

Most innovative state in India is..

Latest Indexes/Reports

National Nutrition Survey-2019

- ✓ With the help of UNICEF, The Ministry of Health and Family welfare recently conducted the first ever comprehensive National Nutrition Survey. The Survey recorded malnutrition that included micronutrients deficiencies and details of non-communicable diseases such as diabetes, hypertension, cholesterol and kidney function in children and adolescents.

The key findings of the National Nutrition Survey-2019

1. Around 10% of children in the age group of 5 to 9 years and adolescents in the age group 10 to 19 years are pre-diabetic. 5% of them were overweight and 5% suffered from Blood pressure.
2. The Survey for the first time proved the coexistence of obesity and under nutrition.
3. One in five children in the age group 5 to 9 years were stunted.
4. Tamilnadu and Goa had the highest number of adolescents who were obese or overweight.

Steps taken by Government of India to curb incidences of Malnutrition

1. Pradhan Mantri Matru Vandana Yojana
 2. POSHAN Abhiyan
 3. National Food Security Act
 4. Mid-Day Meal scheme
- ✓ On 1 April 2016, The United Nations General Assembly proclaimed '2016-2025 The United Nations Decade of Action on Nutrition'.

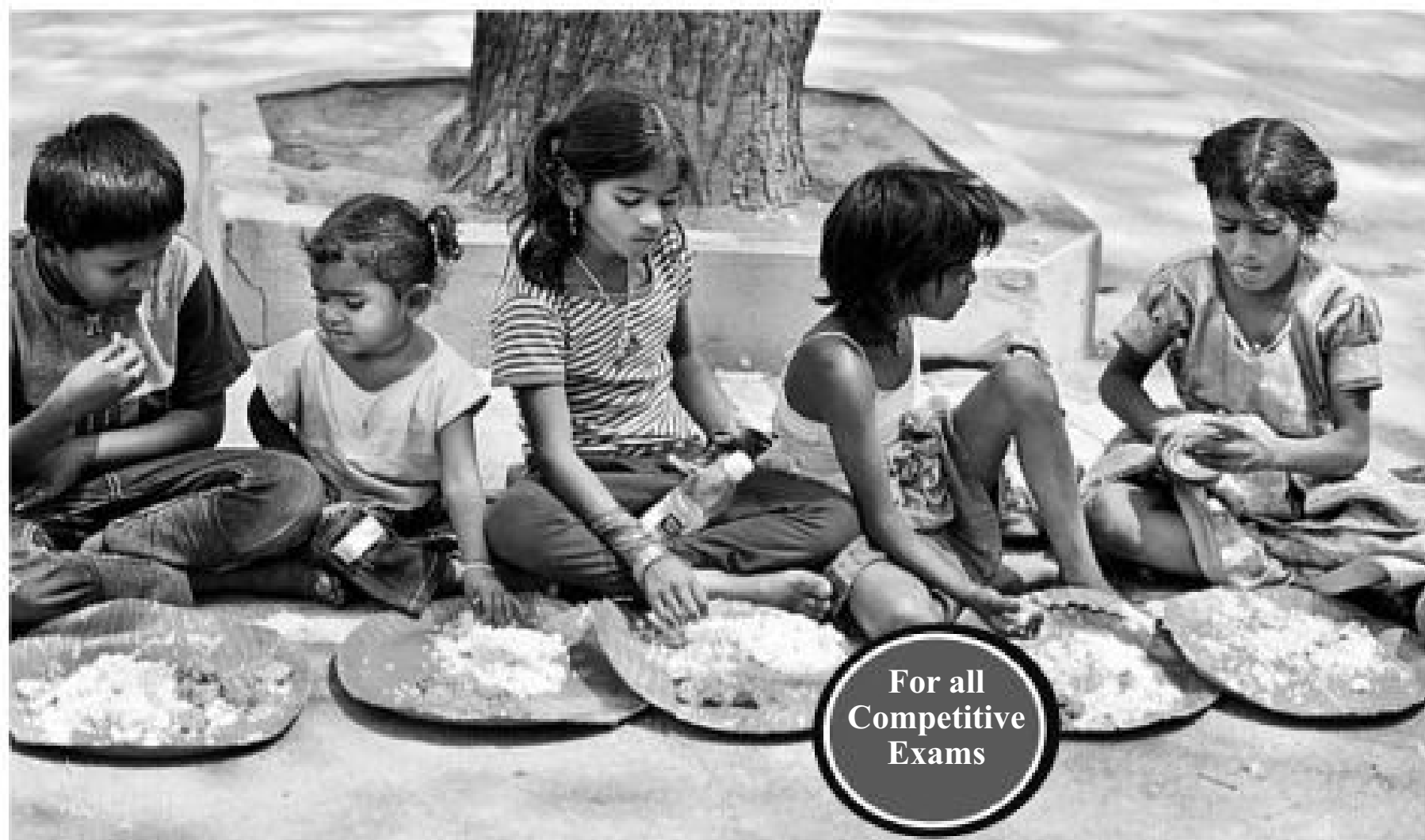
School Education

Quality Index

- ✓ NITI Aayog released the first edition of School Education Quality Index (SEQI) About the SEQI
1. Developed by NITI Aayog to evaluate the performance of states and union territories in the school education sector.
 2. 'To bring an a 'outcomes' focus to education policy by providing states and 'UT's with a platform to identify their strengths and weaknesses and undertake requisite course correction or policy interventions is the aim of School Education Quality Index.
 3. The Index is developed through a collaborative process including key stake holders such as Ministry of Human Resources and Development, The World Bank and sector experts.

Performances of various states in School Education Quality Index

1. Kerala has emerged on top among 20 large states in terms of quality of school education, followed by Rajasthan and Karnataka, while the most populations Uttar Pradesh was ranked at the bottom position during 2016-17.
2. Among 20 large states in the country '18 have proved their overall performance between 2015-2016 and 2016-2017, which is otherwise referred to as the incremental performing in the report.
