



THE TIMES OF INDIA

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TODAY'S EDITION

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STUDENT EDITION

FRIDAY, APRIL 9, 2021


WEB EDITION
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VIEWPOINT

IMA URGES PM MODI TO OPEN COVID VACCINATION FOR ALL ABOVE 18 YEARS

WANT OR NEED...

Amid a surge in Covid-19 cases in the country, the Indian Medical Association (IMA) has written to Prime Minister Narendra Modi suggesting that vaccination be allowed for all people above the age of 18 years

India reported the highest-ever 1,26,789 new Covid-19 cases in the last 24 hours, as per the Union health ministry data on Thursday. India has given more than nine crore doses of vaccine, and Thursday's tally stood at 9,01,98,673

STUDENTS' TAKE



■ As the supply of vaccine is limited, I feel precedence should be given to the priority groups, which include the senior citizens and those with co-morbidities. However, in Covid hotspots, where the positive cases are high, people above the age of 18, should be vaccinated to break the chain.
SAI KRISHNA PRIYA, class X, GTAVM, Chennai

■ Our country has a humongous working-population aged between 20 and 40. It's time they are inoculated, lest it takes a huge toll on the health of the masses, which in turn could effect our economy.
HARSH KUMAR AGARWAL, class X, National English School, Kolkata



■ With the cases of coronavirus on a deadly surge, I feel Covid vaccine should be made compulsory for everyone above the age of 18, as it's the young population, who are venturing out from their homes for different purpose.
ADITYA SINGH, class XII, Sadhu Vaswani International School, Pune



THE CHALLENGES & HOW TO TAKE IT FORWARD... EXPERTS SPEAK

■ Let's remember children's immune systems are different from the adults. So, their immune responses can vary at different ages— from infancy through the teenage years. The major challenge remains on getting a clarity on how safe it is to inoculate the young population
DR SANGITA KESKAR, head of pathology, Chinmaya Mission Hospital, Bengaluru

can be dealt with, if the govt takes up the programme first in areas, where the infection rate is high.
DR PRAVIN GARG, consulting physician, Ahmedabad

■ The database of youth above 18 years is still not in place. Also, with malls, pubs, cinemas, etc, open, it conveys a wrong message to the youngsters that Covid affects only the elders. They may not be ready to take the jab.
DR A SRIKANTH, secretary, Indian Dental Association, Hyderabad

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Spotlight

Mukesh Ambani first, Adani 2nd on Forbes 10 richest Indian billionaires 2021 list



With a net worth of \$84.5 billion, Mukesh Ambani, the chairman of Reliance Industries Ltd, has secured the first spot on the Forbes 10 richest Indian billionaires 2021 list. The Adani Group chairman Gautam Adani is at the second place (\$50.5 billion). An unprecedented surge in the wealth of the billionaires comes amid a rapid rise in the stock market, even as Covid-19 cases continue to rise across the country. According to Forbes, the number of billionaires increased to 140 from 102 last year, and their collective wealth doubled to \$596 billion last year.

■ HCL founder Shiv Nadar is perched on the third spot on the Forbes 10 richest billionaires 2021 list, with a net worth of \$23.5 billion

■ Avenue Supermarts' founder Radhakrishnan Damani at \$16.5 billion and Kotak Mahindra Bank's MD Uday Kotak with a fortune of \$15.9 billion took the fourth and the fifth spot on the list respectively

ASTEROID THAT ELIMINATED DINOSAUR GAVE RISE TO AMAZON RAINFOREST


DID YOU KNOW?

The asteroid impact that wiped out the dinosaurs from the Earth also gave birth to the Amazon rainforest, says a new study. In an analysis of thousands of fossil pollen and leaves, researchers found that the cataclysmic asteroid impact that resulted in the destruction of nearly 75 per cent of all the terrestrial life on the Earth drastically restructured the tropical forests. It also set the stage for the evolution of what has become one of the planet's most-diverse ecosystems – the neo-tropical rainforest, according to the study.

- According to the findings, late Cretaceous rainforests were characterised by an open canopy environment.
- However, plant diversity declined by roughly 45 per cent at the Cretaceous-Paleogene (K/Pg) boundary and extinctions were widespread, particularly among the seed-bearing plants
- While the forests recovered over the subsequent six million years, angiosperms or the flowering plants, came to dominate the forests, said the study
- This transition led to the closed canopy structure and the layered, vertical distribution of plant biodiversity that defines the modern tropical rainforests

SALMA HAYEK JOINS LADY GAGA AND ADAM DRIVER IN RIDLEY SCOTT'S 'HOUSE OF GUCCI'

Salma Hayek is the latest A-lister in the cast of veteran filmmaker Ridley Scott's 'House of Gucci'. The much-awaited movie will feature pop star Lady Gaga as Patrizia Reggiani, the ex-wife of Guccio Gucci's grandson Maurizio Gucci (to be played by Adam Driver). Hayek will essay the role of Pina Auriemma, who was a clairvoyant friend of Reggiani, reported Deadline.

- Reggiani was abandoned after 12 years of marriage by Maurizio Gucci in 1985 for a younger woman. She was tried and convicted of orchestrating her ex-husband's assassination on the steps of his office in Italy in 1995
- She got the nickname the Black Widow during the trial and served 18 years before being released from prison in 2016



MS DHONI ANNOUNCES ANIMATED SPY SERIES 'CAPTAIN 7'

Former India captain Mahendra Singh Dhoni is set to produce an animated series, titled 'Captain 7'. The first season of the spy series, which is currently in pre-production, will be based on Dhoni, the makers said. The 'seven' in the title refers to Dhoni's jersey number, which he donned in many one-day international matches. The project is a joint venture between Mahendra Singh Dhoni and wife Sakshi Singh Dhoni's production house Dhoni Entertainment Pvt Ltd, and Black White Orange Brands Pvt Ltd (BWO).

