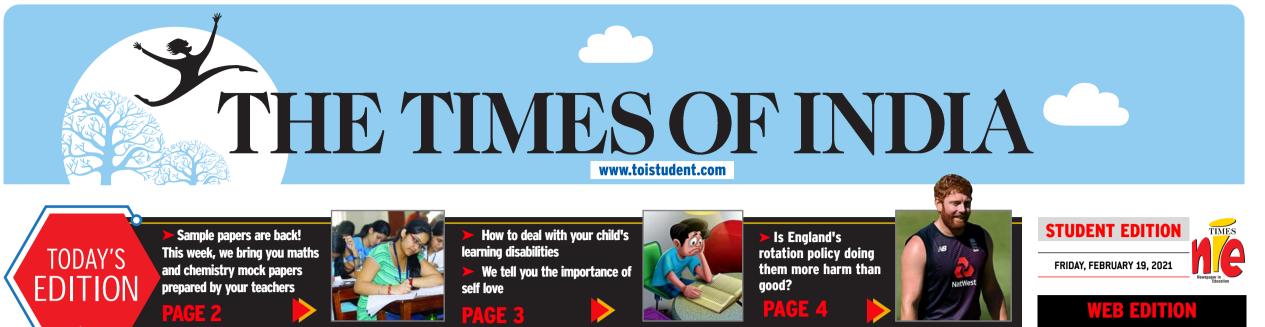
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## **CLICK HERE: PAGE 1 AND 2**



In his new book, 'How to Avoid a Climate Disaster', business magnate and philanthropist Bill Gates has given a solution to the impeding climate change disaster: Switch to synthetic meat. "I think all the rich countries should move to 100% synthetic beef," Gates said in an interview, on how to cut back on methane emissions. Synthetic meat, also known as 'cultured meat' or 'clean meat', is a type of meat, which is grown in the lab by using animal cells, instead of using the whole

animal. DID IT COME FROM: The concept of this type of cellular agriculture was popularised in the early 2000s. Later, in 2013, the first lab-grown burger patty was introduced as a proof to the concept of synthetic meat. Jason Matheny, a coauthor to a seminar paper on cultured meat production, popularised the concept of 'synthetic meat' during the early 2000s. He also launched the 'New Harvest', which is the world's first non-profit organisation to support artificial meat research.

IS SYNTHETIC MEAT MADE: Cells. According to scientists, cells, which grow to make or regenerate our body, can also be grown under the laboratory conditions to make meat. It starts with a few 'satellite' cells, which can be obtained

from a small sample of muscle taken from a

# 

A 2013 study by the UN Food and Agriculture Organisation (FAO) estimated that the total annual emissions from animal agriculture (production emissions plus land-use change) were about 14.5 per cent of all the human emissions, of which beef contributed 41 per cent

An estimated 50 billion chickens go to slaughter each year for food, excluding male chicks and unproductive egg-laying hens, according to the World Economic Forum. These chickens consume large guantities of soy and corn, which causes deforestation It is healthier than the actual meat: Health experts

are of the view that synthetic meat contains more protein and polyunsaturated fatty

acids as compared to the traditional meat. It also has lower **IS IT A** VIABLE **OPTION?** 

According to experts, the demand for alternatives to regular meat is

surging due to the concerns about health, animal welfare and the Plant-based substitutes, popularised by the likes of Beyond

environment

supermarket shelves

> But the so-called Meat, Impossible Foods and Quorn, are increasingly featuring on the mal muscle cells in a and restaurant menus In fact, some counstage, given its high tries like Singapore has production costs

the US startup 'Eat Just' the green light to sell its labgrown chicken meat, in what the firm says, is the world's first-regulatory approval for the clean meat that does not come from slaughtered animals clean or cultured meat, which is grown from anilab, is still at a nascent

given

**X-PLAINED** 

#### **INDIA-MADE IPAD COULD BE A REALITY SOON**

pple Inc is angling to participate in a new scheme to boost India's exports of computer products, part of what government and industry sources say are plans to bring iPad tablet manufacturing to the country. India launched a \$6.7 billion plan to boost smartphone exports last year, as PM Narendra Modi stepped up efforts to promote electronics manufacturing and create jobs.

Apple, which has steadily raised the production of iPhones in India to lessen its dependence on Chinese manufacturing, took part in that scheme via its contract manufacturers

Now, the government is preparing to unveil another incentive to drive local manufacturing of IT products including tablets, laptops and servers, sources said

The new performance-linked incentive (PLI) scheme, which offers cash-back to manufacturers for exports, will have a budget of up to ₹ 7,000 crore (\$964.5 million) over five years, the sources said. It's expected to be launched by the end of February

#### JUST LIKE THAT AJIT NINAN





live animal. Scientists say just one cell could, in theory, be used to grow an infinite amount of meat. When fed to a nutrient-rich serum, the cells turn into muscle cells and proliferate, doubling in number, roughly every few days. After the cells multiply, they are encouraged to form strips, much like how muscle cells form fibres in a living tissue. These fibres are attached to a sponge-like scaffold that floods the fibres with nutrients and mechanically stretches them, 'exercising' the muscle cells to increase their size and protein content. The resulting tissue can then be harvested, seasoned, cooked and consumed as boneless-processed meat.



