

QUANTITATIVE APTITUDE

1. (2) A dishonest merchant sells 28g weight instead 36g

$$12.5\% - \frac{1}{8},$$

$$\begin{array}{l} \text{CP} : \text{SP} \\ 8 : 7 \\ 28 : 36 \end{array}$$

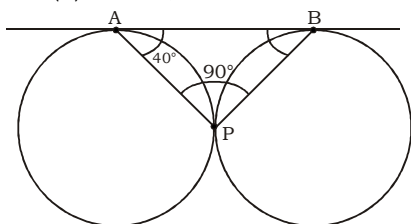
$$\frac{8 \times 28 : 7 \times 36}{8 : 9}$$

∴ Required profit percentage

$$= \frac{1}{8} \times 100 = 12.5\%$$

2. (3) 90 can not be the LCM, because 90 is not a factor of 12.

3. (3) Given, $\angle PAB = 40^\circ$



$$\begin{aligned} \angle PAB + \angle ABP + \angle APB &= 180^\circ \\ \Rightarrow 40^\circ + \angle ABP + 90^\circ &= 180^\circ \\ \therefore \angle ABP &= 50^\circ \end{aligned}$$

4. (1) Mean proportion
= a : b :: b : c

$$b = \sqrt{ac}$$

$$\begin{aligned} b &= \sqrt{169 \times 144} \\ \Rightarrow b &= 13 \times 12 = 156 \end{aligned}$$

5. (1) A.T.Q.

$$8\% = \frac{2}{25} \text{ and } 5\% = \frac{1}{20}$$

	Initial	Increased
Length	25	27
Breadth	20	21

$$\text{Area} = 500 : 567$$

Area increased in percentage

$$= \frac{67}{500} \times 100 = 13.4\%$$

6. (3) $\frac{\cos 45^\circ}{\sec 30^\circ + \operatorname{cosec} 30^\circ}$

$$= \frac{1}{\frac{2}{\sqrt{2}} + 2}$$

$$= \frac{1}{\frac{\sqrt{2}}{2} + 2} = \frac{1}{\frac{\sqrt{2} + 4\sqrt{2}}{2}} = \frac{2}{5\sqrt{2}}$$

$$\begin{aligned} &= \frac{\sqrt{3}}{2\sqrt{6} + 2\sqrt{2}} \times \frac{2\sqrt{6} - 2\sqrt{2}}{2\sqrt{6} - 2\sqrt{2}} \\ &= \frac{2\sqrt{18} - 2\sqrt{6}}{16} = \frac{3\sqrt{2} - \sqrt{6}}{8} \end{aligned}$$

7. (3) According to the question $49^{15} - 1$
 $a^n - b^n$, if n is odd, then $a^n - b^n$ is divisible by (a - b).

15 is odd,
∴ $49^{15} - 1$ is divisible by (49 - 1) = 48

Hence, $49^{15} - 1$ is divisible by 8 or 6.

8. (1) A.T.Q.

Anil	Bakul	Bakul	Charles
1500	1350	1500	1425

Same

$$(10:9)_{\times 20} \quad (20:19)_{\times 9}$$

Anil : Bakul : Charles

$$200 : 180 : 171$$

diff. = 29 units
200 unit = 1500 m

$$\therefore 29 \text{ units} = \frac{1500}{200} \times 29 = 217.5 \text{ m}$$

9. (2) A.T.Q.

$$\text{SI} = 3725 - 2500 = 1225$$

$$\therefore 1225 = \frac{2500 \times R \times 8}{100}$$

$$\begin{aligned} \Rightarrow 49 &= R \times 8 \\ \Rightarrow R &= 6.125\% \end{aligned}$$

10. (1) Average number of pages printed by Printer

$$\begin{aligned} &= \frac{\text{Sum of pages}}{\text{total days}} \\ &= \frac{210 + 160 + 218}{3} = 196 \end{aligned}$$

11. (2) Let the lowest inning = x
Innings \times Average = total runs

$$\begin{aligned} 27 \times 47 &= 1269 \\ 25 \times 42 &= 1050 \end{aligned} \quad \begin{array}{l} \text{---} \\ \text{---} \end{array} \rightarrow 219$$

(diff.)
A.T.Q.,
 $x + x + 157 = 219$
 $\Rightarrow 2x = 62$
 $\Rightarrow x = 31$
∴ Highest score = 31 + 157 = 188

12. (2) A.T.Q.

