

Seeds of hope: On GM crops and scientific consent

Scientific consent alone should determine availability of products to farmers and consumers

After years of being **in limbo**, there is a **surge** of **optimism** around DMH-11, or Dhara Mustard Hybrid-11, a variety developed using genetic engineering techniques by Indian scientists and public funds. The Genetic Engineering Appraisal Committee (**GEAC**), the **apex** regulator and an **arm** of the Environment Ministry, last week **cleared** the variety for environmental release. The seed can be grown in fields for producing more of its kind and is a **precursor** to it being approved for commercial release. DMH-11 **employs genes** from **soil bacterium** that makes mustard, a **self-pollinating** plant, **amenable** to being **crossed** with other varieties and producing **hybrid** varieties. Hybrid varieties are generally more **vigorous** and, in the case of mustard, an oil seed, will produce more oil. Despite having varieties of mustard, India continues to be a net oil importer due to poor **yields**. **The food crisis** due to the Ukraine war **has** only **exacerbated** the problem. Despite decades-long trials, mustard hybrids have not made it to Indian farmers because of **activists** opposed to genetic modification technology **in principle** and some farmer groups that believe them to be dangerous.

While several top scientists and agricultural experts have **cheered** the GEAC approval, the celebration **ought to be muted**. In 2017 too, GEAC had cleared the plant and then did a **backtrack** by introducing additional tests after protests. In 2009, GEAC had cleared **Bt Brinjal**, a **transgenic** food crop, only to be **over-ruled** by the UPA government — again after protests. **Agriculture**, being a State subject, **may merit** political **scrutiny** before a seed can be commercially released; however, in the case of transgenic technology, these decisions have only served to **throttle** technological progress. **The hold**, or the **so-called 'moratorium'**, on Bt Brinjal **persists** and it was only in 2020 that GEAC approved fresh field trials, which were **in effect** repetitions of earlier tests. It is unclear if it will be available in the immediate future. **The barnase-barstar system**, used in DMH-11, **is promising** but already **outdated given** that **cutting-edge** technology such as CRISPR is **in vogue**. DMH-11 alone may not be the **panacea** for India's **edible** oil crisis and rather represents a platform technology that requires seed companies to invest and develop their own hybrids. However, the **uncertainty** around regulatory policy regarding seed development **hinders** this. To **signal** transformation, the Government must **second** the approval by GEAC and restore the system, **whereby scientific consent** — rather than political **considerations** — **determines** the availability of products to farmers and consumers.

- **Whereby** (conj.) – by which way or method **जिसके तहत, जिसे** [Practice Exercise]
- Red/blue coloring of words in the sentence indicates subject verb relationship; where 'red' denotes 'subject' and 'blue' denotes 'verb'.

Vocabulary

1. **Genetically Modified (GM)** (noun) – A genetically modified plant or animal has had some of its genes changed scientifically.
2. **Consent** (noun) – agreement, assent, concurrence, accord सहमति
3. **In limbo** (phrase) – in a situation where you do not know what will happen or when something will happen अधर में लटके हुए हैं।
4. **Surge** (noun) – Sudden rise उछाल
5. **Optimism** (noun) – be optimistic; be full of hope आशावाद
6. **Apex** (adjective) – top सर्वोच्च
7. **Arm** (noun) – branch शाखा
8. **Precursor** (noun) – something that comes before another and may lead to it or influence its development अग्रगामी
9. **Employ** (verb) – Use, utilize, make use of, put to use इस्तेमाल करना
10. **Gene** (noun) – a part of the DNA in a cell that controls the physical development, behaviour, etc. of an individual plant or animal and is passed on from its parents
11. **Soil bacterium** (noun) – it involved in numerous biogeochemical cycles, and they have been used for crop production
12. **Self-pollinating** (adjective) – (of a flower) undergoing pollination by pollen from the same flower or from another flower on the same plant.
13. **Amenable** (to) (adjective) – Agreeable, open, acquiescent; willing to accept उत्तरप्रद
14. **Crossed** (with) (adjective) – bred with a different animal or plant, or combined with a different type of thing, to produce something new
15. **Hybrid** (adjective) – used to describe a plant or animal that has been produced from two different types of plant or animal
16. **Vigorous** (adjective) – healthy and strong ज़ोरदार
17. **Yield** (noun) – produce, return, harvest पैदावार
18. **Exacerbate** (verb) – aggravate, worsen, inflame, intensify, exasperate बढ़ाना / बिगाड़ देना
19. **Activist** (noun) – campaigner, reformer, demonstrator कार्यकर्ता
20. **In principle** (phrase) – in general, but possibly not in detail सिद्घांत रूप में,
21. **Cheer** (verb) – to give a loud shout of praise or encouragement खुश होना