#### WHAT ABOUT INDIA?

Experts say cultured meat may be available in India by 2025, which will allow the meat consumers to enjoy animal products without killing or harming the animal. The Humane Society International (HSI), India, has joined hands with



the Centre for Cellular and Molecular Biology (CCMB) in Hyderabad for developing lab-grown meat in India

# JEFF **AGAIN** after Elon Musk's fortune dips by \$4.6 bn

**RICHIE RICH CLUB** 

eff Bezos has reclaimed the title of the world's richest person, pushing Tesla boss Elon Musk to the second position on the Bloomberg Billionaire Index. With a fortune of \$191.2 billion, the Amazon founder is back at the top of the rich list, after being pushed to the second spot for six weeks in January 2021, owing to a continued rally in Tesla stocks. Due to the recent movement in stock prices of Amazon and Tesla, Bezos is now \$995 million richer than Musk.

> Musk displaced Bezos from the pole position last month after the latter held the position for three years The year 2021 has been eventful for the Amazon founder since his decision to step down from the position of CEO and hand over the mantle to Andy Jassy, who currently heads Amazon Web Services. Bezos transformed the company, which he started as an online bookstore in 1995 into a \$1.7 trillion global ecommerce behemoth

## **ECONOMY**

#### **MORGAN STANLEY RAISES INDIA'S GDP GROWTH FORECAST**



organ Stanley has raised India's GDP growth estiby 200basis mates points(bps) for F22 and 50bps for F23 in view of the supportive policy mix and synchronous recovery in domestic and external demand. India is on the cusp of a virtuous growth cycle, it said, adding that the policy rate hikes are expected to to start from 4Q21.

Morgan Stanley believes that the economy is at an inflection point that marks the start of a new virtuous growth cycle. It has also upgraded the estimates of India's GDP growth to 12.1 per cent for F22(from 10.1 per cent) and 6.7 per cent for F23(from 6.2 per

cent)

# made a smart helmet that has the potential to save lives and fuel... INNOVATION

of the institute, the smart helmet that works on radio frequency transmitters, is fitted with the sensors, which will automatically turn off the bike, when the stop sign glows at the traffic intersection. However, for this, the wearer of the helmet needs to be within 50 metres of the traffic signal. This will save petrol, they added

According to the students

>Explaining how the device works, the students said, the device has two transmitters and a receiver. While one transmitter is installed in the helmet, which will become active on wearing the helmet, the receiver needs to be installed in the bike. The receiver gets switched on when the bike starts and the rider wears the helmet >Simultaneously, the sec-

Now, a smart helmet that can save fuel

Students of Ashoka Institute of Technology and Management in Varanasi have

ond transmitter gets located near the intersection signal system, and as soon as the vehicle comes in contact with the transmitter engaged in the red signal, the receiver in it stops the bike, they added Moreover, in case of an

accident, the sensors installed in the helmet will send location to the police, ambulance and the family of the victim for help

## BUZZ **MAY CONSIDER RUNNING FOR PRESIDENT OF US: DWAYNE JOHNSON**

wayne 'The Rock' Johnson has opened up about whether he'd consider an eventual run for US President. "I would consider a presidential run in the future, if that's what the people wanted," he told USA Today. "Truly I mean it, and I'm not flippant in any way with my answer," Johnson added. The Jumanji star is currently promoting a new NBC series based on his life called 'Young Rock', where, in the year 2032, he launches a presidential run. In real life, the decision to run for President would be "up to the people", he said. "So I would wait, and I would listen. I would have my finger on the pulse, my ear to the ground." Guardian

mer pro-wrestler said, there was a "real possibility" that he would run for the hot seat

In the past, Johnson, who is a registered Independent, with no centrist ideologies, spoke

Back in 2017, the for- at the Republican National Convention in 2000, and attended the Democratic National Convention the same year

> More recently, Johnson endorsed President Joe Biden during his 2020 run

02

It's not that I am so smart, it's just that I stay with the problems longer. -Albert Einstein **MOCK PAPERS** 

FRIDAY, FEBRUARY 19, 2021



CLASS: XII - 2020-21

**SUBJECT:** MATHEMATICS (ISC) Time Allowed: 3 Hours

Maximum Marks: 80

```
\frac{x-6}{3} = \frac{y-7}{2} = \frac{z-7}{-2}
```

[4]

[2]

```
(OR)
Find the equation of the plane pass-
ing through the intersection of planes
3x+2y-z+1=0 and x+2y-2z+3=0 and perpendicular to the plane 2x-y-3z-4=0
```

Q22. Find the area enclosed by the parabola  $y=x^2-4x+5$  & the line y=x+1[4] (OR) Find the area enclosed by the curves  $y = \cos x$ ,  $y = \sin x$  and X axis in (0  $\pi/2$ )