Billed as the country's first 'animated spy universe', the show will launch with its first season in 2022



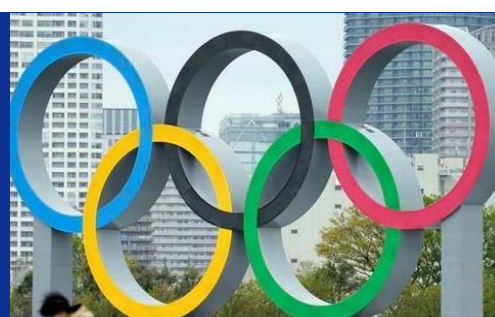
PANDEMIC LOSS

NORTH KOREA BECOMES FIRST country to drop out of Tokyo Olympics

North Korea's sports ministry has said that its national Olympic Committee has decided not to participate in the 32nd Olympic Games, in order to protect its players from the world public health crisis caused by Covid-19. However, Japan's Olympic Committee said that North Korea has not yet notified it that it wouldn't participate.

FYI: All International Olympic Committee member countries are required to take part in each Games under the Olympic charter

- It will be the first time for North Korea to miss a Summer Olympics since 1988, when it boycotted the Seoul Games during the Cold War
- The pandemic has already pushed back the Tokyo Games to July 23, 2021 – originally scheduled for 2020 – and the organisers have scrambled to put in place anti-virus measures, such as banning international spectators to ensure the safety of athletes and residents
- While North Korea claims to be coronavirus-free, outsiders remain doubtful about whether the country has escaped the pandemic entirely, given its poor health infrastructure, and a porous border it shares with China, its economic lifeline



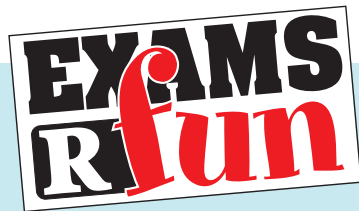
Evidence of normalisation of India's economic activity: Gita Gopinath

ECONOMY

International Monetary Fund (IMF) chief Gita Gopinath has said that there is an evidence of normalisation of India's economic activity, ahead of the annual spring meeting of the IMF and World Bank in Washington.

The IMF recently upgraded India's growth projection for the financial year 2021-22 (FY22) upwards to 12.5% from 11.5% earlier, but cautioned that the outlook did not factor in "sever risks", arising out of the ongoing second wave of Covid-19

TAKE THE QUANTUM LEAP TO SUCCESS IN PHYSICS



CLASS: XII - 2020-21

SUBJECT:
PHYSICS (CBSE)

Maximum Marks: 55

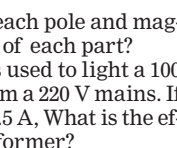
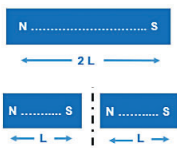
GENERAL INSTRUCTIONS

You may use the following values of physical constants wherever necessary.

$c = 3 \times 10^8 \text{ m/s}$
 $h = 6.63 \times 10^{-34} \text{ Js}$
 $e = 1.6 \times 10^{-19} \text{ C}$
 $\mu_0 = 4\pi \times 10^{-7} \text{ T m A}^{-1}$
 $\epsilon_0 = 8.854 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$
 $\frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ N m}^2 \text{ C}^{-2}$
 $m_e = 9.1 \times 10^{-31} \text{ kg}$
 mass of neutron = $1.675 \times 10^{-27} \text{ kg}$
 mass of proton = $1.673 \times 10^{-27} \text{ kg}$
 Avogadro's number = $6.023 \times 10^{23} \text{ per gram mole}$
 Boltzmann constant = $1.38 \times 10^{-23} \text{ JK}^{-1}$

SECTION-A (1 mark each)

- Q1.** If the radius of inner most electronic orbit of a hydrogen atom is 0.53 \AA then what will be the radius of $n=2$ orbit?
Q2. The ground state energy of hydrogen atom is -13.6 eV . What are the kinetic and potential energies of electron in this state?
Q3. At a place the horizontal component of Earth's magnetic field is 0.4 Oersted, angle of dip is 60° . Calculate the value of earth's total field at that place.
Q4. Consider a magnet of pole strength q_m . If a magnet is cut perpendicular to the length in two equal parts, then what is the pole strength of each pole and magnetic dipole moment of each part?
Q5. A transformer is used to light a 100 W and 110 V lamp from a 220 V mains. If the main current is 0.5 A , What is the efficiency of the transformer?
Q6. How is electromagnetic wave produced? Draw a sketch of a plane e.m. wave propagating along X-axis depicting the directions of the oscillating electric and magnetic fields.
Q7. Electromagnetic waves travelling in a medium having relative permeability $\mu_r = 1.3$ and relative permittivity $\epsilon_r = 2.14$. Calculate the speed of electromagnetic waves in that medium.
Q8. Name the types of e.m. radiations which are used in destroying cancer cells. How these are produced?
Q9. A proton and an α -particle are accelerated by the same potential difference. What is the ratio of their de-Broglie wavelengths?
Q10. Why fusion process takes place at very high temperature?
For question numbers 11, 12, 13 and 14, two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.
a) Both A and R are true and R is the correct explanation of A



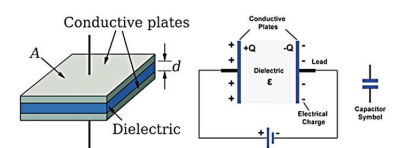
- b)** Both A and R are true but R is NOT the correct explanation of A
c) A is true but R is false
d) A is false and R is also false
Q11. STATEMENT - 1
 When a charged particle is placed in the cavity in a conducting sphere induced charge on the outer surface of the sphere is found to be uniformly distributed.
STATEMENT - 2
 Conducting surface is equipotential surface.

- Q12. STATEMENT - 1:**
 Any charge will move from electric potential $[V_1 \text{ to } V_2]$ by its own; when $V_1 > V_2$.
STATEMENT - 2:
 Electron moves from $V_1 = 2 \text{ V}$ towards $V_2 = 4 \text{ V}$.
Q13. STATEMENT - 1:
 Different colours travel with different speed in vacuum
STATEMENT - 2:
 Wavelength of light depends on refractive index of medium.
Q14. STATEMENT - 1:
 A fish inside a pond will see a person standing outside taller than he is actually.
STATEMENT - 2:
 Light bend away from the normal as it enters water from air.

