

**Quick fix: On India's Research Development and Innovation scheme****Budgetary allowances alone won't solve India's R&D problem**

**T**he Union **Cabinet** recently approved a ₹1-lakh crore Research Development and Innovation (RDI) scheme that aims to **incentivise** the private sector to invest in basic research. The scheme will primarily consist of a special purpose fund established within the Anusandhan National Research Foundation (ANRF), which will act as the **custodian** of funds. The funds will be in the form of low-interest loans. The ANRF is conceived as an independent institutional body, with **oversight** by the Science Ministry, to **allocate** funds for basic research and to **incentivise** private sector participation in core research. **The involvement** of the ANRF here **is** a novel move as the newly created organisation is meant to be the equivalent of a single-window clearance mechanism for funding research and development for universities and academic institutions. It is also expected to get about 70% of its budget from private sources. In sum, through the RDI and the ANRF, the government is looking to stake the bold claim that it has played its part and that it is now up to the private sector to come forward and reverse the ratio from where the government today accounts for about 70% of India's R&D spend. However, already **incipient** in the government's tall ambitions are traces of what has caused previous such schemes to **falter**. The first of these is **conservatism**.

It turns out that a **condition** for **availing** funds **is** that only products that have reached a certain level of development and market potential or, what are called Technology Readiness Level-4 (TRL-4) projects, would be eligible. There are nine TRL levels, a hierarchy that was first conceived by the United States' National Aeronautics and Space Administration (NASA) in the 1970s. TRL-1 represents a basic level of research and TRL-9 a state of advanced readiness. TRL-4 appears to be an **arbitrary** decision to support any promising research that has progressed halfway. Were there such a magic sauce, venture capital industries, premised on the **fickleness** of predicting the 'next big thing', would not exist. The scheme also seems to forget that technologically advanced countries have become what they are because of their military industrial complexes — where the **spectre** of war incentivises the development of technology that is risky and expensive but, over time, may prove to be of **immense** civilian value — examples are the Internet or the Global Positioning System. India continues to **haemorrhage** scientists to the West due to the lack of opportunities **commensurate** with their training. Finally, it lacks a deeply skilled manufacturing sector that can make the products that scientists conceive of. Budgetary allowances cannot overnight fix that which requires major surgery.

- The red and blue coloring of words in the sentence highlights the subject-verb relationship, with 'red' representing the 'subject' and 'blue' indicating the 'verb'.

### Vocabulary

**Cabinet (Noun):** A group of senior ministers in government. मंत्रिमंडल

**Incentivise (Verb):** To encourage or motivate through incentives. प्रोत्साहित करना

**Custodian (Noun):** A person or organization that protects or manages something. संरक्षक

**Oversight (Noun):** Supervision or monitoring. निगरानी

**Allocate (Verb):** To distribute resources for a purpose. आवंटित करना

**Incipient (Adj):** In an initial or early stage. आरंभिक अवस्था में

**Falter (Verb):** To weaken or fail. असफल होना / लड़खड़ाना

**Conservatism (Noun):** Cautiousness or resistance to change. रूढ़िवादिता

**Avail (Verb):** To make use of or benefit from. लाभ उठाना

**Arbitrary (Adj):** Based on random choice rather than reason. मनमाना

**Fickleness (Noun):** Instability or unpredictability. अस्थिरता / परिवर्तनशीलता

**Spectre (Noun):** A frightening or worrying idea or possibility. भय या आशंका

**Immense (Adj):** Very large or great. अत्यधिक / विशाल

**Haemorrhage (Verb):** To lose something in large amounts continuously. लगातार नुकसान

**Commensurate (Adj):** In proportion to; corresponding in size or degree. समानुपाती / अनुरूप

### **Practice Exercise: Banking Pattern based**

**1. According to the passage, what is one major flaw in the implementation strategy of the RDI scheme?**

- A) The requirement that only TRL-4 level projects are eligible
- B) The exclusion of foreign research agencies
- C) The lack of loans for private consumers
- D) The imposition of new taxes on R&D labs
- E) None of the above

**2. Why does the author refer to the military-industrial complex in technologically advanced countries?**

- A) To suggest that wars should be used to stimulate research

B) To show how long-term risky investment led to innovations with civilian use

C) To argue that India must create weapons to catch up with the West

D) Both A & B

E) Both C & B

**3. Which of the following BEST summarizes the main concern of the author regarding the RDI scheme?**

A) It is too focused on military-grade technology

B) It neglects India's partnership with NASA

C) It is limited by conservatism and poor implementation design

D) It funds only foreign-backed innovations

E) Both C & D

**4. What is the role of the Anusandhan National Research Foundation (ANRF) as described in the passage?**

- A) To regulate patents in India
- B) To act as a single-window body for research funding
- C) To provide scholarships to students pursuing science
- D) To replace the Science Ministry in all research decisions
- E) Both A & B