#### **SECTION-C**

**Q23.** Choose the correct option: i) If the cost of producing x articles is given by  $C(x) = 3x^2 + x - 2$ , the marginal cost at x=5 is a) 32 b) 36 c) 13 d) 31

**ii)** The regression lines are x+2y=7and 3x+y=6, then  $(\overline{x}, \overline{y})$  is **a**) (1, 3) **b**) (3, 1) **c**) (6, 4) **d**) (4, 6)

Q24. Find the cost of producing 20 articles whose fixed cost is Rs.1200 if marginal cost is given by M=4x+3[1]

Q25. If the average cost function is given by A=4x+7+2/x, find the marginal cost function [1]

**Q26.** If  $b_{xy} = 0.75 \& b_{yx} = 0.6$ , find Karl Pearson's coefficient of correlation [1]

**Q27.** If the demand of a commodity is given by p=4x+5 then find Marginal revenue at x=2[2]

Q28. The marks obtained by 10 students in English and Mathematics are given below: [4]

Marks in Economics 30 23 38 41 31 32 37 44 37 40 Marks in Mathematics 37 32 33 35 24 28 39 35 40 38

Find the equation of regression line y on x

(OR) If the regression equation of x on y is given by lx-y+10=0 and the regression

#### **GENERAL INSTRUCTIONS**

a. The question paper consists of three sections A, B and C.

b. Candidates are required to attempt all questions from Section A

c. Answer all questions EITHER from Section B OR Section C

d. SECTION A: Internal choice has been provided in one question of two marks each, two questions of four marks each and two questions of six marks each. e. SECTION B: Internal choice has been provided in two questions of four marks f. SECTION C: Internal choice has been provided in two questions of four marks

#### **SECTION-A**

**Q1.** Choose the correct option: i) The domain of the function defined as *is* f (x)= sin<sup>1</sup>(2x-3) is *a*) [1 2] *b*) (1 2) *c*) *R*-(1 2) *d*) None of these ii) The value of  $\int_{1}^{1} x^3 \cos x \, dx$  is

**a)** 1 **b)** 2 **c)** 3 **d)** 0

iii) The tangent to the parabola  $y^2 = 4x$  at (9, 6) is **a)** 3x-y=21 **b)** 3x+y=33c) x - 3y + 9 = 0 d) x + 3y = 27

iv) The principle value of  $\cos^{-1}(\cos\frac{4\pi}{3})$ a)  $\frac{5\pi}{6}$  b)  $-\frac{\pi}{6}$  c)  $\frac{2\pi}{3}$  d)  $\frac{\pi}{3}$ 

**v)** If  $A = \begin{bmatrix} 0 & 3 \\ x & 0 \end{bmatrix}$  is skew symmetric, the value of *x* is **a**) 3 **b**) -3 **c**) 6 **d**) -6

vi) The order and degree of the differ-

ential equation  $\left(\frac{dy}{dx}\right)^3 + \left(\frac{d^2y}{dx^2}\right)^2 = 0$  are a and b, 2a+3b=

**a)** 5 **b)** 12 **c)** 10 **d)** 6 vii) Two balls are drawn without re-

placement from a bag containing 6 black balls and 4 red balls the probability that

#### Paper set by Raghavan Badrinath, Gitanjali School, Hyderabad



[10]

five cards are drawn at random and arranged in ascending order, find the probability that card numbered 18 is exactly in the middle

**Q4.** Solve the differential function:  $(x^2+1)\frac{dy}{dx}-2xy=0$ 

[2]

[2]

[2]

[4]

**Q5.** Evaluate:  $\int x(a-x)^{10} dx$ 

**Q6**. Find the point on the curve  $y=x^3-6x^2+12x$  -10 where the tangent is parallel to X axis [2]

**Q7.** If  $y=x^{y}$  find  $\frac{dy}{dx}$ **Q8.** If  $y=\frac{x\sin^{-1}x}{\sqrt{1-x^{2}}}$  prove that

 $(1-x^2) \ \frac{dy}{dx} = x + \frac{y}{x}$ 

**Q9.** Evaluate:  $\int \tan x \cdot \tan 2x \cdot \tan 3x \, dx$  [4]  $\int \tan^{-1} \frac{\sqrt{1+x^2}-1}{x} dx$ 

**Q10**. Show that the tangent at any point  $\theta$  to the curve  $x=a \cos\theta \& y=a \sin\theta$  is at a constant distance from the origin [4] (OR) Find the intervals in which  $f(x) = x^3 - 12x$ + 8 is increasing

**Q11.** Solve for x:  $\cos^{-1}\left(\frac{1-x}{1+x}\right) = 2$ 

<b>Q14.</b> Find $A^{-1}$ if $A = \begin{bmatrix} 1 & -2 & 3 \\ 2 & 3 & -1 \\ 1 & 1 & 1 \end{bmatrix}$ hence solve the system of linear equation $x - 2y + 3z = 6$	on
	6]
<b>Q15.</b> Evaluate: $\int \frac{3x-2}{(x+1)^2} (x+3) dx$ ( <b>OR</b> )	
	6]
SECTION-B	
<b>Q16.</b> Choose the correct option: i) The angle between vectors & $\vec{a} \ll \vec{b}$ whose magnitude are 3 and 2 respectively if $\vec{a}.\vec{b}=3$ is	ly,
a) $\frac{\pi}{2}$ b) $\frac{\pi}{3}$ c) $\frac{\pi}{4}$ d) $\frac{\pi}{6}$	

with lead would be least if h = x/2. [6]