3. The highest 'Incremental Performance has been recorded in Kerala. As Against



- 77.6% score on 2015-2016, the state has recorded 82.2% in 2016-2017.
4. The overall performance has declined in Karnataka and Uttarakhand.
5. All union territories have shown an Improvement in their overall performance scores (Excluding J&K, Ladakh Union Territories).
6. The performance and ranks have decreased in Mizoram, Sikkim and Arunachal pradesh.

State of the world's children report for 2019

- ✓ UNICEF released its state of the world's children report for 2019. The report analyses the global state of children's health vis-a-vis malnutrition, obesity, anaemia and other health issues.

Key findings (Global Scenario)

- ✓ One in three children under the age of five years-around 200 million children worldwide-are either undernourished or over weight.
- ✓ This puts them at risk of poor brain development, weak learning, low immunity, increased infections and in many cases, death.
- ✓ It describe a triple burden of malnutrition. Under nutrition, hidden hunger caused by a lack of essential nutrients, and overweight among children under the age of five.

India specific in the state of the world's children report for 2019

1. In India every second child is affected by some form of malnutrition.
2. 35% of Indian children suffer from stunting due to lack of nutrition, 17% suffer from wasting, 33% are underweight and 2% are over weight.
3. One in ten children are pre-diabetic.
4. Among countries in South Asia, India fares the worst (54%) on prevalence of children under five who are either stunted, wasted or over weight.
5. One in five children under age 5 has vitamin 'A' deficiency, which is a severe health problem in 20 states.
6. Every second woman in the country is an anaemic, as are 40.5% children.
7. It has the highest burden of deaths among children under five per year.
8. Poverty, urbanisation as well as climate change are some of the factors that are driving for diet.

UNICEF has laid out recommendations for nutritious, safe and affordable diets for children across the world

1. Empower families to reduce demand for unhealthy food.
2. Incentivise food suppliers to provide healthy, affordable food.
3. Create accurate, easy to understanding labelling.
4. Scale up nutrition by protecting water and sanitation systems.
5. Collect and analyzing data to track progress.