22. **Ought to** (modal verb) – should, must
करना चाहिए
23. **Muted** (adjective) – not loud, or not enthusiastic मौन
24. **Backtrack** (noun) – an act of changing of one's mind or opinion इरादा बदल देना
25. **Bt. Brinjal** (noun) – a transgenic brinjal created by inserting a gene cry1Ac from the soil bacterium Bacillus thuringiensis into Brinjal
26. **Transgenic** (adjective) – A transgenic animal or plant contains one or more genes that have been added from another type of plant or animal
27. **Over-rule** (verb) – Override, cancel, refuse, annul, reject, disallow, rule against रद्द करना
28. **Merit** (verb) – Deserve, warrant, earn, call for, be worthy of, be deserving of, be entitled to योग्य होना
29. **Scrutiny** (noun) – Inspection, examination, enquiry जांच
30. **Throttle** (verb) – Suppress, inhibit, hold back, curb, subdue, stifle कम करना, दबाना
31. **So-called** (adjective) – supposed, alleged, presumed, ostensible तथाकथित
32. **Moratorium** (noun) – a temporary stopping of an activity, especially by official agreement स्थगन
33. **Persist** (verb) – persevere, continue, carry on, go on कायम रहना
34. **In effect** (phrase) – in fact; for all practical purposes वस्तुतः, असल में;
35. **Barnase-barstar system** (noun) – an indelible technique to produce hybrid seeds in. self-pollinated crops
36. **Promising** (adjective) – encouraging, auspicious, hopeful, propitious आशाजनक
37. **Outdated** (adjective) – out-of-date, outmoded, old-fashioned, archaic, antiquated पुराना, पुराने ढंग का
38. **Given** (preposition) – considering, taking into account, bearing in mind देखते हुए
39. **Cutting-edge** (adjective) – very modern and with all the newest features अत्याधुनिक
40. **In vogue** (phrase) – in the current fashion or style प्रचलन में
41. **Panacea** (noun) – Solution, answer, remedy, cure-all, cure, magic bullet रामबाण
42. **Edible** (adjective) – safe to eat, fit to, eatable, fit to be eaten खाद्य/खानेयोग्य

43. **Uncertainty** (noun) – changeability, changeableness, variability, inconstancy
अनिश्चितता

44. **Hinder** (verb) – impede, obstruct, hamper, block, inhibit रोकना

45. **Signal** (verb) – sign, indicate, suggest, show संकेत करना

46. **Second** (verb) – give support or one's approval to; uphold, back, support, agree with, go along with समर्थन करना

47. **Consideration** (noun) – Thought, Deliberation, Reflection, Contemplation, Attention विचार

Practice Exercise

Direction (Q1 – Q3): Select the best express synonym of the given words [Editorial page]

1. the Government must second the approval by GEAC and restore the system
 - A. Sanctimonious
 - B. Impervious
 - C. Support
 - D. Inveterate
2. The seed can be grown in fields for producing more of its kind and is a precursor to it being approved for commercial release.
 - A. Arduous
 - B. Amorphous
 - C. Contiguous
 - D. Forerunner
3. DMH-11 employs genes from soil bacterium that makes mustard, a self-pollinating plant, amenable to being crossed with other varieties and producing hybrid varieties.
 - A. Incessant
 - B. Agreeable
 - C. Precept
 - D. Doctrinaire
4. **Idioms & Phrase**

These findings call into question the legitimacy of the proceedings.

 - A. Used to express criticism of a person's decision or suggestion.
 - B. Fail to meet an expectation
 - C. Cast doubt on something.
 - D. Make something necessary.
5. **Direction: Five statements are given below, which are jumbled in any random order. These statements will form a coherent and meaningful paragraph, when arranged in the correct sequence. Arrange the sentences in the right order and answer the questions that follow.**

P. The ruling Bharatiya Janata Party (BJP) is on the defensive in 58 seats in western Uttar Pradesh; 11 districts vote in the first phase.

Q. The region, abutting the national capital of Delhi, was a hotspot of the farmers' agitation against the Central government last year.