Q13. In a bolt factory machines A, B and

C manufacture respectively 25%, 35%

and 40% of the total bolts, of their out-

put 5, 4 and 2 percent are respectively de-

fective bolts. A bolt is drawn at random

from the production at the end of the

day. If the bolt drawn is found to be defective find the probability that it is man-

[6]

[1]

ufactured by the machine B

**ii)** If the straight line l is given by  $\frac{3x-1}{3} = \frac{4-y}{5} = \frac{z+1}{2},$ then direction ratio's of line l. 

 a) (3 -5 2)
 b) (1 5 -2) c) (1 -5 2)

 d) Noneof these
 [2]

 [2]

Q17. Find the angle between the vectors

 $\vec{a} = 3\hat{i} - 2\hat{j} + 6\hat{k}, \ \vec{b} = \hat{i} + 2\hat{j} + 2\hat{k}$ 

**Q18.** Find the equation of the line parallel to the vector  $3\hat{i} + 2\hat{j} \cdot \hat{k}$  and passing through the point (3, -2, 1)[1]

**Q19.** Find the volume of the tetrahedron whose coterminous edges are [1]

 $2\hat{i}-2\hat{j}+\hat{k}, 3\hat{i}+2\hat{j}-\hat{k} \& \hat{i}+\hat{j}+\hat{k}$ 

both are black is  $a)\frac{1}{10}$   $b)\frac{2}{7}$   $c)\frac{3}{5}$   $d)\frac{1}{3}$ 

**viii)** The intervals in which  $f(x) = \sin 2x$ is increasing  $x \in \begin{pmatrix} 0 & \pi \\ 0 & n \end{pmatrix}$ 

ential equation  $x^2 \frac{dy}{dx} - xy = 2x+3$  [5] dxQ3. A die is thrown once if the outcome is greater than 4, find the probability

OR

From cards numbered from 1 to 30,

 $\begin{array}{c} \boldsymbol{a} \end{pmatrix} \begin{pmatrix} 0 & \frac{\pi}{4} \end{pmatrix} \cup \begin{pmatrix} \frac{3\pi}{4} & \pi \end{pmatrix} \quad \boldsymbol{b} \end{pmatrix} \begin{pmatrix} \frac{\pi}{4} & \frac{3\pi}{4} \end{pmatrix} \\ \boldsymbol{c} \end{pmatrix} \begin{pmatrix} \frac{\pi}{2} & \pi \end{pmatrix} \quad \boldsymbol{d} \end{pmatrix} \begin{pmatrix} \frac{\pi}{4} & \frac{\pi}{2} \end{pmatrix}$ 

ix) If the matrix 3 1 2

 $a) - 6 \ b) 3 \ c) 6 \ d) 2$ 

**Q2. i)** Find the value of  $\lim_{x \to 0} \frac{2x - x^2}{\sqrt{1 + x} - \sqrt{1 - x}}$ 

of 4 or 5

 $2x^2 - 7x + 3$ 

 $y^2 = 8x \text{ at } (2, -4)$ 

that it's a prime.

given is singular, x=

21-2

x 2 4

x) If in a set of triangles on a plane the

relation R defined as  $aRb \Leftrightarrow a \cong b$  is a) reflexive b) symmetric

c) transitive d) equivalence

ii) From cards numbered from 1 to 30

one card is drawn at random. Find the

probability the drawn card is a multiple

iii) Find the slope of normal to the curve

**iv)** Find the Range of the function f(x) =

v) Find the integrating factor of differ-

**Q12.** An open tank with a square base of side 'x' meters and vertical 'h' meters is to be constructed so as to contain 'c' cubic meters of water. Show that the expenses of lining the inside of the tank

**Q20.** Find the area of the triangle enclosed by the line 4x+3y = 12 with coordinate axes using integration [2]

**Q21.** Find the foot of the perpendicular from P (1, 2, 3) onto the line

line of y on x is given by -2x+3y=14. Determine the value of '*l*' if the coefficient of correlation is  $1/\sqrt{10}$ [4]

**Q29**. Determine graphically the minimum value of the objective function z =-50x+20v, subject to constraints  $2x-v \ge$  $-5, 3x + y \ge 3, 2x - 3y \le 12 \& x, y \ge 0$ 

SUBJECT:

**CHEMISTRY (ISC)** (2020-21) CLASS XII, TOTAL MARKS: 70

# Find the catalyst to drive scores up

(iii) Question 2 to 8

carry 2 marks each,

with two questions

having an internal

(iv) Question 9 to 15

carry 3 marks each,

with two questions

having an internal

choice.

choice.