P	15	2	30 (Total Work)
Q	10	3	

Work done by P, Q in 2 days = 5 \times 2 = 10 units
Remaining work = 30 - 10 = 20 units
Remaining work completed by

$$\begin{aligned} P &= \frac{20}{2} = 10 \text{ days} \\ \therefore \text{Total number of days} &= 10 + 2 = 12 \text{ days} \end{aligned}$$

13. (3) The number of trucks sold by (B, C, F, H)

$$= 27 + 18 + 7 + 14 = 66$$

$$\begin{aligned} \therefore \text{Less percentage} &= \text{Total percentage} - (B, C, F, H) \\ &= 100\% - 66\% = 34\% \end{aligned}$$

14. (3) A.T.Q.,
 $x^2 - 5x + 1 = 0,$

$$\Rightarrow x \left(x - 5 + \frac{1}{x} \right) = 0$$

$$\Rightarrow x + \frac{1}{x} = 5$$

cubing on both sides,

$$\left(x + \frac{1}{x} \right)^3 = (5)^3$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 15 = 125$$

$$\Rightarrow x^3 + \frac{1}{x^3} = 125 - 15 = 110$$

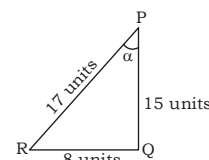
$$\frac{x^6 + x^4 + x^2 + 1}{5x^3}$$

$$= \frac{x^3 \left(x^3 + x + \frac{1}{x} + \frac{1}{x^3} \right)}{5x^3}$$

$$= \frac{\left(x + \frac{1}{x} \right) + \left(x^3 + \frac{1}{x^3} \right)}{5}$$

$$= \frac{5 + 110}{5} = \frac{115}{5} = 23$$

15. (2) A.T.Q.



Given, $\angle RPQ = \alpha$
 $\sin \alpha + \cos \alpha$

$$= \frac{8}{17} + \frac{15}{17} = \frac{23}{17}$$

16. (1) Formula \rightarrow
[[$a^3 + b^3 = (a + b)(a^2 + b^2 - ab)$]]

$$\frac{17^3 + 7^3}{17^2 + 7^2 - k} = 24$$

Compare - 17 \times 7 and k
then k = 17 \times 7

$$\frac{(17 + 7)(17^2 + 7^2 - 17 \times 7)}{(17^2 + 7^2 - 17 \times 7)} = 24$$

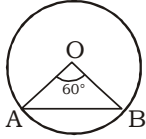
$$\Rightarrow 17 + 7 = 24$$

$$\Rightarrow 24 = 24$$

$$\therefore \text{Value of } k = 17 \times 7 = 119$$

17. (4) Let radius of first circle - r_1
second - r_2
A.T.Q,
 $2\pi(r_1 - r_2) = 352 - 198$
 $\Rightarrow \frac{2 \times 22}{7}(r_1 - r_2) = 154$
 $\Rightarrow r_1 - r_2 = \frac{7 \times 7}{2} = 24.5 \text{ cm}$
 \therefore Required difference = 24.5 cm

18. (4) A.T.Q,



$$\angle OAB = \angle OBA = \frac{120^\circ}{2} = 60^\circ$$

(\because AO = OB)

\therefore AOB is an equilateral triangle
Length of AB = 10 cm

19. (2) Let total no. of spherical lead shots = N

A.T.Q,

$$\frac{4}{3} \times \frac{22}{7} \times 4.2 \times 4.2 \times 4.2 \times N$$

$$= 88 \times 63 \times 42$$

$$\Rightarrow N = 750$$

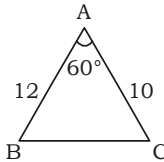
\therefore Total number of spherical lead shots = 750

20. (2) Required Ratio

$$= 100 : 150$$

$$= 2 : 3$$

21. (4) Given



Let Length of BC = x
From Law of cosine

$$\cos 60^\circ = \frac{12^2 + 10^2 - x^2}{2 \times 12 \times 10}$$

$$\Rightarrow \frac{1}{2} = \frac{144 + 100 - x^2}{240}$$

$$\Rightarrow x^2 = 244 - 120 = \sqrt{124}$$

$$\Rightarrow x = 11.13 \text{ cm}$$

\therefore Length of BC = 11.13 cm

22. (2) A.T.Q,

$$\tan^2\theta + \cot^2\theta - \sec^2\theta \cdot \operatorname{cosec}^2\theta$$

$$= \tan^2\theta + \cot^2\theta - \left(\frac{1}{\cos^2\theta} \cdot \frac{1}{\sin^2\theta} \right)$$

$$\Rightarrow \tan^2\theta + \cot^2\theta - \left(\frac{\sin^2\theta + \cos^2\theta}{\cos^2\theta \cdot \sin^2\theta} \right)$$

