similarities in initial stages indicate the _____ evidence.
   (A) Connecting links (B) Anatomical
   (C) Embryological (D) Palaeontological

3. _____ is a vestigial organ in human beings.
   (A) Wisdom teeth (B) Ear muscles
   (C) Body hairs (D) All of the above

4. Protein located in bones is _____.
   (A) myosin (B) melanin
   (C) haemoglobin (D) ossein

5. Which of the following vitamins is necessary for synthesis of $NADH_2$?
   (A) Vitamin $B_3$ (B) Vitamin C
   (C) Vitamin $B_2$ (D) Vitamin K

6. _____ cells divide by mitosis.
   (A) Somatic
   (B) Gametes
   (C) Stem
   (D) Both (A) and (C)

7. The first step of karyokinesis is _____.
   (A) anaphase (B) telophase
   (C) metaphase (D) prophase

8. _____ is not a part of mitosis.
   (A) Anaphase (B) Diplotene
   (C) Prophase (D) Cytokinesis

9. We get _____ energy from lipids.
   (A) 4 cal / gm (B) 9 cal/ gm
   (C) 9 kcal/ gm (D) 4 kcal/gm

10. In humans, there are _____ pairs of chromosomes.
    (A) 22 (B) 23
    (C) 44 (D) 46

11. Which of the following is not a type of asexual reproduction in multicellular organisms?
    (A) Fragmentation (B) Regeneration
    (C) Budding (D) Binary fission

12. Find the odd one out:
    (A) Stigma (B) Anther
    (C) Style (D) Ovary

13. At the time of birth, there are _____ oocytes in the ovary of a female foetus.
    (A) 1 to 2 million (B) 2 to 3 million
    (C) 2 to 4 million (D) none of these

14. _____ modern remedial technique is used if there is a problem in implantation of embryo in the uterus.
    (A) Surrogacy (B) Sperm bank
    (C) *In vitro* fertilization (D) none of these

15. Implantation of the embryo occurs in _____.
    (A) uterus (B) ovary
    (C) oviduct (D) vagina

16. In humans, sperm production occurs in the organ _____.
    (A) testes (B) scrotum
    (C) prostate gland (D) ovaries

17. Pregnant mother supplies nourishment to her foetus through _____.
    (A) uterus (B) placenta
    (C) ovary (D) oviduct

18. _____ twins are formed from a single embryo.
    (A) Dizygotic (B) Monozygotic
    (C) Multiple zygote (D) Zygote

19. Pollen grains are formed by _____ division in locules of anthers.
    (A) meiosis (B) mitosis
    (C) amitosis (D) binary

20. Asexual reproduction occurs by _____ cell division.
    (A) mitotic
    (B) meiotic
    (C) fertilization
    (D) double fertilization

21. This method of asexual reproduction is seen in *Paramoecium*.
    (A) Transverse binary fission
    (B) Longitudinal binary fission
    (C) Simple binary fission
    (D) Regeneration

22. In meiosis, the number of chromosomes becomes _____.
    (A) multiple times (B) triple
    (C) half (D) double

23. Generally, every month, _____ ovum is released in the abdominal cavity alternately from each ovary.
    (A) 1 (B) 2 (C) 3 (D) 4

24. _____ is present in unisexual flower.
(A) Both androecium and gynoecium
(B) Only androecium
(C) Only gynoecium
(D) Androecium or gynoecium

R 25. _____ is a chemical factor of abiotic components.
(A) Air (B) water
(C) Nutrients (D) sunlight

R 26. _____ is an organic compound of abiotic components.
(A) Protein (B) Iron
(C) Sodium (D) Oxygen

27. _____ is a rare species.
(A) Lesser florican (B) Tiger
(C) Giant squirrel (D) Musk deer

28. _____ is an indeterminate species.
(A) Red panda
(B) Lion
(C) Lion tailed monkey
(D) Giant squirrel

29. Occurrence of diversity among the organisms of the same species is called _____ diversity.
(A) species (B) genetic
(C) ecosystem (D) animal

30. In modern civilization, _____ has become a primary need
(A) food (B) cloth
(C) shelter (D) energy

31. Most electric power plants are based on the principle of _____.
(A) electro induction
(B) magnetic induction
(C) electro-magnetic induction
(D) electromagnet

32. Principle of Electromagnetic induction was invented by the scientist _____.
(A) Ohm (B) Michael Faraday
(C) Joule (D) Newton

33. In the power plant based on nuclear energy _____ is used to rotate the generator.
(A) Steam turbine (B) air turbine
(C) water turbine (D) none of these