[2]

Q1. a) Fill in the blanks by choosing the appropriate word/words from those given in the brackets:  $[4 \times 1]$ 

(increase, methanol, less, decreases, vapour, reduced, 2-iodo-2methylpropane, carbon monoxide) i) The \_\_\_\_\_ pressure of an aqueous solution of 0.1M cane sugar is than that of pure water.

ii) In blast furnace, iron oxide is to iron by

iii) 2-methoxy-2-methylpropane on heating with HI at 373 K gives and

iv) A catalytic promoter the efficiency of a catalyst whereas a catalytic poison \_ the efficiency of catalyst.

b) Select the correct alternative from the choices given:  $[4 \times 1]$ i) If a salt bridge is removed from the two half-cells, the

voltage: a) Does not change b) Drops to zero

c) increases gradually d) increases rapidly

ii) Which of the following is used as food preservative as well as antioxidant?

a) Sodium metabisulphite b) Sodium chloride

c) sodium benzoate d) BHA iii) Which of the following arrange ments represents the correct order of electron gain enthalpy (with negative sign) of the given atomic species?

a) F < Cl < O < S b) S < O < Cl < F c) Cl < F < S < O d) O < S < F < Cl

iv) Zeolites are:

a) Shape-selective catalysts b) Liquid catalysts

c) enzyme catalyst d) non-specific catalyst c) Match the following: [4×1] i) Sulphanilic acid a) covalent crystal ii) Silicon carbide b) Dow's process

c) Gattermann iii) Phenol reaction iv) Benzene

d) Zwitter ion diazonium chloride

d) Answer the following questions:  $[4 \times 2]$ 

#### PAPER SET BY RAGINI P V, M G SCHOOL FOR EXCELLENCE, BENGALURU

1) La(OH)<sup>3</sup> is more basic than

Lu(OH)3 2) Transition metals form al-

lovs ii) The complex CoBr<sub>3</sub>. 4NH<sub>3</sub>. 2H<sub>2</sub>O has molar conductivity corresponding to 3:1 electrolyte. Write the

i) Give reason:

structural formula and its IUPAC name. iii) A solution prepared by dissolving 0.30g of an unknown the compound in 30 g of CCl<sub>4</sub> has a boiling point that is 0.392°C higher than

that of pure CCl4. Calculate the molecular weight of solute.  $(K_b=5.02^{\circ}C/m)$ iv) Identify the compounds A, B, C, D in the given reaction: CH<sub>3</sub>CHO LiAlH<sub>4</sub>, A  $P+I_2$ , B

alc. KCN C  $H^+/H_2O$  D

Q2. a) For an elementary reaction,  $2X+Y \rightarrow 3Z$  the rate of disappearance of Z at time 't' is  $1.3 \times 10^4$  mol L<sup>-1</sup> s<sup>-1</sup>. Calculate at this time, [2]

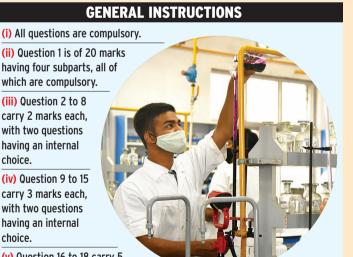
i) The rate of reaction and ii) rate of disappearance of X. OR

**b)** The decomposition of  $N_2O_5(g)$  is a first order reaction with a rate constant of  $5 \times 10^4$  s<sup>-1</sup> at  $45^{\circ}$ C. If the initial concentration of N<sub>2</sub>O<sub>5</sub> is 0.25M, calculate its concentration after 2 min. Also calculate half-life for the decomposition of  $N_2O_5$  (g).

Q3. a) What are the main constituents of Dettol? b) What class of drug is ranitidine?

Q4. How will you bring out the following conversions? a) Ethanol to ethyl fluoride [2] **b)** Propene to 1-nitropropane **Q5.** a) Name one fibrous and one globular protein. b) What do you mean by non-es-[2] sential amino acids? **Q6.** A substance is reduced to one third of its original concentration in 100 min. Calculate the time in which it will be reduced to one ninth of its original value assum-

ing first order reaction. [2]



(v) Question 16 to 18 carry 5 marks each, with an internal choice.

(vi) When solving numerical problems, use the following data: Gas constant R = 1.987 cal deg<sup>-1</sup> mol<sup>-1</sup>= 8.314 JK<sup>-1</sup> mol<sup>-1</sup>=0.0821 dm<sup>3</sup> atm K<sup>-1</sup> *mol*<sup>1</sup> 1 *l atm*=1 *dm*<sup>3</sup> *atm*=101.3J.