NCRB

crime statistics for 2017

- ✓ The National Crime records Bureau (NCRB) has released its crime statistics for 2017.
- #### Key findings
- ✓ **Woman safety:** UP, Maharastra and West Bengal are deemed most unsafe for women.
 - ✓ **Riot cases:** There were 58,880 incidents of rioting in 2017 of which the maximum incidents were reported from Bihar at 11,698 followed by Uttarpradesh at 8,990 of the total, communal and sectaries riots announced for the largest.
 - ✓ Among union territories, Delhi recorded the most murder cases in 2017 at 487.

India Innovation

Index-2019

- ✓ NITI Aayog with Institute for competitiveness as the knowledge partner has released the Innovation Index (III) 2019.

Key findings

1. Karnataka is the most innovative major state in India.
2. **Others in top 10:** Tamilnadu, Maharastra, Telangana, Haryana, Kerala, Uttarpradesh, West Bengal, Gujarath and Andra pradesh.
3. The top ten major states are majorly concentrated in southern and western India.
4. Sikkim and Delhi take the top sports among the north-eastern & hill states and union territories/ city states/ small states respectively.
5. Delhi, Karnataka, Maharastra, Tamilnadu, Telangana and Uttarpradesh are the most efficient states in translating inputs into output.

National Digital Health Blueprint

- ✓ National Digital Heath blueprint report submitted to Health ministry.

Highlights of the NDHB

1. It lays out the 'building blocks' for the



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- implementation of the National Health Stack, which aims to deploy Artificial Intelligence in leveraging health records.
2. Keeping true to the government's larger agenda of data as a public good, the blueprint proposes the linking of multiple data bases to generate greater and granular data that can be leveraged by the public as well as private sector-including insurance companies, hospitals, apps and researchers.
3. The blueprint proposes a National Digital Health Mission as a purely government organisations with complete functional autonomy adopting some features of some of the existing National Information utilities like UIDAI and GSTN.

World Economic

Outlook-2019

- ✓ International Monetary fund (IMF) recently released the latest edition of Its biannual report, world Economic Outlook.
- ✓ IMF revised estimate for India's growth this year to 6.1 % from 7 % projected in July, calling on the country to use monetary policy. And broad-based structural reforms to address cyclical weakness and strengthen confidence.
- ✓ Global growth is forecast at 3.0 percent for 2019 its lowest level since 2008-09.

QS India

University Rankings

- ✓ Recently 2nd edition of QS Indian university rankings has been released.
 - ✓ the rankings include public, private, higher education or deemed universities.
 - ✓ The Indian institutes of technology dominates the list, with seven IIT's figuring in the top ten rankings.
 - ✓ IIT Bombay leads followed by the Indian Institute of science (IISc) for 2nd consecutive year.
 - ✓ The methodology used eight indicators to determine the institutions rankings. These were..
1. Academic reputation
 2. Employer reputation
 3. Faculty student ratio
 4. The proportion of staff with a PhD
 5. Papers per faculty from scopus database
 6. Citations per paper from scopus database
 7. The proportion of international students
 8. The proportion of international faculty

What is the lens maker's formula?

REFRACTION OF LIGHT AT CURVED SURFACES

Continued from December 18th

9. If the image formed by a convex lens is of the same size as that of the object, what is the position of the image with respect to the lens? (As 1)

A. The object is placed at centre of curvature of the lens.

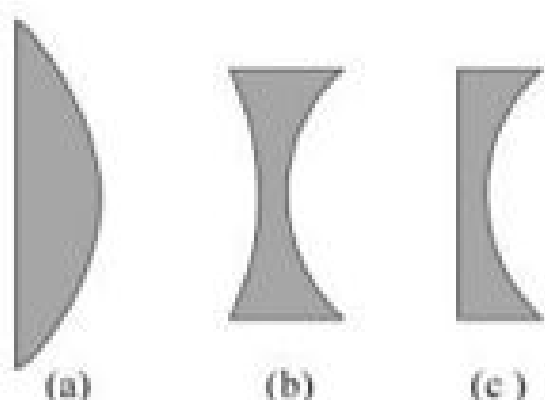
10. A convex lens has a focal length of 20 cm and an object is placed at a distance of 40 cm in front of this lens. Write the nature of the image formed. (As 1)

A. The image is real, inverted and same size as the object.

11. State any two uses of convex lens. (As 1)

A. (1) Convex lens is used in spectacles to correct the defect of vision called hypermetropia.
(2) Convex lens is used as a magnifying lens.