34. When a neutron is bombarded on an atom of uranium, _____ neutrons are generated in this process.
(A) 1 (B) 2 (C) 3 (D) 4

35. Kinetic energy in flowing water drives _____ to generate electricity.
(A) watermill (B) windmill
(C) turbines (D) generator

36. Wind turbines with capacity _____ are commercially available.
(A) 1 kW to 7 MW (B) 1 kW to 7 kW
(C) 1 kW to 7000 W (D) 1 W to 7 MW

37. Solar photovoltaic cells convert the solar radiation energy directly into _____ energy.
(A) electrical (B) potential
(C) kinetic (D) heat

38. A silicon solar cell of dimension 1 sq.cm. generates current of about _____.
(A) 50 mA (B) 30 mA
(C) 50 A (D) 30 A

39. A silicon solar cell of dimension 1 sq.cm. generates _____ potential difference.
(A) 0.1 V (B) 0.5 V
(C) 0.1 mV (D) 0.5 Mv

40. In nuclear power plants, neutrons are bombarded on atoms of _____.
(A) Uranium-236. (B) Barium
(C) Krypton. (D) Uranium -235.

41. My body is soft and slimy, hence I am referred as _____.
(A) Mollusca (B) Echinodermata
(C) Annelida (D) Arthropoda

42. Which of the following is a hermaphrodite animal?
(A) *Doliolum* (B) Scorpion
(C) Centipede (D) Cockroach

43. Which of the following animals can regenerate its broken body parts?
(A) Frog (B) Starfish
(C) Sparrow (D) Pigeon

44. Which of the following is a warm blooded (homeotherm) animal?
(A) Bat (B) Tortoise
(C) Wall lizard (D) Crocodile

45. My body is _____ shaped to minimize water resistance.
(A) pointed (B) spindle
(C) cartilaginous (D) flat

R 46. _____ is called a friend of farmers.
(A) Rabbit (B) Cat
(C) Leech (D) Earthworm

47. Which of the following animals has a hard calcareous shell?
(A) Nereis (B) Shark
(C) Bivalve (D) Herdmania

48. _____ acid is used in production of vitamins.
(A) Citric (B) Gluconic
(C) Lactic (D) Itaconic

49. Nowadays, _____ are used for treatment of diarrhoea and treatment of poultry also.
(A) yoghurt (B) probiotics
(C) vinegar (D) cheese

50. Yoghurt is a milk product produced with the help of _____.
(A) *Lactobacilli* (B) *Azotobacter*
(C) *Corynebacterium* (D) *Streptococcus*.

51. _____ is a powerful antibiotic against treatment of tuberculosis.
(A) Penicillin (B) Rifamycin
(C) Streptomycin (D) Bacitracin.

52. _____ is used in the commercial bakery industry.
(A) Compressed yeast (B) Algae
(C) Bacteria (D) Microbes

53. _____ is a substance obtained by microbial processing that functions as artificial sweetener.
(A) Nycin (B) Lysine
(C) Xanthenes (D) Xylitol

54. At the earliest stage of development, the organism is in the form of a mass of a cell, which are almost alike, those cells are called _____.
(A) stem cells (B) RBC
(C) WBC (D) none of these

55. Which of the following factors are considered or need to be paid attention during organ transplantation?
(A) Blood group of recipient
(B) Diseases of donor
(C) Age of donor
(D) All of the above

56. Availability of _____ is an important requirement in organ transplantation.
(A) doctor (B) clinic
(C) donor (D) ambulance

57. The disease related with the synthesis of insulin is _____.
(A) cancer (B) arthritis
(C) heart disease (D) diabetes

58. Transgenic raw potatoes generate the immunity against _____ disease.
(A) plague (B) cholera
(C) leprosy (D) TB

59. _____ have valuable contributions in the green revolution in the USA.
(A) Dr. Norman Borlaug
(B) Dr. Swaminathan
(C) Dr. Verghese Kurien
(D) Dr. Har Govind Khorana

60. Methods like artificial insemination and embryo transplant are mainly used for _____.
(A) animal husbandry (B) wild life
(C) pet animals (D) infertile women

61. _____ is the revolutionary event in biotechnology after cloning.
(A) Human genome project
(B) DNA discovery
(C) Stem cell research
(D) All of the above

62. Biotechnology integrated the toxin which is fatal for _____, was produced in leaves and bolls of cotton.
(A) bollworm (B) caterpillar
(C) sparrow (D) frog

63. Cell _____ starts from $14^{th}$ day of conception.
(A) growth (B) differentiation
(C) development (D) division

64. The Government of India has encouraged _____ for improving the productivity by launching the program NKM-16.
(A) aquaculture (B) poultry
(C) piggery (D) apiculture