1 Faraday=96500 coulombs. Avogadro's number=6.023 x 1023

Q7. a) You are given benzene, conc. H<sub>2</sub>SO<sub>4</sub> and NaOH. Write the equations for the preparation of Phenol using these reagents. [2] OR

**b)** How will you obtain the follow-

ing compounds from phenol? 1) Picric acid 2) Salicylaldehyde Q8. Write the main structural differences between DNA and RNA. [2]

Q9. a) An aqueous solution freezes at 272.4 K, while pure water freezes at 273.0 K. Determine

i) The molality of the solution ii) Boiling point of the solution iii) Lowering of vapour pressure of water at 298 k

(Given: Kf= 1.86 K kg mol<sup>-1</sup>; Kb= 0.512 K kg mol<sup>-1</sup>; vapour pressure of water at 298 K=23.756 mm Hg) [3] OR

**b)** A solution of sucrose has been prepared by dissolving 68.4 g of sucrose in one kg of water. Calculate i) The vapour pressure of the solution at 298 K. ii) Osmotic pressure of the solution. iii) Freezing point of the solution.

the following:

(Given: Vapour pressure of water at 298 K = 0.024 atm; Kf for wa $ter = 1.86 \text{ K kg mol}^{-1}$ Q10. Aluminum crystallises in a

cubic close pack structure. Its metal-lic radius is 125 pm. [3] i) What is the edge length of the unit cell?

ii) How many unit cells are there in one cm<sup>3</sup> of Al? iii) What is the density? (Atomic mass of Al = 27)

Q11. Describe the role of the following: [3]

i) Depressant in the froth floatation process. ii) Silica in the extraction of Cu

from copper pyrites. iii) Cryolite in the metallurgy of Al. tivity cell was found to be  $25 \Omega$ . Cal-

Q12. For the complex [Fe (en)2Cl2]Cl identify the following: i) Name of the complex ii) Hybridisation and shape of complex iii) Magnetic behavior of the complex Q13. a) The elements of 3d transition series are given: [3] Sc Ti V Cr Mn Fe Co Ni Cu Zn Account for the following: i) Which element shows maximum

number of oxidation state? ii) Which element shows only +3 oxidation state? iii) Which element has the highest melting point?

#### OR b) Give reason:

i) Actinoid contraction is greater than the lanthanoids. ii) Ce (III) can be easily oxidized (Atomic number = 58). iii) KMnO4 forms purple coloured solution. Q14. Write balanced chemical equations: 1) Gabriel phthalimide synthesis 2) Schotten - Baumann reaction 3) Coupling reaction Q15. Write one difference in each of the following: [3] i) Multimolecular and macromolecular colloids. ii) Lyophobic and lyophilic sols. iii) Homogeneous and heterogeneous catalysis **Q16.** a) For a cell  $Zn(s)/Zn^{2+}$  (0.0004M)//Cd<sup>2+</sup>(0.2M)/Cd(s), the standard reduction potential of Zn<sup>2+</sup>/Zn and Cd<sup>2+</sup>/Cd are - 0.763V and - 0.403V respectively. [5] i) Give the cell reaction ii) What is the standard cell emf. iii) What will be the emf, E for the cell reaction at 25°C? iv) Calculate  $\Delta G$  for the cell reaction.  ${\bf v} {\boldsymbol )}$  Predict whether the cell reaction is spontaneous or not? OR b) i) The resistance of 0.5 N solu-

tion of an electrolyte in a conduc-

culate the conductance, specific conductivity and equivalent conductivity of the solution if the electrodes in the cell are 1.6 cm apart and have an area of 3.2 cm<sup>2</sup>. ii) How many hours does it take to reduce 3 moles of Fe<sup>3+</sup> to Fe<sup>2+</sup> with 2.0 A of current? **Q17.** a) Give reason for the following: 1) Thermal stability of water is greater than H<sub>2</sub>S. 2) SO<sub>2</sub> is reducing while TeO<sub>2</sub> is an oxidizing agent. 3) ClF<sub>3</sub> exists but FCl<sub>3</sub> does not. 4) White P is kept under water. 5) Noble gases have comparatively

**b) 1)** Give the structure, shape and hybridisation

i) XeF<sub>4</sub> ii) XeO<sub>3</sub> 2) Give balanced chemical equation for the fol-

Q18. a) Bring out the following

[5] 1) Formic acid to formaldehyde

3) Acetaldehyde to 2-propanol

OR b) i) How will you prepare the fol-

lowing compounds from benzene? 1) Benzaldehvde 2) Acetophenone

Give one chemical test to distinguish between the following pairs of compounds: 1) Phenol and benzoic acid 2) Acetaldehvde and acetone

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

large atomic sizes. OR of: lowing: i) Action of conc. H<sub>2</sub>SO<sub>4</sub> on NaCl in the presence of MnO<sub>2</sub>. ii) Copper reacts with hot concentrated nitric acid conversions: 2) Benzovl chloride to benzaldehvde

## CLICK HERE: PAGE 3 AND 4

# **FAMILY TIME**

"Life is short, but there is always time enough for courtesy." **RALPH WALDO EMERSON, POET** 

FRIDAY, FEBRUARY 19, 2021

your child is trying his best to learn certain skills but is not able to keep up with his peers, it's important to find out why. Does he/she have a learning disability (LD) or is he/she just taking time to reach childhood milestones. If your child has a LD, the sooner you know, the sooner you can get help. Psychologist Seema Agarwal who also consults on Practo, lists down what parents of children with learning disabilities should know.