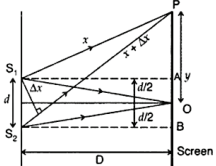
SECTION-B (4 marks each)

- Questions 15 and 16 are Case Study based questions and are compulsory.**
Q15. A capacitor consists of two parallel conductive (metal) plates which are not connected or touching each other, but are electrically separated either by air or by some form of a good insulating material such as waxed paper, mica, ceramic or plastic. The insulating layer between a capacitors plates is commonly called the **Dielectric**. Its capacitance value in Farads, being fixed by the surface area of the conductive plates and the distance of separation between them. By

applying a voltage to a capacitor and measuring the charge on the plates, the ratio of the charge Q to the voltage V will give the capacitance value of the capacitor and is therefore given as: $C = Q/V$



- (i)** In which of the following forms is the energy stored in a capacitor?
a) Charge **b)** Potential
(ii) An electric charge of $425 \mu\text{C}$ is removed from a fully charged capacitor of capacitance $8.5 \mu\text{F}$. Its potential will be lowered by:
a) 75 V **b)** 100 V **c)** 85 V **d)** 50 V
(iii) When a dielectric slab is introduced between the plates of a parallel plate capacitor which remains connected to a battery then charge on the plates relative to earlier charge is:
a) more **b)** less
c) less or may be more **d)** same
(iv) A capacitor is connected across a battery and the plate separation of capacitor is increased without removing the battery, then:
a) capacitance will increase
b) charge stored will increase
c) energy stored will decrease
d) potential difference will increase
Q16. Consider two coherent sources S_1 and S_2 separated by a distance d . Let D be the distance between the screen and the plane of slits S_1 and S_2 . Light waves emitted from S_1 and S_2 reach at different points on

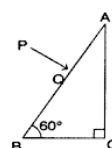


- screen by travelling different distances and hence alternate bright and dark fringes are formed on the screen. If two waves reach at a point with phase difference of even multiple of π , bright fringe will be formed and for a phase difference of odd multiple of π , dark fringe will be formed. The fringe width depends on the wavelength (λ) of light used, separation between the slits (d) and distance of slits from the screen (D).
(i) In Young's double-slit experiment, the phase difference between the light waves reaching the third bright fringe from the central fringe will be ($\lambda = 6000 \text{ \AA}$)
a) 2π **b)** 4π **c)** 6π **d)** Zero
(ii) What happens to the interference pattern the two slits S_1 and S_2 in Young's double experiment are illuminated by two independent but identical sources?
(a) The intensity of the bright fringes doubled
(b) The intensity of the bright fringes becomes four times
(c) Two sets of interference fringes overlap
(d) No interference pattern is observed
(iii) In Young's double slit experiment the distance between the slit and the screen is doubled and the separation between the slit is reduced to half. The fringe width becomes:
a) double **b)** four time
c) half **d)** remains unchanged
(iv) A double slit interference experiment is carried out in air and the entire arrangement is dipped in water. The fringe width
a) increases **b)** decreases **c)** remains unchanged. **d)** fringe pattern disappears.

SECTION-C (2 marks each)

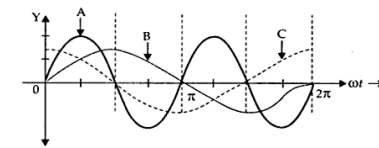
- Q17.** Derive an expression for the current density of a conductor in terms of the drift speed of electrons.
Q18. A square shaped plane coil of area 100 cm^2 of 200 turns carries a steady current of 5 A . It is placed in a uniform magnetic field of 0.2 T acting perpendicular to the plane of the coil. Calculate the torque on the coil when its plane makes an angle of 60° with the direction of the field. In which orientation will the coil be in stable equilibrium?
Q19. Define self-inductance of a coil. Show that magnetic energy required to build up the current I in a coil of self inductance L is given by $\frac{1}{2} LI^2$.
Q20. A wheel with 15 metallic spokes each 60 cm long, is rotated at 360 rev/min in a place normal to the horizontal component of earth's magnetic field. The angle of dip at that place is 60° . If the emf induced between rim of the wheel and the axle is 400 mV , calculate the horizontal component of earth's magnetic field at the place. How will the induced emf change, if the number of spokes is increased?

- Q21.** Draw a plot of potential energy of a pair of nucleons as a function of their separation. Write two important conclusions which you can draw regarding the nature of nuclear forces.
Q22. A ray PQ incident normally on the refracting face BA is refracted in the prism BAC made of material of refractive index 1.5. Complete the path of ray through the prism. From which face will the ray emerge out?
Q23. A biconvex lens has a focal length $\frac{2}{3}$ times the radius of curvature of either surface. Calculate the refractive index of lens material.
Q24. What is light emitting diode? Draw the V-I characteristic of an LED. Write the factor which controls
(a) wavelength of light emitted,
(b) intensity of light emitted by an LED.
Q25. With the help of a suitable diagram, explain the formation of depletion region in a p-n junction. How does its width change when the junction is
(i) forward biased **(ii)** reverse biased?



SECTION-D (5 marks each)

- Q26. (a)** Using Gauss' law, obtain the expression for the electric field due to an infinitely long straight conductor of linear charge density λ .
(b) A wire AB of length L has linear charge density $\lambda = kx$, where x is measured from the end A of the wire. This wire is enclosed by a Gaussian hollow surface. Find the expression for the electric flux through this surface.
Q27. A device 'X' is connected to an ac source $V = V_0 \sin \omega t$. The variation of voltage, current and power in one cycle is shown in the following graph:



- (a)** Identify the device 'X'.
(b) Which of the curves A, B and C represent the voltage, current and the power consumed in the circuit? Justify your answer.
(c) How does its impedance vary with frequency of the ac source? Show graphically.
(d) Obtain an expression for the current in the circuit and its phase relation with ac voltage.
Q28. (i) Draw a neat and labelled ray diagram of a compound microscope in distinct vision. Explain its working principle and derive magnification formula.
(ii) Why must both the objective and the eye-piece of a compound microscope have short focal lengths?