(\because $\sin^2\theta + \cos^2\theta = 1$)

$$\Rightarrow \tan^2\theta + \cot^2\theta - (\sec^2\theta + \operatorname{cosec}^2\theta)$$

$$\Rightarrow \tan^2\theta + \cot^2\theta - (1 + \tan^2\theta + 1 + \cot^2\theta)$$

$$\Rightarrow \tan^2\theta + \cot^2\theta - 1 - \tan^2\theta - 1 - \cot^2\theta = -2$$

23. (4) Required Ratio
 $= 65+7 : 85+95$
 $= 140 : 180$
 $= 7 : 9$

24. (3) Given

$$\frac{4[(17)^3 - (7)^3]}{(17^2 + 7^2 + P)} = 40$$

$$[a^3 - b^3 = (a-b)(a^2 + b^2 + ab)]$$

$$= \frac{4[17-7](17^2 + 7^2 + 17 \times 7)}{(17^2 + 7^2 + P)} = 40$$

Compare 17×7 and P

$$\therefore P = 17 \times 7 = 119$$

25. (2) Successive discount

$$= x + y - \frac{xy}{100}$$

$$= 25 + 5 - \frac{25 \times 5}{100}$$

$$= (30 - 1.25)\% = 28.75\%$$

\therefore Difference between both discount = $(30 - 28.75)\% = 1.25\%$

\therefore Required discount

$$= 3840 \times \frac{1.25}{140} = ₹48$$

1. (2) 2. (3) 3. (3) 4. (1) 5. (1)
6. (3) 7. (3) 8. (1) 9. (2) 10. (1)
11. (2) 12. (2) 13. (3) 14. (3) 15. (2)
16. (1) 17. (4) 18. (4) 19. (2) 20. (2)
21. (4) 22. (2) 23. (4) 24. (3) 25. (2)

GENERAL AWARENESS

1. (3) The 'Back-stick' is an illegal shot in which the ball strikes the rounded face of the hockey stick.
2. (4) Baisakhi is a spring harvest festival which is celebrated on the 13th or 14th of April every year. 10th Guru of Sikhs, Guru Govind Singh. Instituted the 'Khalsa Panth' in March 1699.
3. (1) International Day of Yoga is celebrated on 21st June. It was first celebrated in 2015. The Theme in 2015 was 'Yoga for Harmony and Peace'. 2022 - Yoga for Humanity
4. (1) CaCO_3 - Chalk
 Ca(OH)_2 - Slaked Lime
5. (4) 1 joule of work is done, when a force of 1 Newton displaces a body through a distance of 1 meter in its own direction.
Unit of Power - Watt
Unit of Electric Current - Ampere
Intensity of Sound - Decibel
6. (1) Nuclear Power Plants in India - Kakrapur (1993), Kalpakkam (1984), Narora (1991), Kaiga (2000), Rajasthan (1973), Tarapur (1969) and Kudankulam (2013).
7. (3) Ramkishan Mission was founded by Swami Vivekananda on 1 May, 1997 in Calcutta, named after Guru Ramkrishna Paramhansa. Its Headquarters is in Belur Math, West Bengal.
8. (3) The International day of Non-Violence is observed on October 2, the birthday of Mahatma Gandhi. It was established on 15 June, 2007. 'Say No to Violence' is the essence of this day. 14th November - Children's Day 31st October - National Unity Day
9. (1) The Sangama dynasty was dynasty of the Vijayanagara Empire founded in the 14th century by two brothers: Harihara I and Bukha Raya I. Deveray II was the most famous king of the Sangama dynasty. Soma Dynasty (205-305 CE) was founded by Nimistakar Barma in 205 CE. Tulva is the 3rd dynasty of Vijaynagar Empire founded by Narasa Nakaya.
10. (1) On 20 January 1981, Vayudoot airline was setup in India, as a joint-venture between the two state-owned carriers, National Airlines and Air India.
11. (2) Weathering is the breaking down or dissolving of rocks and minerals on Earth surface. Metamorphosis is change of Physical form, structure or substance. Sedimentation is process of sitting down of heavier particles present in the liquid mixture.
12. (1) Nidhi Chhibber - Chairperson of C.B.S.E
Ashish Jha - White House Corona Virus Coordinator
M Jagadish Kumar - Chairperson of U.G.C.
13. (3) Ustad Amjad Ali Khan was awarded India's second highest civilian honor Padma Vibhushan in 2001.
Pandit Ravi Shankar - Sitar
Kishan Maharaj - Tabla
14. (1) The national income are GDP (Gross domestic Product), GNP (Gross National Product) NNP personal income, disposable income National Income estimation in India is prepared by the Central Statistical Office.
15. (4) Parliament is the supreme legislative body of India.
Article 79 - The Indian Parliament comprise the President, Lok Sabha and Rajya Sabha.
The first elected Parliament came into existence in April, 1952.