#### WHAT IS A LEARNING DISABILITY?

Learning disability is a term used to describe a range of learning problems. These problems have to do with the way the brain gets, uses, stores, and sends out information; around 15 per cent of children have LD. Children with LDs may have trouble with the following

skills: reading, writing, listening, speaking, reasoning and math. The most common type of LD is a 'reading disorder'. However, a child does not have an LD if learning problems are due to another cause, such as attention deficit/hyperactivity.



### **IS THERE A CURE?**

There is no single cure for this but there are many things that can be done to help children overcome their LD and live successful lives.

Be cautious of people and groups who claim to have simple answers or solutions. You may hear about eye exercises, body movements, special diets, vitamins, and

nutritional supplements. There's no good evidence that these work.

causes aren't always known, but in many cases it's genetic. Other factors include low birth weight and prematurity, or an injury or illness during childhood (for example, head injury, lead poisoning, a childhood illness, etc).

#### **WHO CAN HELP?**

If you're concerned that your child may have LD, talk with your child's teacher and psychologist.

C

education specialists can perform screening or evaluation tests to determine if there's a problem. Most children who have problems learning can reach their goals by developing different ways of learning with

Teachers and other

How to deal with your child's learning disabilities

One of the best ways to deal with learning disabilities is to identify them early so that you can address them with love, support and special teaching techniques

SIGNS OF LEARNING DISABILITY

03

LDs aren't always obvious. However, there are some signs that could mean your child needs help. Bear in mind that children develop and learn at different rates. Let your child's psychologist know if your child shows any of the following signs:

Preschool children (who may later develop LDs) may have:

Delays in language development. By the age of three, vour child should be able to talk in phrases or short sentences.

Trouble with speech. By three, your child should Speak well enough so that adults can understand most of what he/she says.

Trouble learning colours, shapes, letters, and numbers.

**5** Trouble rhyming words.

Short attention span. Between three and five years O of age, your child should be able to sit still and listen to a short story. As your child gets older, he/she should be able to pay attention for a longer time.

SCHOOL-AGED CHILDREN AND TEENS WITH LDS MAY FIND IT DIFFICULT TO: 1. Follow directions. 2. Get and stay organised at home and school.

- 3. Understand verbal directions. 4. Learn facts and remember information.
- 5. Read, spell, or sound out words. 6. Write clearly (may have poor handwriting).

#### WAYS TO HELP YOUR **CHILD**

Focus on strengths. All children have special talents as well as weaknesses. Find your child's strengths and help him/her learn to use them. Praise when the child does a task well.

#### **DEVELOP SOCIAL AND EMOTIONAL SKILLS**

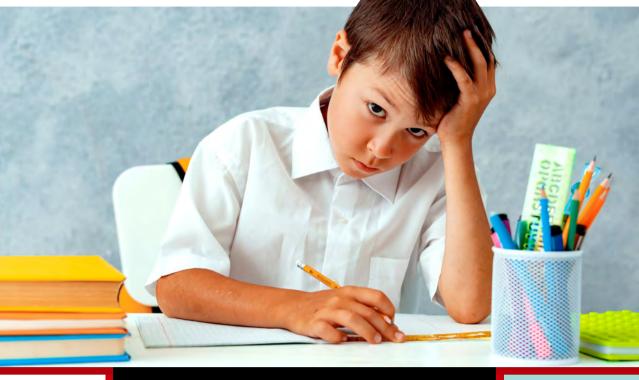
LDs combined with the challenges of growing up can make your child sad, angry or withdrawn. Help your child by providing love and support while acknowledging that learning is hard because his/her brain learns in a different way. Try to find clubs, teams that focus on friendship and fun - to help build confidence.

#### PLAN FOR THE FUTURE You can help your child plan for adulthood help and support.

by encouraging him/her to consider their strengths and interests when making education/career choices. There are special career and vocational programmes that teach decision-making and job skills. Many colleges also have programs designed for students with LDs.

#### REMEMBER

Children with learning disabilities can learn and succeed if they get the right



**WHAT CAUSES LEARNING DISABILITIES?** There can be many possible causes. The

# It's time for

the help of special educational services.

If you want a successful and long-lasting friendship, learn to have a healthy selfimage and love yourself first. People who love themselves are less likely to suffer from anxiety or depression; self-love also paves the way for a positive mindset, which is an essential ingredient for success in life and for mental wellbeing. Read on...

#### Sense of trust and selfconfidence

Activities BOX

Just as air, food, water and shelter are essential for our physical well-being, friendships sustain our emotional well-being. A healthy relationship provides a sense of being safe and cared for in the presence of another. Unfortunately, everyone experiences some form of trauma in relationships in our early years. As children, we tend to believe that adults know better and therefore, if something goes wrong, we blame ourselves. Unfortunately, this unconscious programming carries and honoured, and the emotional envi-

left years if unchecked. Which is why, we often grow up **LEARN TO LIKE** with low self-confidence and/or self-worth issues. In terms of be-

haviour, these manifest as abandonment issues or trust issues as well. It is most important to have the greatest relationship with yourself first. You need to believe that you are a good human being, that you are worthy of being cherished

#### PUT YOURSELF FIRST

therapist to see you

results.

well

into our adult

on

**BE BRAVE:** Identify where FRIEND: Treat yourself like you're hurting. If you think you would want your best you need professional help friend to treat you. about self worth: Talk to a Lovingly.