FINE-TUNE YOUR ENGLISH

PAPER SET BY FR AGNEL MULTIPURPOSE SCHOOL, VASHI, NAVI MUMBAI

SECTION-I

LANGUAGE STUDY

- Q1. A1 Do as directed (Any 4): [4]**
(1) Make a meaningful sentence of your own using the following phrase: "to get into"
(2) Find out *two* hidden words of minimum four letters from 'court-yard'
(3) Punctuate the following sentence: all of us said the man are waiting for a miracle
(4) Identify the type of sentence: Kindly leave the room.
(5) Complete the word chain of nouns: parent, table, e
A2. Do as directed (Any 4): [4]
(1) Change the following sentence into indirect speech: The Holy Quran says, "Kill not your children because of poverty."
(2) Identify the clauses and name them: I thought I had been discovered.
(3) Make a word register of 4 words (minimum 4 letter words) related to: MUSIC
B. Do as directed (Any 1): [2]
(1) Make two sentences using the word 'brush' as both noun and verb.
(2) Change the given sentence into positive and comparative degree: She is one of the most brilliant lawyers in this firm.

SECTION-II

TEXTUAL PASSAGES

- Q2. Read the following passage and do the activities:**
1. Arrange the following events in

- proper sequence: [2]
a. The king attended to the wounds of the injured man. **b.** The king dug the beds to help the hermit. **c.** The king saw that the hermit was tired. **d.** The man made peace with the king.
 "Do you not see?" replied the hermit. "If you'd not pitied my weakness yesterday and stayed to dig these beds for me, you would have gone back and been killed by that man. So the most important time was when you were digging the beds, and I was the most important man and to do me good was your most important business. Afterwards, the most important time was when you were attending to that man, for if you'd not bound his wounds, he would have died without having made peace with you. So he was the most important man and what you did for him was your most important time because it's the only time when we have any power. The most necessary person is the one with whom you are, for you do not know whether you will ever have dealings with anyone else; and the most important thing is to do this person good, because for that purpose alone were you sent into this life!"
2. Complete the following: [2]
a. Helping the hermit prevented _____
b. The most important time is _____ because _____
3. Fill in the boxes with the correct forms of the following: [2]

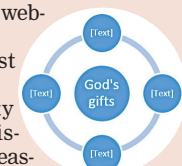
Noun	Verb	Adjective
weakness		necessary

- 4. a.** The most important time was when you attended to that man. (Change it to a Simple Sentence) [1]
b. If you'd not bound his wounds, he would have died. (Change the Voice) [1]
5. When you need advice, who do you turn to? Why? [2]

SECTION-III

POETRY

- Q3. Read the following extract and do the given activities: [5]**
1. Complete the web-chart:
 So strength first made a way;
 Then beauty flow'd, then wisdom, honour, pleasure:
 When almost all was out, God made a stay,
Perceiving that alone of all His treasures
 Rest in the bottom lay.
 For if I should (said He)
Bestow this **jewel** also on my creature,
 He would **adore** my gifts instead of me,
 And rest in Nature, not the God of Nature.
 Yet let him keep the rest,
 But keep them with **repining restlessness**:
 Let him be rich and weary, that at last,
 If goodness lead him not, yet weariness



- ness
 May toss him to my breast.
2. Why did God hold back 'rest'?
3. Pick out an example of Poetic Inversion from the above extract.

SECTION-IV

NON-TEXTUAL PASSAGE

- Q4. A Read the given passage and complete the activities given below: [5]**
1. Complete the following sentences:
a. A paper-based battery may look like _____
b. These batteries do not require _____
 Engineers in New York have invented a folded paper device that looks like a decorated art project. But don't be fooled. This is actually a paper-based battery. No, it doesn't look like any of those metal batteries running flashlights or smart-phones. This alternative to electronics is based on paper. It represents a step forward in the field of paper electronics, or papertronics. In these systems, the battery can be printed on a page. Well, most of it can: The battery's power consists of living bacteria.
 Papertronics are simple to make and inexpensive. These batteries also would be flexible and disposable. And powered by germs, they need no electrical outlet to recharge. They just need more bacteria, which can be found everywhere - includ-

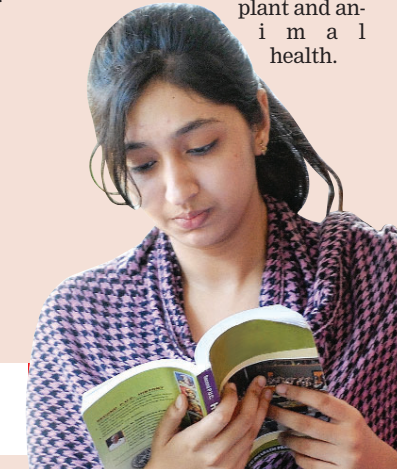
- ing in dirty water.
 Most batteries use chemicals to generate electricity. Substituting chemicals with bacteria can be an advantage. They are cheap, self-pairing and self-maintained.
2. What are paper-based batteries powered by?
3. Find synonyms of the following from the passage:
a. substitute **b.** easily modified
4. Rewrite the sentence using 'Not only... but also'
 They are cheap and self-repairing.
Summary Writing
(B) Read the above passage given in Q. No. 4 (A) and write its summary in a paragraph. Suggest a suitable title. [5]

SECTION-V

WRITING SKILL

- Q5. A** Read the following passage and make a tree diagram: [5]
 There are three major types of pollution: air pollution, water pollution and soil pollution.
 A major source of air pollution is the burning of fossil fuels. Vehicle and factory emissions are common sources of this type of air pollution. Air pollution contributes to respiratory problems such as asthma, lung cancer, chronic bronchitis, and other lung ailments. Nitrogen and sulphur oxides in the air contribute to acid rain.
 A major source of water pollu-

tion is runoff from agricultural fields, industrial sites, or urban areas. Runoff disrupts the water body's natural balance. Raw sewage is another type of water pollutant. When sewage gets into the drinking water supply, serious stomach and digestive issues may result, including the spread of diseases such as typhoid or dysentery. A third source of water pollution is trash. Improperly disposed of items, such as plastic bags, fishing line, and other materials may accumulate in the water and lead to the premature death of animals that get tangled within the garbage. Soil can become polluted by industrial sources or the improper disposal of toxic chemical substances. Common sources of soil pollution include asbestos, lead and overuse of pesticides. Soil pollution affect human, plant and animal health.