Article 80- Composition of Rajya Sabha

Article 81- Composition of Lok Sabha

Article 171- Composition of State Legislative Council.

16. (2) **State** **Lok Sabha** **Rajya Sabha**
- | | | |
|----------------|----|----|
| Kerala | 20 | 9 |
| Andhra Pradesh | 11 | 25 |
| Tamil Nadu | 39 | 18 |
| Karnataka | 28 | 12 |
- Governor of Kerala is A.M. Khan
17. (1) **State** **Lok Sabha** **Rajya Sabha**
- | | | |
|-----------|----|----|
| Rajasthan | 25 | 10 |
| Punjab | 13 | 7 |
| Gujarat | 26 | 11 |
| Ladakh | 1 | 0 |
- Governor of Rajasthan is Kalraj Mishra.
18. (4) Pranab Mukherji, served as the 13th President of India from 2012 to 2017. He became Deputy Chairman of the Planning Commission from 1991 to 1996.
K.R. Narayanan - 9th Vice President of India from 1992-96 and 10th President of India from 1997-2002.
V.V. Giri - 3rd Vice President from 1967-69 and 4th President from 1969-1974. He is the first President to be elected as an independent candidate.
R.Venktaraman - 8th President of India from 1987-1992.
19. (2) The Golgi Apparatus, functions as a factory in which proteins received from the ER are further processed and stored for transport to their eventual destinations: lysosomes, the plasma membrane, or secretion.
20. (4) Raja Ram Mohan Roy founded the Brahma Samaj in Calcutta in 1828. He was given the title "Raja" by the Mughal Emperor Akbar II.
Dev Samaj- Shiv Narayan Agnihotri, 1887
Arya Samaj - Dayanand Saraswati, in 1875.
21. (3) Xylem Fibers - Protect and provide mechanical support to Xylem's major water-carrying tissues.
Tracheids and Vessels help in conduction of water along the stem and provide mechanical support.

22. (4) The first Grammy Award was held on 4 May, 1959, presented by the Recording Academy of Arts and Sciences.
2021 Awards was given to the Album 'We Are' by Jon Batiste.
23. (1) Rajasthan - Kalibangan, Binjor, Tarkhan Wala Dera
Gujarat - Lothal, Surkotada, Dholavira.
Bhirrana (oldest site) and Rakhigarhi (largest site) are located in Haryana.
24. (3) Decomposition reaction when a single compound breaks down into two or more similar products.
 $\text{CaCO}_3 \xrightarrow{\Delta} \text{CaO} + \text{CO}_2$
Displacement reaction - one element is replaced by another in a single compound
 $2 \text{HCl} + \text{Mg} \xrightarrow{\Delta} \text{MgCl}_2 + \text{H}_2$
Double displacement
 $\text{Na}_2\text{S} + \text{CaCl} \xrightarrow{\Delta} \text{CaS} + 2\text{NaCl}$
25. (1) Right to Freedom (19-22)
19 - Freedom of Speech
20 - Protection in respect of conviction for offences.
21 - Protection of Life and Liberty
22 - Protection against arrest and detention in certain case.
1. (3) 2. (4) 3. (1) 4. (1) 5. (4)
6. (1) 7. (3) 8. (3) 9. (1) 10. (1)
11. (2) 12. (1) 13. (3) 14. (1) 15. (4)
16. (2) 17. (1) 18. (4) 19. (2) 20. (4)
21. (3) 22. (4) 23. (1) 24. (3) 25. (1)