R. but also in the fray are the Bahujan Samaj Party (BSP) and the Congress alongside recent entrants, the Aam Aadmi Party and the All India Majlis-e-Ittehadul Muslimeen.

S. As campaigning gets brisk for the first phase of polls in Uttar Pradesh on February 10, the die has been cast for the six phases to follow too.

T. In 2017, the party had won 51 of these seats (later 52).

U. The challenge to the BJP's dominance comes primarily from the Samajwadi Party-Rashtriya Lok Dal (SP-RLD) alliance in this potato and sugarcane belt

Which among the following will be the **Fourth** sentence of the paragraph after the rearrangement?

- A. P B.S C.T D.U E.R

Direction (Q6 – Q7): Read the given sentences to find out whether there is any grammatical error in them

6. If all goes well, (A)/ the examination scheduled for next month (B)/ is all set to be completely free (C)/ from annoying power cuts and disruptions. (D)/ No Error. (E)
7. There are just a few trains (A)/ for the ever-grow (B)/ number of passengers (C)/ in the city. (D)/ No Error. (E)

Directions (8-9): In the following questions two columns are given containing three Sentences/phrases each. In first column, sentences/phrases are A, B and C and in the second column the sentences/phrases are D, E and F. A sentence/phrase from the first column may or may not connect with another sentence/phrase from the second column to make a grammatically and contextually correct sentence. Each question has five options, four of which display the sequence(s) in which the sentences/phrases can be joined to form a grammatically and contextually correct sentence. If none of the options given forms a correct sentence after combination, mark option (E), i.e. "None of these" as your answer.

8.

	Column (1)		Column (2)
A.	Unable to control his natural instinct,	D.	the jackal howled at the top of his voice in the middle of the night.
B.	Ritu's parents were happy to let	E.	her marry the boy of her choice as he seemed to belong to a good family.
C.	On one occasion the farmer was	F.	rewarded to a cow by a rich man for his service.

- A. A-D B.B-D, C-E C.A-E, C-D D.B-D E. None of these

9.

	Column (1)		Column (2)
A.	Mohit anger asked his son to tell him	D.	they were best friends and came to one another's aid when required.
B.	Once upon a time there lived a tiger	E.	what had happened to the food and drinks kept in the fridge.
C.	The four friends were quite different from one another, yet	F.	which strayed into a city in search of food.

- A. A-F B.A-D, B-E C.A-E, C-D D.B-D E. None of these

10. Find out the misspelt word

- A. Hygiene
- B. Languaor
- C. Occurrence
- D. Perseverance

Direction: Read the passage given below and answer the following questions.

(The Hindu Editorial: Exhuming new light– Oct 06, 2022)

Pääbo, 67, has quietly instigated a Copernican revolution. **(1)**/ Science being of an increasingly collaborative and competitive nature, recent trends in Nobel Prizes suggest that there are usually multiple winners for every prize. **(2)**/ The Nobel Prize for Medicine this year will be awarded to Svante Pääbo, a Swedish geneticist and a director of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. **(3)**/ It is a tribute to the originality and revolutionary implications of Pääbo's research that in a world perennially reshaped by advances in biology, he has been chosen as the lone winner of the Medicine or Physiology Prize this year — something not witnessed since 2016. **(4)**/ Much like the latter placed the sun at the centre and demoted the earth to another _____ **11** _____, perambulatory planet, Pääbo brought Neanderthals — believed to be among the many human-like species and losers of the evolutionary race — to the centre on the question of human evolution. Thanks to his work, it is now known that Europeans and Asians carry anywhere between 1%-4% of Neanderthal DNA. Thus, a large fraction of humanity will be influenced in terms of _____ **12** _____ to disease and adaptability to conditions by a species that evolved, like humans, in Africa, but 1,00,000 years earlier. Pääbo demonstrated this by pioneering and perfecting techniques to extract DNA from fossil remains, a _____ **13** _____ task as they contain too little and are easily contaminated. By building on these methods, Pääbo and his colleagues eventually published the first Neanderthal genome sequence in 2010. To put that in _____ **14** _____, the first complete sequence of the human genome was only completed in 2003. Comparative analyses with the human genome **interbred (A)** that the most recent common ancestor of Neanderthals and Homo sapiens lived around 8,00,000 years ago; that both species frequently lived in **proximity(B)** and **demonstrated(C)** to an extent that the Neanderthal genetic **stamp(D)** lives on.