These questions are for practice only. Students are advised to check format, syllabus and marks for Board test papers with their teachers. Questions have been given by teachers and NIE is not responsible for them. Photographs taken for representative purpose only.

BOOST YOUR MOOD

IN FIVE MINUTES OR LESS

BAKE A CAKE

Warm cake fresh out of the oven is one of life's pleasures, but if you are short on time, a microwave mug cake is the answer.

Use a fork to mix four tablespoons of caster sugar, four of self-raising flour, two of cocoa powder and an egg in the biggest mug you have.

Add three tablespoons of milk, three of vegetable oil and some vanilla essence, pop it in the microwave on high for one and a half to two minutes and ping – fresh yummy cake.



If you think your feel-good reserves have been used up, here are some quick tricks to kick-start your happy hormones

GRAB A MIC

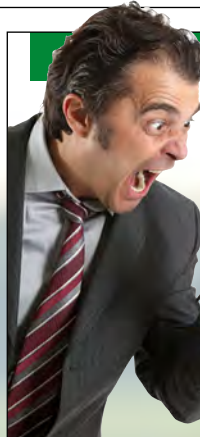


The British Academy of Sound Therapy reports that singing for pleasure can reduce stress hormones, boost dopamine and endorphins, strengthen heart and lung function and improve your mental health.

Start with a five-minute vocal warm up from YouTube, where you can also find karaoke versions of pretty much every big ballad and rock anthem going.

Perfect places to belt out a song include the shower or your car, but anywhere goes.

PUT YOUR PHONE ON TIME-OUT



Our phones are a lifeline but they are also mentally draining with all the news alerts, messages, social notifications, "doom scrolling" and needy push notifications. Make a decision to switch off the tiny tyrant and shove it in a drawer. Bunking off from being constantly connected, even if it's just for a little while, can feel like a big relief.

BUDGET THERAPY



Knowing there's a pick-me-up in the post works wonders to boost your mood.

Retail therapy doesn't have to cost a fortune, so head to your favourite online shop, set the price limit filter to a minimal and go wild.

A new highlighter, second-hand book, chocolate or a sticker to cheer up your laptop can all be found on a budget. Or send a gift to a friend and get a serotonin boost into the bargain.

MIX IT UP

University researchers in New York and Miami found new and diverse experiences are linked to enhanced happiness, but it's easier said than done when

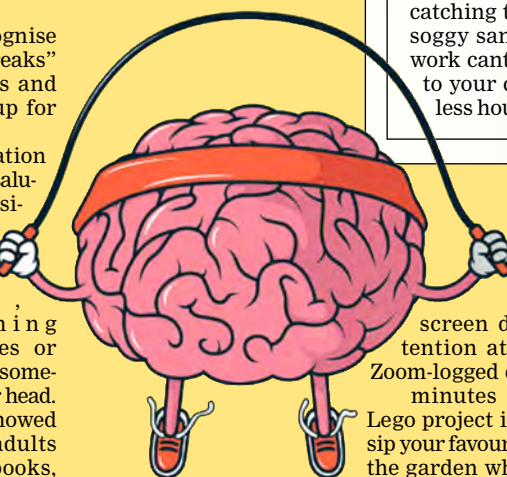
stuck indoors. Try moving furniture, pictures and plants around, work in a different room, start the day with a bath instead of a shower or eat breakfast for dinner – anything that helps change your view and break up your routine.

HAVE A BRAIN BREAK

Primary school teachers recognise the importance of "brain breaks" to help fidgety pupils focus and such breaks work as a pick-me-up for sedentary adults too.

Try crazy dancing for the duration of one song, run through a yoga sun salutation or perform a string of physical challenges like

standing on one leg, touching your toes or balancing something on your head. Barclaycard showed 44 per cent of adults buy colouring books, Lego, board games, jigsaws or action figures for



themselves. So if the television feels like yet another screen demanding attention at the end of a Zoom-logged day, spend five minutes working on a Lego project instead. Or just sip your favourite beverage in the garden while looking at the sunset. This break will energise you and also make you calm.

FIVE MINUTES OF GREEN

The beneficial effects of time spent outdoors are well-known and research by the University of Essex has shown a five-minute dose of green exercise – activity in the presence of nature – offers a greater boost to mood and self-esteem than longer periods inside.

The study also showed results were similar in urban green spaces and more rural settings, meaning a loop of the local park will do the trick.

The best destinations were waterside, so head for the sea, river, lake or your local duck pond.

Bunking off from being constantly connected can feel like a big relief.

DAILY MIRROR

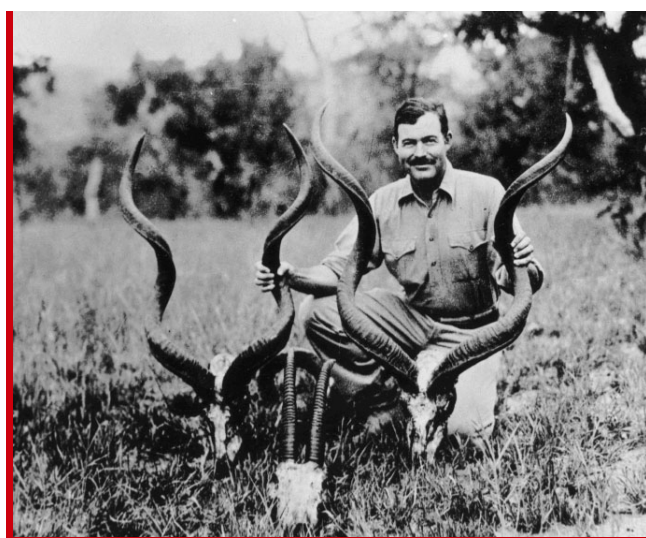
Vast archives at JFK Library help bring 'Hemingway' to life

A new Ken Burns documentary on the life of Ernest Hemingway is shedding new light on one of America's greatest writers

A new Ken Burns documentary on Ernest Hemingway powered by vast but little-known archives kept at the John F Kennedy Presidential Library and Museum in Boston is shedding new light on the acclaimed novelist.