**5. What does the author imply by stating "budgetary allowances cannot overnight fix that which requires major surgery"?**

- A) Financial aid is completely useless in policy matters
- B) Minor funding reforms will not resolve deep-rooted structural issues
- C) Healthcare reforms are needed more than research reform
- D) The government should stop giving any research grants
- E) None of the above

**6. Based on the passage, which of the following must happen to ensure private sector participation in R&D, according to the author?**

- I. Removal of TRL-4 condition
- II. Strengthening of India's manufacturing sector
- III. Providing venture capital for early-stage research
- IV. More opportunities aligned with scientists' training

- A) I, II and IV
- B) II, III and IV
- C) I and III
- D) II and IV
- E) All of the above

**Directions (7-15): Below, a passage is given with nine multiple tasks labelled (P-X). Below the passage, five options are given for each task. Choose the correct answer that fits appropriately in the context of the passage, and mark the corresponding answer.**

With the advent of technology, glocalization and an urge to meet trends, education has seen significant (P) \_\_\_\_\_. Today, teaching is more than just curriculum delivery. It also involves helping students to develop (Q) \_\_\_\_\_ and foster knowledge, skills, and the confidence to overcome obstacles and (R) \_\_\_\_\_ in society. (S) Teachers need to be role [1] **modals**, emotional [2] **pillars** and frontline [3] **responders** to the psychological [4] **needs** of students. (T) Considering the [A] **training** student stress, behavioural challenges and mental health crises, teachers require [B] **increasing** in [C] **emotional** intelligence. Teacher education programmes (U) \_\_\_\_\_ focus on pedagogy, subject matter knowledge, and assessment techniques. (V) **Only a few emphasise** the skills to navigate the emotional aspects of teaching. (W) A critical factor in [A]/ emotional intelligence is [B]/ determining both [C]/ teacher wellbeing [D]/ and classroom effectiveness. [E] From pride in

student success to the stress of daily responsibilities, teachers navigate an array of emotions — guilt, demoralization, helplessness, alienation, and anger — as they deal with student needs, classroom challenges, school management, parental demands, and personal stressors. If they are unable to deal with these, it can lead to (X) \_\_\_\_\_ and lack of motivation, which in turn impacts the students.

**7. Which word comes in the blank labelled P?**

- A) generalization
- B) foundation
- C) transformation
- D) Both A & C
- E) Both B & C

**8. Which word comes in the blank labelled Q?**

- A) holistically
- B) innocently
- C) gracefully
- D) effortlessly
- E) quickly

**9. Which word comes in the blank labelled R?**

- A) unbraid
- B) venerate
- C) avid
- D) thrive
- E) diminish

**10. The Sentence marked as S has four highlighted words out of which some word(s) are used inappropriately. Choose the words used incorrectly here.**

- A) Only 1

- B) Only 2

- C) Both 2 & 4

- D) Both 1 & 3

- E) None of these

**11. The Sentence marked as T has three highlighted words. These words may/may not be placed in their correct order. Swap the words among them and place them in the correct order to form a grammatically and contextually meaningful sentence.**

- a) ABC
- b) BCA
- c) CBA
- d) BAC
- e) CAB

**12. Which word comes in the blank labelled U?**

- A) easily
- B) predominantly
- C) barely
- D) warmly
- E) carefully

**13. A part of SENTENCE V is printed in bold. Alternatives to the bold part are given at (A), (B), (C) (D), and (E) which may help improve the sentence. Choose the correct alternative.**

- A) Only a little emphasise
- B) Only little emphasise
- C) Only few emphasise
- D) Only fewer emphasise
- E) No correction required

14. SENTENCE W is divided into five parts. Rearrange the parts into a meaningful sentence and mark the option accordingly.

- A) ABCED
- B) CDBAE
- C) BACDE
- D) EDCBA
- E) None of these

15. Which word comes in the blank labelled X?

- A) debar
- B) articulate
- C) inculcate
- D) precise
- E) burnout

### Answer with Explanation

#### 1. Answer: A

The passage critiques this criterion as arbitrary, and says it may exclude promising early-stage research.