In 2008, a 40,000-year-old fragment from a finger bone yielded DNA that, in Pääbo's lab, turned out to be from an entirely new species of hominin called Denisova. This was the first time that a new species had been discovered based on DNA analysis. Further analysis showed that it too had interbred with humans and 6% of human genomes in parts of South East Asia are of Denisovan ancestry. These discoveries throw up philosophical questions on what it means to be a 'species'. Pääbo's win must inspire future **(A)**/ biologists in India to pursue deep questions **(B)**/ and use science to **shed new light** rather than **(C)**/ compartmentalise herself in an academic straitjacket. **(D)**

Fill in the blank with the most appropriate word given in the option (From Q11 – Q14)

11. Much like the latter placed the sun at the centre and demoted the earth to another _____, perambulatory planet, Pääbo brought Neanderthals — believed to be among the many human-like species and losers of the evolutionary race — to the centre on the question of human evolution.

- A. Tantamount

- B. Circumlocution
C. Circumscribed
D. Tangible
12. Thus, a large fraction of humanity will be influenced in terms of _____ to disease and adaptability to conditions by a species that evolved, like humans, in Africa, but 1,00,000 years earlier.
A. Relegating
B. Propensity
C. Circumventing
D. Intractable
13. Pääbo demonstrated this by pioneering and perfecting techniques to extract DNA from fossil remains, a _____ task as they contain too little and are easily contaminated.
A. Lethargy
B. Herculean
C. Assimilating
D. Profuse
14. To put that in _____, the first complete sequence of the human genome was only completed in 2003
A. Peremptory
B. Attrition
C. Dissipating
D. Perspective
15. **The following sentence may or may not contain an error in one of its parts. Identify the part containing the error. If the sentence is correct, select 'No error' as your answers.**
Pääbo's win must inspire future **(A)**/ biologists in India to pursue deep questions **(B)**/ and use science to shed new light rather than **(C)**/ compartmentalise herself in an academic straitjacket. **(D)**
A. (A)
B. (B)
C. (C)
D. (D)
E. No Error
16. **Rearrange the sentence to form a meaningful sentence.**
Pääbo, 67, has quietly instigated a Copernican revolution. **(1)**/ Science being of an increasingly collaborative and competitive nature, recent trends in Nobel Prizes suggest that there are usually multiple winners for every prize. **(2)**/ The Nobel Prize for Medicine this year will be awarded to Svante Pääbo, a Swedish geneticist and a director of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. **(3)**/ It is a tribute to the originality and revolutionary implications of Pääbo's research that in a world perennially reshaped by advances in biology, he has been chosen as the lone winner of the Medicine or Physiology Prize this year — something not witnessed since 2016. **(4)**

- A. 1234
B. 3241
C. 4321
D. 2143
E. 3214
17. Identify the sentence (S) that best express (es) the meaning of the Phrase.
Shed/throw a light on
- A. The small noticeable part of a much larger situation or problem that remains hidden
B. To provide information about something or to make something easier to understand
C. To have come from there originally
D. Make people feel very confused and not certain about what they should do
E. None of the above
18. **In the following question, a sentence is given with four words marked as (A), (B), (C), and (D). These words may or may not be placed in the correct order. Four options with different arrangements of these have been provided. Mark the option with the correct arrangement as the answer. If no rearrangement is required, mark option (5) as your answer.**
Comparative analyses with the human genome **interbred (A)** that the most recent common ancestor of Neanderthals and Homo sapiens lived around 8,00,000 years ago; that both species frequently lived in **proximity(B)** and **demonstrated(C)** to an extent that the Neanderthal genetic **stamp(D)** lives on.
- A. A – C
B. A – D
C. B – C
D. D – C
E. No arrangement
19. **Select the connector from the given options which can be used to form a single sentence from the two sentences given below, implying the same as expressed in the statement sentence.**
- (i) Its streets and farms witness the easy availability of narcotics and opiates
(ii) Rajasthan’s prisons are overcrowded with drug-users and peddlers
- A. While
B. Although
C. And
D. Unless
E. unlike
20. **Fill the appropriate preposition in the given blanks**
He warned the nation _____ financial crisis.
- A. Of
B. In
C. With
D. To

Answers

1. C 2.D 3.B 4. C 5. D 6.E 7. B 8. A 9. C 10. B 11. C
 12. B 13.B 14. D 15. D 16. B 17.B 18.A 19.C 20. A **[Practice Exercise]**