'Hemingway,' premiered on PBS (three consecutive nights from April 5), takes a more nuanced look at the author and his long-standing reputation as an alcoholic, adventurer, outdoorsman and bullfight-loving misogynist who struggled with internal turmoil that eventually led to his death by suicide at age 61.

The truth about the man many consider America's greatest 20th-century novelist whose concise writing style made him



an outsized celebrity who became a symbol of unrepentant

American masculinity is much more complex, said Lynn Novick, who collaborated with Burns on the three-part film.

The archives contain Hemingway's manuscripts including 'The Sun Also Rises' and 'For Whom the Bell Tolls,' personal correspondence and about 11,000 photographs.

While considered the archetype of American manhood, the truth about Hemingway's masculinity was more complex, the filmmakers found. As a child, Hemingway's mother treated him and one of his sisters as twins. He explored gender fluidity both in his books and in life, letting his hair grow as his wives cropped theirs short.

Novick's favourite part of the collection were Hemingway's manuscripts, many handwritten on store-bought notebooks.



BOOK OF THE TIMES

THE FUTURE EDIT

Walter Isaacson's 'The Code Breaker: Jennifer Doudna, Gene Editing, and the Future of the Human Race' offers an interesting insight into the CRISPR technology – a tool that can edit DNA. Designer babies anyone?

In an interview with nitya.shukla@timesgroup.com and blogs.sciencemag.org, author Walter Isaacson said that three great innovation revolutions have shaped the modern world: the atom, the bit (information coded in binary digits), and the gene. He explored the first in his book 'Einstein,' through the work of famed scientist Albert Einstein; and the second in

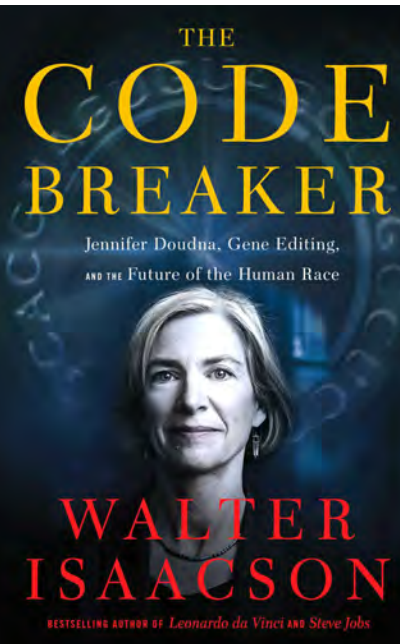
Jennifer Doudna, co-discoverer of the CRISPR gene-editing technology. According to him, this is the 'third great wave of innovation,' one where humanity is taking control of its evolutionary future.

Starting out like any traditional biography, Isaacson first sheds light on Doudna's early life. As a sixth grade student, Doudna was fascinated with 'The Double Helix,' the 1968 autobiographical account by scientist James Watson who, along with fellow scientist Francis Crick, were the first ones in the world to identify the structure of DNA, thus revolutionising biochemistry, and winning the Nobel Prize. Enthralled by the book that chronicled the intense drama behind one of humanity's most significant discoveries,

Doudna decided to pursue science. Interestingly she was advised that 'girls don't do science' by her guidance coach. Thankfully, she didn't pay any heed to that advice!

The book follows her early career moves, and her work on RNA (Ribonucleic acid) that eventually gave her a head start in the emerging bioscience field of gene editing as the co-discoverer of CRISPR. Besides explaining how the use of CRISPR is revolutionising therapies including fighting sickle cell, cancer, congenital blindness and Alzheimer's; Isaacson sheds light on the emergence of biohackers who 'want to democratise biology through citizen science'; and then, delves into moral implications of gene editing.

According to Isaacson we are now entering the a life-science revolution that will combine the existing age of digital coding with genetic coding to usher in a new kind of human. Are you ready for it?



SO, WHAT IS CRISPR?

www.livescience.org describes it as: "CRISPR technology is a simple yet powerful tool for editing genomes. It allows researchers to easily alter DNA sequences and modify gene function. Its many potential applications include correcting genetic defects, treating and preventing the spread of diseases and improving crops. However, its promise also raises ethical concerns. CRISPR stands for: Clustered Regularly Interspaced Short Palindromic Repeat

MUST WATCH: The pioneering scientist reviews how CRISPR-Cas9 works – and asks the scientific community to pause and discuss the ethics of this new tool: https://www.ted.com/talks/jennifer_doudna_how_crispr_lets_us_edit_our_dna

'Steve Jobs', which chronicled the digital revolution unleashed by pioneer Steve Jobs.

With 'The Code Breaker', Isaacson takes a deep dive into the world of gene and gene-editing tech through the work of Nobel award winning biochemist



QUIZ TIME (CURRENT AFFAIRS)

Q.1) In which year did Akbar begin his reign?

A. 1523 B. 1556 C. 1520 D. 1495

Q.2) Who wrote the book Ain-i-Akbari or the 'Constitution of Akbar'?

A. Todar Mal B. Man Singh C. Faizi D. Abul Fazl

Q.3) Who built the famous Shalimar Bagh

of Srinagar?

A. Babar B. Akbar C. Jahangir D. Shah Jahan

Q.4) Which Mughal emperor is also known as Alamgir?

A. Babar B. Jahangir C. Aurangzeb D. Humayun

Q.5) Who was the first Mughal emperor to enforce sharia law?

A. Akbar B. Aurangzeb

C. Bahadur Shah II D. Humayun

Q.6) Delhi's only woman ruler Razia Sultana belonged to which dynasty?

A. Tughlaq Dynasty B. Lodhi Dynasty C. Khilji Dynasty D. Slave Dynasty

ANSWERS

1. B) 1556 2. D) Abul Fazl 3. C) Jahangir 4. C) Aurangzeb 5. B) Aurangzeb 6. D) Slave Dynasty

KNOWLEDGE BANK

ANIMAL

Solifugae

Solifugae is an order of animals in the class Arachnida, known variously as camel spiders, wind scorpions, sun spiders or solifuges. It includes more than 1,000 described species in about 153 genera. Despite the common names, they are neither true scorpions nor true spiders. Much like a spider, the body of a solifugid has two tagmata (segments): an opisthosoma (abdomen) behind the prosoma (that is, a combined head and thorax). Most species of Solifugae live in dry climates.