12. Name the following lenses. (As 5)



A. (a) Plano convex lens, (b) Biconcave lens, (c) Plano concave lens

13. What is a lens? (As 1)

A. A lens is formed when a transparent material is bounded by two surfaces of which one (or) both surfaces are spherical.

14. Define focal length of a lens. (As 1)

A. The point of convergence or the point from which rays seem to emanate after refraction in a lens is called focal point or focus (F). The distance between the focal point and optic centre is called focal length of lens, denoted by 'f'.

15. Write the lens formula. (As 1)

A. Lens formula: $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

Here f - focal length, v - image distance, u - object distance.

16. What is the nature of the image formed by a convex lens if the magnification produced by the lens is +3? (As 1)

A. If the magnification is positive, the image is virtual erect. So, the image is virtual, erect and magnified.

OBJECTIVE TYPE QUESTIONS:

1. Choose the correct answer:

1. Which one of the following materials not be used to make a lens? ()

(A) water (B) glass
(C) plastic (D) clay

2. Which of the following is true? ()

(A) The distance of virtual image is always greater than the object distance for convex lens.
(B) The distance of virtual image is not greater than the object distance for convex lens.
(C) Convex lens always forms a real image.
(D) Convex lens always forms a virtual image.

3. Focal length of the Plano - convex lens is when its radius of curvature of the surface is R and n is the refractive index of the lens. ()

(A) $f = R$ (B) $f = \frac{R}{2}$
(C) $f = \frac{R}{(n-1)}$ (D) $f = \frac{(n-1)}{R}$

4. The value of the focal length of the lens is equal to the value of the image distance when the rays are ()

(A) passing through the optic centre
(B) parallel to the principal axis
(C) passing through the focus
(D) in all of the cases

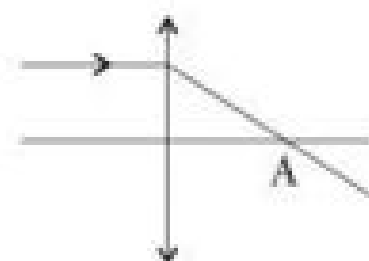
5. Which of the following is the lens maker's formula? ()

(A) $\frac{1}{f} = (n-1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$
(B) $\frac{1}{f} = (n+1) \left(\frac{1}{R_1} - \frac{1}{R_2} \right)$
(C) $\frac{1}{f} = (n-1) \left(\frac{1}{R_1} - \frac{1}{R_2} \right)$
(D) $\frac{1}{f} = (n+1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$

6. The refractive index of a Plano - convex lens which focal length is equal to its radius of curvature is..... ()

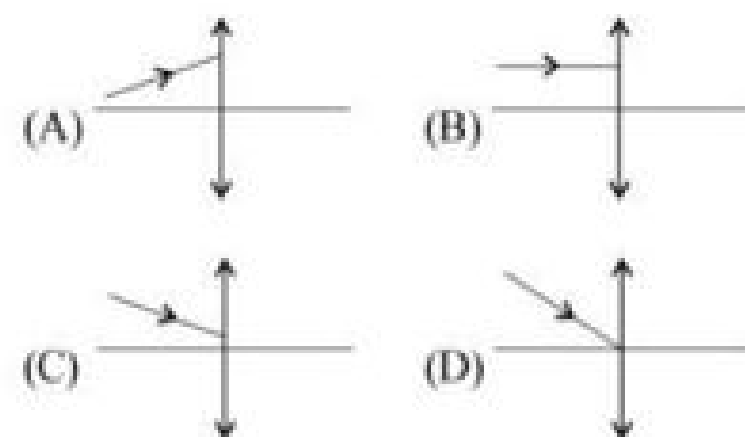
(A) 1.5 (B) 1
(C) 2 (D) 2.5

7. The given figure shows the refraction of light ray through convex lens. The point 'A' on the principal axis is called..... ()