Explanations

4. **Call into question** (phrase) – cast doubt on something. सत्यता पर सवाल उठाना

5. **SPTURQ**

As campaigning gets brisk for the first phase of polls in Uttar Pradesh on February 10, the die has been cast for the six phases to follow too. The ruling Bharatiya Janata Party (BJP) is on the defensive in 58 seats in western Uttar Pradesh; 11 districts vote in the first phase. In 2017, the party had won 51 of these seats (later 52). The challenge to the BJP's dominance comes primarily from the Samajwadi Party-Rashtriya Lok Dal (SP-RLD) alliance in this potato and sugarcane belt but also in the fray are the Bahujan Samaj Party (BSP) and the Congress alongside recent entrants, the Aam Aadmi Party and the All India Majlis-e-Ittehadul Muslimeen. The region, abutting the national capital of Delhi, was a hotspot of the farmers' agitation against the Central government last year.

6. (E) No error.

7. (B) 'ever-grow' के बदले 'ever-growing' का प्रयोग होगा क्योंकि ever + v4 का प्रयोग होता है; जैसे- ever-changing, ever-lasting, ever-growing.

8. **Correct Option: A**

Unable to control his natural instinct, the jackal howled at the top of his voice in the middle of the night.

Fragment A of column 1 is matched with fragment D of column 2 to make the sentence contextually and grammatically correct.

Ritu's parents were happy to let her marry the boy of her choice as he seemed to belong to a good family.

Fragment B of column 1 is matched with fragment E of column 2 to make the sentence contextually and grammatically correct

On one occasion the farmer was rewarded to a cow by a rich man for his service.

Fragment C of column 1 is not matched with fragment F of column 2 to make the sentence contextually and grammatically correct

Correct is: On one occasion the farmer was rewarded with a cow by a rich man for his service.

➤ 'to' के बदले 'with' का प्रयोग होगा क्योंकि 'reward somebody with something' का प्रयोग होता है; जैसे-

- i. The master rewarded Ramu with a watch.
- ii. Ramu was rewarded with a watch.

9. **Correct Option: C**

Mohit anger asked his son to tell him what had happened to the food and drinks kept in the fridge.

Fragment A of column 1 is not matched with fragment E of column 2 to make the sentence contextually and grammatically correct

Correct is:

- 'anger' के बदले 'angrily' का प्रयोग होगा क्योंकि 'anger' (क्रोध, गुस्सा) एक Noun है जबकि 'angirly' (गुस्सा करते हुए/ क्रोधित होते हुए) एक Adverb है और Verb 'asked' की विशेषता एक Adverb बताएगा, न कि एक Noun.

Once upon a time there lived a tiger which strayed into a city in search of food.

Fragment B of column 1 is matched with fragment F of column 2 to make the sentence contextually and grammatically correct

The four friends were quite different from one another, yet they were best friends and came to one another's aid when required.

Fragment C of column 1 is matched with fragment D of column 2 to make the sentence contextually and grammatically correct