PERENNIAL UNDERACHIEVERS VS THE WORLD'S BEST T20 TEAM

The first 17 days will see games being played out in Chennai and Mumbai with defending champions Mumbai Indians taking on Royal Challengers Bangalore in the opener in Chennai

IPL 2021 a great opportunity to prepare for T20 WC

- The virus has cast its shadow on the league in the build-up stage with some positive cases among both players and support staff. But with a strict bio-bubble in place for the games, the BCCI would be hoping for a smooth run just like the previous edition in the UAE. If one looks at the bigger picture, the 14th edition of IPL assumes greater significance as it is being held in a T20 World Cup year and that too in the sub-continent.
- If Virat Kohli will keep a 'Hawk Eye' on the performances of his probable list of players, it won't be any different for an Eoin Morgan or a Kieron Pollard, who would also be preparing for the mega-event while giving it their all for their respective franchises.

Why Mumbai Indians are favourites in IPL

- For Rohit, the most successful captain in the 'IPL Universe' with an unprecedented five titles, he could well walk away with a sixth trophy and the first title hat-trick of this league. Mumbai Indians, perhaps in the near two decade existence of Twenty20 format, is a side that will be remembered for its aura.
- If Rohit fails, then Quinton de Kock will certainly succeed. If both fail, Ishan Kishan and Surya Kumar Yadav could scare the daylight out of the opposition.

- And if the top-order is blown away, then the indomitable Pandya brothers (Hardik and Krunal) will be there to pummel oppositions' bowlers.

- On the outfield, Kieron Pollard will save those extra runs apart from the trademark big hits always expected of him and also bring in the change of pace suited for the Chennai track. Trent Boult, with his swing, and Rahul Chahar, with his googlies, will also test the batsmen.
- Mumbai Indians can only lose on their bad days and on good days, they are going to be a nightmare as England captain Michael Vaughan has already warned. Rohit's opposite number is the national captain, who is ready to open once again but the squad composition of RCB doesn't inspire the highest confidence.

Will Maxwell finally justify his hefty price tag?

- Glenn Maxwell has again been picked for a bomb (₹14.25) and New Zealand's Kyle Jamieson has been made an overnight multi-millionaire by the franchise despite him being untested on Indian dust-bowls. Devdutt Padikkal will be in his second season with teams analysing him way more and Yuzvendra Chahal seems to have lost his mojo.
- Mohammed Siraj and Navdeep Saini do not inspire the highest confidence in white ball cricket at least despite their gutsy performances in Australia early this year.



RCB captain Virat Kohli



MI skipper Rohit Sharma

Photo: TOI

Photo: TOI

CAN RR BURY THE GHOSTS OF 2020?

Last season's wooden spooners, RR have made some changes in management as well as the squad ahead of the new season. Sanju Samson replaced Australian Steve Smith, who was released as skipper. Coach Andrew McDonald has also gone with Sri Lankan legend Kumar Sangakkara stepping in as director of cricket. Here's a SWOT analysis of the side that will take on Punjab Kings in Mumbai on April 12

STRENGTHS

- RR boasts of a number of destructive batsmen. Jos Buttler and Ben Stokes are two match-winning players who can trample any opposition while Samson is a minefield of talent.
- South Africans David Miller and Morris are two other powerful strikers and England's T20 specialist Liam Livingstone can turn the match on its head. Last season's revelation, all-rounder Rahul Tewatia, has also showcased his ability to whack the ball outside the park.

WEAKNESSES

- For Royals, the problem is their weak Indian core which hasn't been consistent. Samson has rarely performed in five straight games in any of the editions in the past few years. Pacer

Jaydev Unadkat, bought for ₹11.5 crore in 2018, has been unable to deliver while Manan Vohra has been brilliant only on rare occasions.

- This leaves the team with youngsters, including Riyan Parag and pacer Kartik Tyagi, who has shown flashes of brilliance, Yashasvi Jaiswal and pacer Kartik Tyagi, who was also impressive.

OPPORTUNITIES

- Samson's form and consistency have always been a question mark. He has failed to capitalise on the handful of chances provided to him in T20Is. With Suryakumar Yadav and Ishan Kishan doing brilliantly on their T20 debuts, the Kerala wicketkeeper batsman's chances to make the Indian team for the World Cup have taken a hit.

- A perfect opportunity for him to prove his leadership skills and a consistent performance with the bat will significantly strengthen his case for selection for the upcoming T20 World Cups.