(A) centre of curvature (B) focal point
(C) optic centre (D) none of these

8. In which of the following situations the light ray does not deviate when it passes through a lens? ()



9. When the object is placed at the focus of a convex lens, then the image is formed ()

(A) at F (B) between B and C
(C) at infinity (D) beyond C

10. The lens which can form both real and virtual images is ()

(A) concave lens
(B) convex lens
(C) plano - convex lens
(D) plano - concave lens

11. An object is placed at a distance of 15 cm from convex lens of focal length 20 cm. Then the nature of the image formed is ()

(A) real, inverted (B) real, magnified
(C) virtual erect (D) virtual, diminished

12. The image of a distant object is formed at a distance of 10 cm from the convex lens. Then its radius of curvature is ()

(A) 20 cm (B) 5 cm
(C) 15 cm (D) 10 cm

13. Where should an object be placed so that a real and inverted image of the same size is obtained by a convex lens? ()

(A) at the focus of the lens
(B) at twice the focal length
(C) at infinity
(D) between the optical centre of lens and its focus

10th Class Special

14. Which of the following lens would you prefer to use while reading small letters found in a dictionary? ()

(A) A convex lens of focal length 50 cm
(B) A concave lens of focal length 50 cm
(C) A convex lens of focal length 5 cm
(D) A concave lens of focal length 5 cm

15. The point inside a lens through which the light passes undeviated is ()

(A) principal focus
(B) optic centre
(C) centre of curvature
(D) focal length

16. A convex lens has a focal length of 10 cm. At which of the following position should an object be placed so that this convex lens may act as a magnifying glass? ()

(A) 15 cm (B) 7 cm
(C) 20 cm (D) 25 cm

17. A small bulb is placed at the focal point of a converging lens. When the bulb is switched on the lens produces ()

(A) a convergent beam of light
(B) a divergent beam of light
(C) a parallel beam of light
(D) a path of coloured light

18. In order to obtain a real image twice the size of the object with a convex lens of focal length 15 cm, the object distance should be.... ()

(A) more than 5 cm but less than 10 cm
(B) more than 10 cm but less than 15 cm
(C) more than 15 cm but less than 30 cm
(D) more than 30 cm but less than 60 cm

19. A convex lens of focal length 8 cm forms a real image of the same size as the object. The distance between object and its image will be..... ()

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(A) 8 cm (B) 16 cm
(C) 24 cm (D) 32 cm

20. A virtual, erect and magnified image of an object is to be obtained with a convex lens. For this purpose, the object should be placed ()

(A) between 2F and infinity
(B) between F and optic centre
(C) between F and 2F
(D) at F

21. The image formed by a concave lens is ()

(A) always virtual and diminished
(B) always virtual and enlarged
(C) always real
(D) sometimes real and sometimes virtual

22. A real, inverted and enlarged image is formed by a convex lens when the object is placed ()

(A) at F (B) between F and 2F
(C) at 2F (D) beyond 2F

23. Magnification of a concave lens is ()

(A) always less than unity
(B) always equal to unity
(C) always greater than unity
(D) sometimes less than and sometimes greater than unity.

24. According to Cartesian sign convention, the focal length of a lens is given by ()

(A) $f = \frac{u+v}{uv}$ (B) $f = \frac{u-v}{uv}$
(C) $f = \frac{uv}{u+v}$ (D) $f = \frac{uv}{u-v}$

ANSWERS

1. D	2. B	3. C	4. B
5. C	6. C	7. B	8. D
9. C	10. B	11. C	12. A
13. B	14. C	15. B	16. B
17. C	18. C	19. D	20. B
21. A	22. B	23. A	24. D