**Option (B):** Foreign agencies aren't discussed.

**Option (C):** Consumer loans are not in focus.

**Option (D)** is not mentioned at all.

#### 2. Answer: B

The Internet and GPS are cited as examples of military-funded technologies with later civilian use- implying India lacks this type of long-term investment.

**Option (A)** is extreme and not implied.

**Option (C)** misrepresents the argument- it's about investment models, not weapon-building.

#### 3. Answer: C

The author critiques the scheme for conservatism, restricted eligibility (TRL-4), and lack of support systems (manufacturing, incentives, etc.).

**Option (A)** misreads the purpose.

**Option (B)** is factually incorrect.

**Option (D)** is irrelevant. There's no mention of foreign-only funding.

#### 4. Answer: B

The passage calls the ANRF "the equivalent of a single-window clearance mechanism" for research and development funding.

**Option (A):** Patents are not mentioned.

**Option (C):** Scholarships are not discussed.

**Option (D):** The ANRF works under the oversight of the Science Ministry, not as its replacement.

#### 5. Answer: B

The metaphor "major surgery" refers to the need for deep structural reforms, not just financial allocations.

**Option (A)** is too broad and dismissive.

**Option (C)**: Healthcare is not the focus here.

**Option (D)** is not suggested.

**6. Answer: E**

All four are directly or indirectly discussed in the passage:

**I**: The TRL-4 restriction is criticized.

**II**: Lack of skilled manufacturing is flagged.

**III**: Early-stage investment is contrasted with venture capital's role.

**IV**: Brain drain is linked to lack of career opportunities.

**7. Answer: C**

The sentence talks about how technology and changing trends have significantly changed education.

The correct word to describe this major shift is "transformation."

**Generalization**: Broad statement or idea from specific cases. सामान्यीकरण

**Foundation**: The base or groundwork of something. नींव, आधार

**Transformation**: A marked change in form or nature. रूपांतरण, बदलाव

**8. Answer: A**

The phrase "develop holistically" means helping students grow in all aspects- intellectual, emotional, social, etc., which suits the sentence perfectly.

**Holistically**: In a way that considers the whole person. समग्र रूप से

**Innocently**: In a naive or guiltless manner. मासूमियत से

**Gracefully**: In an elegant or smooth way. सुंदरता से

**Effortlessly**: Without difficulty. बिना प्रयास के

**Quickly**: At a fast speed. तेजी से

**9. Answer: D**

The sentence implies students should not only overcome obstacles but also do well in society. The correct word is "thrive", which means to grow or flourish.

**Unbraid**: To untangle or unravel. सुलझाना, खोलना

**Venerate**: To deeply respect or revere. श्रद्धा करना

**Avid**: Eager or enthusiastic. उत्साही, लालायित

**Thrive**: Grow, flourish, or succeed. फलना-फूलना, सफलता पाना

**Diminish**: To reduce or make smaller. घटाना, कम करना

**10. Answer: A**

[1]: The correct word is "models."

Teachers need to be role **models**, emotional **pillars** and frontline **responders** to the psychological **needs** of students.

**11. Answer: D**

**The corrected sentence is:**

Considering the **increasing** student stress, behavioural challenges and mental health crises, teachers require **training** in **emotional** intelligence.

**12. Answer: B**

"Predominantly" means mainly or primarily, which fits well- it says that teacher training mainly focuses on academic methods, not emotional training.

**Easily:** Without difficulty. आसानी से

**Predominantly:** Mainly, for the most part. मुख्य रूप से

**Barely:** Hardly, just enough. मुश्किल से, केवल

**Warmly:** In a kind or friendly manner. गर्मजोशी से

**Carefully:** With caution and attention. सावधानी से

**13. Answer: E**

**Only a few emphasise** the skills to navigate the emotional aspects of teaching.

**14. Answer: C**

**The correct arrangement is: BACDE.**

**Corrected sentence:**

Emotional intelligence is a critical factor in determining both teacher wellbeing and classroom effectiveness.

**15. Answer: E**

If teachers are emotionally overwhelmed, they may experience burnout, a state of emotional, mental, and physical exhaustion.

**Debar:** To exclude or prevent from doing something. रोक लगाना

**Articulate:** To express clearly. स्पष्ट रूप से व्यक्त करना

**Inculcate:** To instill by repeated instruction. बार-बार समझाकर सिखाना

**Precise:** Exact and accurate. सटीक, बिल्कुल ठीक

**Burnout:** Physical/emotional exhaustion due to stress. मानसिक और शारीरिक थकावट