THREATS

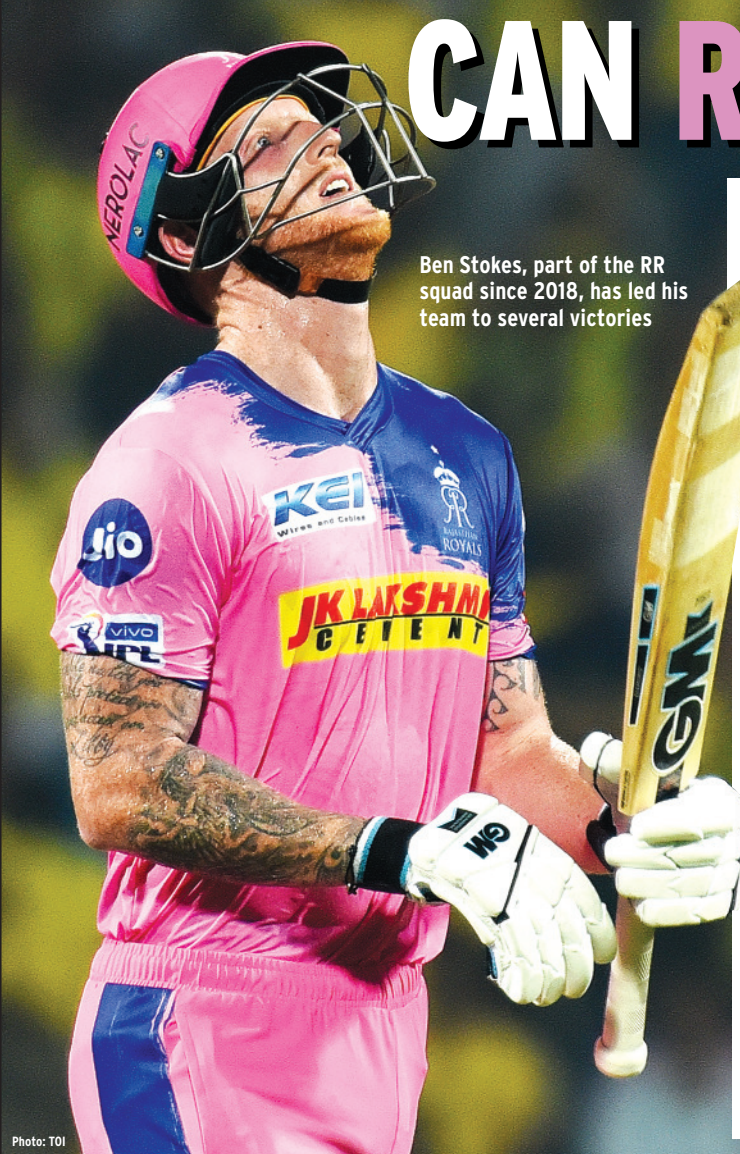
- With Samson at the helm, his lack of experience in the role and the impact that it might have on his batting are factors that must be taken into account. The flamboyant right-hander may not be able to play with the same freedom now that he is captain. His inexperience might also cost the Royals dearly in crunch situations.
- The team won matches on the back of some brilliant individual performances but struggled to work as a cohesive unit last season. Consistency will be the key.
- The team is heavily dependent on

Archer. While they have Morris to rely on, the pace attack is weak in the 26-year-old England pacer's absence. The franchise will desperately hope Archer joins the side at the earliest.

- With a weak Indian contingent, comprising several rookies and overreliance on their foreign recruits, there is real threat the Royals would once again not qualify for the playoffs.

THE SQUAD

- Sanju Samson (c & wk), Jos Buttler (wk), Ben Stokes, Yashasvi Jaiswal, Manan Vohra, Anuj Rawat, Riyan Parag, David Miller, Rahul Tewatia, Mahipal Lomror, Shreyas Gopal, Mayank Markande, Jofra Archer, Andrew Tye, Jaydev Unadkat, Kartik Tyagi, Shivam Dube, Chris Morris, Mustafizur Rahman, Chetan Sakariya, KC Cariappa, Liam Livingstone, Kuldeep Yadav, Akash Singh.



Ben Stokes, part of the RR squad since 2018, has led his team to several victories

Photo: TOI

QUIZ TIME!

Q1: Zlatan Ibrahimovic scored his 500th goal with an opener for Milan. Against which club were they playing?
 a) Ajax ☐ b) Crotone ☐
 c) Juventus ☐ d) Barcelona ☐

Q2: Against which team did Hardik Pandya make his international cricket debut?
 a) Sri Lanka ☐ b) Bangladesh ☐
 c) Pakistan ☐ d) Australia ☐

Q3: Which country did the Indian skeet team defeat

to win bronze medal at the ISSF Shotgun World Cup 2021 in Cairo?
 a) United States ☐ b) Russia ☐
 c) Australia ☐ d) Kazakhstan ☐

Q4: How many runs has Sachin Tendulkar made in his Test career?
 a) 15921 ☐ b) 15821 ☐ c) 13421 ☐ d) 13921 ☐

Q5: Who became the first woman cricketer to score 7000 runs in ODIs?
 a) Mithali Raj ☐ b) Harmanpreet Kaur ☐
 c) Smriti Mandana ☐ d) Jhulan Goswami ☐

Q6: The first hat-trick in IPL was taken by Lakshmipathy

Balaji in 2008. For which team was he playing?
 a) Chennai Super Kings ☐
 b) Royal Challengers Bengaluru ☐
 c) Kings XI Punjab ☐ d) Mumbai Indians ☐

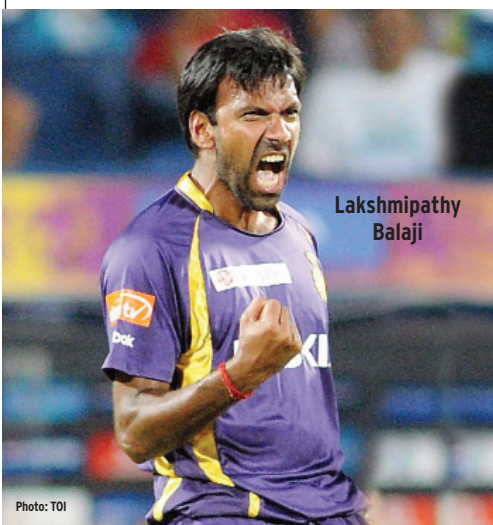


Photo: TOI

Q7: In which year did Mohammed Shami become the fastest Indian bowler to take 100 ODI wickets?
 a) 2018 ☐ b) 2017 ☐ c) 2016 ☐ d) 2019 ☐

Q8: Who is the youngest player to score a UEFA Champions League goal?
 a) Lionel Messi ☐ b) Ansu Fati ☐
 c) Cesc Fàbregas ☐ d) Karim Benzema ☐

Q9: The fastest goal scored in Premier League history came in 7.69 seconds. Who scored it?
 a) Paolo Poggi ☐ b) Shane Long ☐
 c) Rafael Leao ☐ d) Scott McTominay ☐

Q10: How many times has Andy Murray won Wimbledon?
 a) 1 ☐ b) 3 ☐ c) 2 ☐ d) 0 ☐

Q11: During his first season at Barcelona, Neymar scored a hat-trick in a UEFA Champions League game. Who was this against?
 a) Celtic ☐ b) Juventus ☐
 c) Manchester United ☐ d) Zenit Saint Petersburg ☐

ANSWERS: 1 b) Crotone 2 d) Australia 3 d) Kazakhstan 4 a) 15921 5 a) Mithali Raj 6 a) Chennai Super Kings 7 d) 2019 8 b) Ansu Fati 9 b) Shane Long 10 c) 2 11 a) Celtic