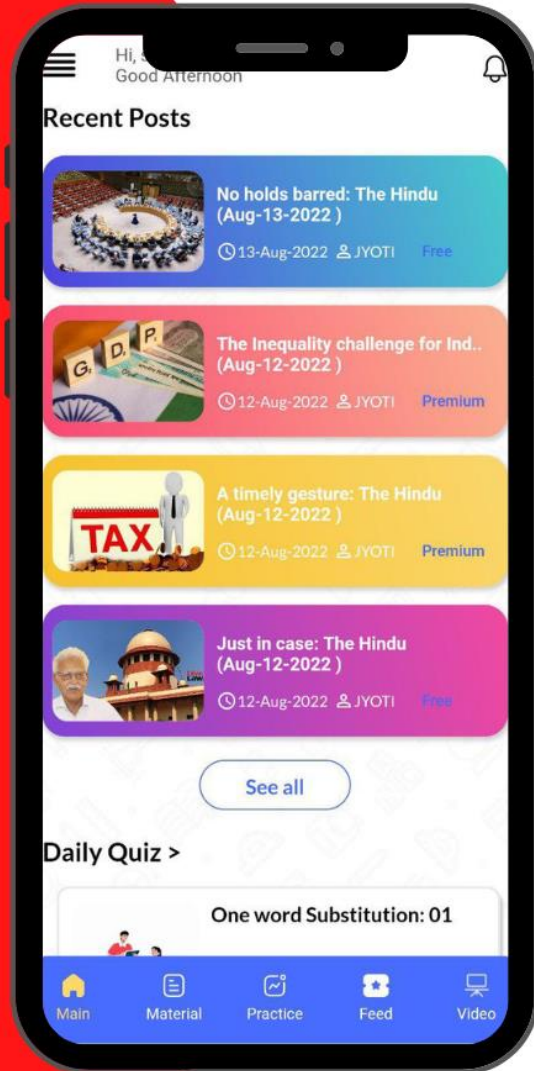
10. **Languor** (noun) – lassitude, lethargy, listlessness, tiredness, torpor, fatigue शिथिलता
11. **Circumscribed** (adjective) – Restricted, bounded, limited, constrained, confined घिरा हुआ
12. **Propensity** (noun) – tendency, inclination, proclivity, predisposition, leaning झुकाव
13. **Herculean task** (phrase) – daunting task, challenging task, demanding task, arduous task, onerous task कठिन कार्य
14. **Put something in perspective** (phrase) – To compare something with a similar thing to give a clearer, more accurate idea.
15. 'herself' के बदले 'themselves' का प्रयोग होगा क्योंकि 'Biologists' is plural.
Myself, yourself, himself, herself, itself are all singular - they refer to one person (or a 'thing' for itself). Ourselves, yourselves and themselves are all plural - they refer to more than one person.
16. (B) **3241**
The Nobel Prize for Medicine this year will be awarded to Svante Pääbo, a Swedish geneticist and a director of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. Science being of an increasingly collaborative and competitive nature, recent trends in Nobel Prizes suggest that there are usually multiple winners for every prize. It is a tribute to the originality and revolutionary implications of Pääbo's research that in a world perennially reshaped by advances in biology, he has been chosen as the lone winner of the Medicine or Physiology Prize this year — something not witnessed since 2016. Pääbo, 67, has quietly instigated a Copernican revolution.
17. **Shed/throw a light on** (phrase) – to provide information about something or to make something easier to understand: पर रौशनी डालना
18. Comparative analyses with the human genome demonstrated that the most recent common ancestor of Neanderthals and Homo sapiens lived around 8,00,000 years ago; that both

species frequently lived in proximity and interbred to an extent that the Neanderthal genetic stamp lives on.

19. Rajasthan's prisons are overcrowded with drug-users and peddlers, **and** its streets and farms witness the easy availability of narcotics and opiates

Explanation of other important words

Sr.NO	Words		Meanings	
Q1	Sanctimonious	adjective	Pretending to be devout; affecting religious feeling	पाखंडी
	Impervious	adjective	Not allowing anything to pass	अभेद्य, अप्रवेश्य
	Inveterate	adjective	Habitual; firm in habit; deeply rooted.	कट्टर, आदत में दृढ़
Q2	Arduous	adjective	Hard; Difficult	कठिन
	Amorphous	adjective	Shapeless; without a regular or stable shape; blob like	अनाकार, आकारहीन
	Contiguous	adjective	Side by side; Adjoining	मिला हुआ, पास का
Q3	Incessant	adjective	Unceasing	निरंतर
	Precept	noun	A rule to live by; a principle establishing a certain kind of action or behaviour; a maxim.	नियम
	Doctrinaire	adjective	Inflexible committed to a doctrine or theory without regard to its practicality; dogmatic.	पांडित्याभिमानि
Q11	Tantamount	adjective	Equivalent to	समान
	Circumlocution	noun	An indirect expression; use of wordy or evasive language	कपटपूर्ण बातें
	Tangible	adjective	Touchable; palpable	मूर्त
Q12	Relegate	verb	To banish; to send away	बाहर निकाल देना
	Circumvent	verb	To frustrate as though by surrounding	बिगाड़ना, दरकिनार
	Intractable	adjective	Uncontrollable; stubborn; disobedient	असभ्य
Q13	Lethargy	noun	Sluggishness; Laziness; drowsiness; Indifference	सुस्ती
	Assimilate	verb	To take in; to absorb to learn thoroughly	अपनाना
	Profuse	adjective	Flowing; extravagant	विपुल
Q14	Peremptory	adjective	Final; categorical; dictatorial	आज्ञसूचक
	Attrition	noun	Gradual wearing away, weakening or loss; a natural or expected decrease in number or size.	संघर्षण
	Dissipate	verb	To thin out, drift away, or dissolve; to cause to thin out, drift away, or dissolve; to waste or squander.	नष्ट करना



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