R 65. _____ are present in the umbilical cord by which the foetus is joined to the uterus of the mother.
(A) Stem cells (B) Muscle cells
(C) Neuron cells (D) Bone cells

66. For the purpose of preservation stem cell samples are kept in _____.
(A) liquid oxygen (B) hydrogen
(C) liquid chlorine (D) liquid nitrogen

67. Phenylketonuria arises due to genetic changes in _____ cells.
(A) liver (B) intestine
(C) pancreas (D) heart

68. _____ organism is used as biofertilizers.
(A) *Thiobacillus* (B) *Nostoc*
(C) *Saccharomyces* (D) *Escherichia*

69. Alcohol consumption mainly affects the _____ system.
(A) nervous (B) excretory
(C) respiratory (D) digestive

70. Laughter club is a remedy to drive away _____.
(A) addictions (B) stress
(C) lethargy (D) epidemics

71. _____ helps to improve concentration in the studies.
(A) Hobbies (B) Sports
(C) Meditation (D) Eatables

72. _____ influence is stronger in case of adolescents.
(A) Teachers (B) Fathers
(C) Relatives (D) Peer group

73. Our _____ has been changed to some extent in the age of technology.
(A) lifestyle (B) habit
(C) circumstance (D) passion

R 74. Hobbies like _____ pet animals help to create a positive mindset.
(A) feeding (B) transferring
(C) rearing (D) looking

75. Continuous consumption of _____ substances causes carcinogenic effects especially on the mouth and lung.
(A) hot (B) sweet
(C) spicy (D) tobacco like

76. Alcoholic person lacks the _____ thinking.
(A) straight (B) rational
(C) universal (D) spiritual

77. _____ may arise due to excessive use of mobile phones.
(A) Headache
(B) Problem in vision
(C) Joint pains
(D) All of the above

78. Liquor is produced from _____.
(A) alcohol (B) glucose
(C) acid (D) salt

79. Salaam Mumbai Foundation runs programs for _____ in a slum area.
(A) education
(B) tobacco
(C) cybercrimes
(D) domestic violence

**Answers:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. | (C) | 2. | (C) | 3. | (D) | 4. | (D) |
| 5. | (A) | 6. | (D) | 7. | (D) | 8. | (B) |
| 9. | (C) | 10. | (B) | 11. | (D) | 12. | (B) |
| 13. | (C) | 14. | (A) | 15. | (A) | 16. | (A) |
| 17. | (B) | 18. | (B) | 19. | (A) | 20. | (A) |
| 21. | (A) | 22. | (C) | 23. | (A) | 24. | (D) |
| 25. | (C) | 26. | (A) | 27. | (D) | 28. | (D) |
| 29. | (B) | 30. | (D) | 31. | (C) | 32. | (B) |
| 33. | (A) | 34. | (C) | 35. | (C) | 36. | (A) |
| 37. | (A) | 38. | (B) | 39. | (B) | 40. | (D) |
| 41. | (A) | 42. | (A) | 43. | (B) | 44. | (A) |
| 45. | (B) | 46. | (D) | 47. | (C) | 48. | (C) |
| 49. | (B) | 50. | (A) | 51. | (B) | 52. | (A) |
| 53. | (D) | 54. | (A) | 55. | (D) | 56. | (C) |
| 57. | (D) | 58. | (B) | 59. | (A) | 60. | (A) |
| 61. | (C) | 62. | (A) | 63. | (B) | 64. | (A) |
| 65. | (A) | 66. | (D) | 67. | (A) | 68. | (B) |
| 69. | (A) | 70. | (B) | 71. | (C) | 72. | (D) |
| 73. | (A) | 74. | (C) | 75. | (D) | 76. | (B) |
| 77. | (D) | 78. | (A) | 79. | (A) | | |

***[Note:*** 55. *The question has been modified as per the information provided in the textbook.*
79. *Salaam Mumbai Foundation organization runs programs in various schools in Mumbai to empower the children living in slum area in the field of education, sports, arts and business. It has made some districts in Maharashtra completely tobacco-free.**]***

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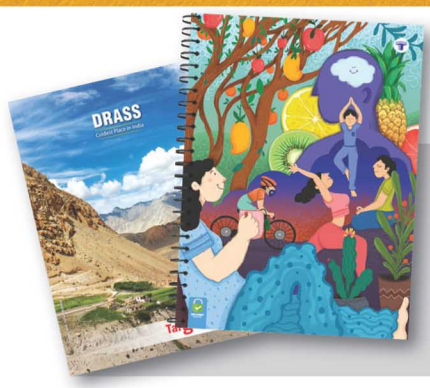


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