ENGLISH LANGUAGE AND COMPREHENSION

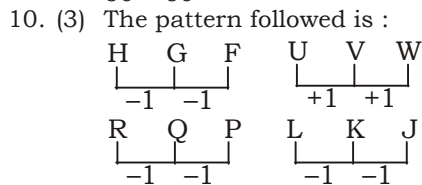
9. (2) Infinitive (To) is always followed by V_{B.F}
11. (2) Replace "arrived" with "have arrived". (As no specific time is mentioned, we use present perfect Tense).
12. (1) Cover under a table is the correct phrase. It means you are taking a shelter under a table in order to protect yourself from the earthquake.
13. (2) "heist" is incorrectly spelt here as "hiest". It means a robbery or burglary, especially from an institution such as a bank or museum. (डाका, चोरी).
15. (3) "Looking for" is correct expression. (As he was searching for his book).
17. (1) Cut down is the correct phrase means - to shorten or reduce (घटाना, छोटा करना)

1. (2) 2. (3) 3. (3) 4. (3) 5. (2)
6. (1) 7. (1) 8. (3) 9. (2) 10. (4)
11. (2) 12. (1) 13. (2) 14. (2) 15. (3)
16. (2) 17. (1) 18. (2) 19. (3) 20. (3)
21. (4) 22. (2) 23. (3) 24. (2) 25. (3)

GENERAL INTELLIGENCE & REASONING

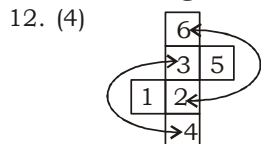
1. (2) By hit and trial method inter changing × and ÷, 3 and 9
- I $7 \times 9 - 8 \div 2 + 3$
 $7 + 3 - 8 \div 2 \times 9$
 $10 - 4 \times 9$
-26
- II $4 \times 9 - 3 + 8 \div 2$
 $4 + 3 - 9 \times 8 \div 2$
 $7 - 36$
-29
2. (4)
- | | | | | | |
|---|---|---|----|----|----|
| B | E | H | O | L | D |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 2 | 5 | 8 | 15 | 12 | 4 |
| B | D | E | H | L | O |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 2 | 4 | 5 | 8 | 12 | 15 |
- (In ascending order)
I N D E E D → 9, 14, 4, 5, 5, 4
D D E E I N → 4, 4, 5, 5, 9, 14
(In ascending order)
C O U R S E → 3, 15, 21, 18, 19, 5
C E O R S U → 3, 5, 15, 18, 19, 21
(In ascending order)
3. (2) Library : Books :: museum : ?
Books are stored in library.
Similarly, Artefacts are stored/ put in museum.
4. (3) Logic is -
382 322 272 232 202 **182**
 ↑ ↑ ↑ ↑ ↑
 -60 -50 -40 -40 -20
5. (2) option 2 is the right answer.
6. (3) Given $21 * 4 * 156 * 13 * 11 = 83$
By hit and trial method
Putting, ×, -, ÷, +
 $21 \times 4 - 156 \div 13 + 11$
 $84 - 12 + 11 = 83$
7. (4) Given PK, GT, XC, OL, ?
The pattern is
- | | | | | | | | | | |
|---|-----|-----|-----|-----|---|---|---|---|---|
| | +9 | +9 | +9 | +9 | | | | | |
| P | K | G | T | X | C | O | L | F | U |
| | +17 | +17 | +17 | +17 | | | | | |
- Putting, ×, -, ÷, +
 $21 \times 4 - 156 \div 13 + 11$
 $84 - 12 + 11 = 83$
7. (4) Given PK, GT, XC, OL, ?
The pattern is
- | | | | | | | | | | |
|---|-----|-----|-----|-----|---|---|---|---|---|
| | +9 | +9 | +9 | +9 | | | | | |
| P | K | G | T | X | C | O | L | F | U |
| | +17 | +17 | +17 | +17 | | | | | |
8. (4) $\frac{3^3 + 1^3}{2} = 14$; $\frac{4^3 + 2^3}{2} = 36$
Similarly $\frac{8^3 + 2^3}{2} = 260$

9. (1) By hit and trial method
 $12 + 24 \times 4 \div 2 = 60$
 $12 + 48 = 60$
 $60 = 60$

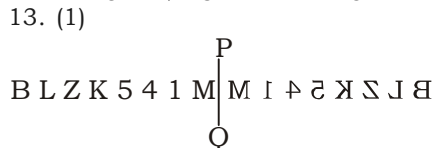


All follow the same pattern except UVW, hence UVW is odd.

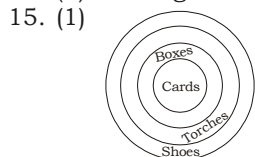
11. (2) Phone is used for talking similarly television is used for viewing.



6 ↔ 2 3 ↔ 4 1 ↔ 5

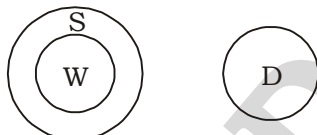


14. (1) The right answer is (1)

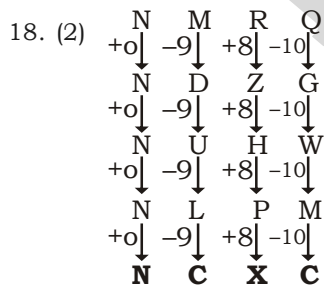


16. (3) FRUCTUS place value adding
 $6 + 18 + 21 + 3 + 20 + 21 + 19 = 108$
 S P R I N T E R place value adding
 $19 + 16 + 18 + 9 + 14 + 20 + 5 + 18 = 119$
 Similarly,
 M A S C U L I N E place value adding
 $13 + 1 + 19 + 3 + 21 + 12 + 9 + 14 + 5 = 97$

17. (2) Possible venn diagram is



Conclusions :
 Some S are W - true
 All S are D - false
 No W is D - true



19. (1) The correct option is (1)

20 (2) $19 : 324 \rightarrow 19 - 1 = 18^2 = 324$
 $25 : 576 \rightarrow 25 - 1 = 24^2 = 576$
 $9 : 64 \rightarrow 9 - 1 = 8^2 = 64$

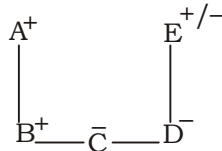
21. (1) The order in a dictionary is -
 4. pope 5. poppy
 3. populace 1. popular
 2. population

Hence, Population is the right answer.

22. (1) $20 = 6^2 - 4^2$
 $24 = 7^2 - 5^2$

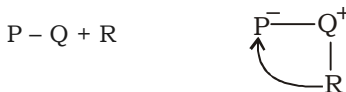
Similarly,
 $65 = 9^2 - 4^2$

23. (2) If A% B & C \$ D @ E,



B is son-in-law of E.

24. (2) By hit and trial method



25. (1) $7 - 343 - 331 \rightarrow 7^3 - 10 = 333 - \text{odd}$

$6 - 216 - 206 \rightarrow 6^3 - 10 = 206$

$5 - 125 - 115 \rightarrow 5^3 - 10 = 115$

$4 - 64 - 54 \rightarrow 4^3 - 10 = 54$

1. (2) 2. (4) 3. (2) 4. (3) 5. (2)
 6. (3) 7. (4) 8. (4) 9. (1) 10. (3)
 11. (2) 12. (4) 13. (1) 14. (1) 15. (1)
 16. (3) 17. (2) 18. (2) 19. (1) 20. (2)
 21. (1) 22. (1) 23. (2) 24. (2) 25. (1)

Words	Meaning in English	Meaning in Hindi
Confusion	A lack of clarity or order. <i>Syn. commotion, hubbub</i>	भ्रम, अस्तव्यस्तता गलतफमी
Cringe	to feel embarrassed.	घबरा जाना, शर्मिंदगी महसूस करना
Defer	i) To delay or postpone. <i>Ex:- We're going to defer the decision until we have all the facts.</i> ii) To submit to another's wishes opinion, or governance usually through deference or respect. <i>Ex:- He deferred to his father's wishes</i>	टालना किसी के मत को स्वीकार करना
Finery	Fineness, Ornament; especially, excessive decoration; showy clothes; jewels etc.	टाट बाट, अलंकारित वस्त्र आदि।
Hospitality	The act or service of welcoming, receiving, hosting, or entertaining guests. <i>Syn. cordiality.</i> <i>Ant. coldness.</i>	आदर, आतिथ्य, अतिथि सत्कार, खातिरदारी
Intrepidity	being fearless or brave.	निडरता
Perusal	examine or consider with care.	अवलोकन
Rebellion	Armed resistance to an established government or ruler. <i>Syn. uprising, sedition</i> <i>Ant. loyalty .</i> <i>Ex:-The government is doing its best to stop rebellion in the country.</i>	विद्रोह, बगावत
Sink	To descend or submerge (or to cause to do so) into a liquid or similar substance. <i>Ex: - A stone sinks in water.</i> <i>Ant.- Float - to stay on the surface of a liquid and not sink</i>	डूब जाना, डूबना, धीरे-धीरे नीचे की ओर जाना
Strolling	A wandering on foot; an idle and leisurely walk; a ramble.	पानी की सतह पर उतराना, बहना, तैरना चहल कदमी
Stagnation	inactivity	निष्क्रियता, गतिहीनता
Wrathful	very angry.	आक्रोशपूर्ण