#### **HOPE & JOY: HAVE FAITH**

through this. **GIVE:** yourself time. Don't be hasty to see **BE YOUR OWN BEST** 

YOURSELF

A victim-like whining or blaming approach is what will keep you down. Only genuine hope and joy will see you through.

#### A. Helen B. Jupiter Q.4) Who said IPL (MIXED BAG) IND TEASERS D. Corona C. Fani 2019 is a stepping Q.1) When did **C.** April 16, 1900 stone for the ensuina Q.3) How much of **D.** April 16, 1866 World Cup? India's passenger the human body is train services take A. Sourav Ganguly made up of water? B. David Warner Q.2) What is the off in India? **A.** 10% **B.** 60% C. Ravi Shastri name of the cyclone A. April 16, 1853 **C.** 30% **D.** 90% D. Rashid Khan that is likely to hit **B.** April 16, ANSWERS **Odisha and Kerala** 1962 in a day or two? 1. B) April 16,1853 2. C) Fani 3. B) 60% 4. B) David Warner

ronment around you is always safe. Your beliefs actually create your relationships and not the other way around as is commonly misunderstood. This is why it is extremely important to first have a healthy self-image.

#### Get your

confidence going Every person has some is-

sue that they are either working on, or have temporarily set aside because they feel it is something they are not prepared to deal with yet, or are completely unaware that they are carrying with them. Whatever be the case, this is what leads to that uneasy lack of confidence within.

#### Only you completes you

Only when you are a whole person can you bring wholesomeness to the table. When we look for completion in others be it a friend or a classmate, we end up being hurt in the bargain because of an unrealistic expectation. This in turn causes us to blame or criticise ourselves, or adopt the victim-based 'poor me' approach. Both of which are only hurtful to ourselves. When you have good selfworth, you find it easy to forgive yourself for your mistakes, because your inherent belief that you are actually a good person is what withstands the tests of time.

# REIMAGINING THE FUTURE OF EDUCATION.

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04

"The difference between the impossible and the possible lies in determination." Usain Bolt, Jamaican Sprinter

# SIMPLY SPORTS

FRIDAY, FEBRUARY 19, 2021

# **ROTATION POLICY** DEFIES LOGIC?

As if their comprehensive defeat in the second test against India was not bad enough, England's rigid rotation policy has now prompted complaints that test cricket is no more their priority. England have maintained the rotation policy was aimed at limiting a player's time in bio-secure bubbles

## **'WHY BUTTLER AND BAIRSTOW** WERE NOT RESTED FROM THE TWENTY20 MATCHES INSTEAD?'

- The team under Joe Root had embarked on their Asia tour by leaving out speedster Jofra Archer and all-rounder Ben Stokes for the Sri Lanka leg as part of their policy to keep multi-format players fresh. Jonny Bairstow, Sam Curran and Mark Wood were rested for the first two tests against India after England's 2-0 sweep in Sri Lanka.
- Jos Buttler returned home after the first match in India and Moeen Ali was granted leave after playing the second test in which he was England's most successful bowler as well as their second-innings top scorer. Moeen will rejoin the team in India ahead of the fivematch Twenty20 series next month but former England captain Michael Vaughan questioned the tinkering with the squad.
- Vaughan questioned why Buttler and Bairstow were not rested from the Twenty20 matches instead. "I just feel sorry for Joe Root," Vaughan wrote. "I don't know what

but if I was Test captain I would not be agreeing to it. I want my best team playing every game this year."

All the same, England's Twenty20 preference would be understandable considering they will return to India later this year chasing a second 20-overs World Cup title.

Vaughan's former teammate Kevin Pietersen and Australia spin great Shane Warne were also baffled by England's handling of their players. Warne tweeted, questioning "why England decided to rest players with 7/8 (days) till the next one. Is that not enough time to recover? Needed 2 weeks? Really?"

The third test, a day-night game, begins in Ahmedabad on Feb. 24. Root has no complaints with the squad at his disposal though. "I think we've got some wonderfully talented players and a squad of players that is more than capable of winning here," he said after Tuesday's loss After 2019 we were told England's priority would be winning back the Ashes. But in four Test matches this year they have already used 19 players. That to me, shows Test cricket is not the priority. MICHAEL VAUGHAN, former England captain



Photo: GETTY IMAGES

I think the rotation policy is something we need to get on with and make it work as best as we can. People do need to see their families, we are trying to make life for our players as comfortable as possible. We just need to make it work, people need to spend some time with their families. We prioritise Tests and T2Os equally, T2O World Cup is here in India, but we need to make sure that everyone

stays in top form, and in order to do that, we need to rotate players and look after them. I can guarantee you we are not prioritising anything above Test cricket.

CHRIS SILVERWOOD, England head coach

#### INCONSISTENCY IN SPIN DEPARTMENT BIGGEST ISSUE FOR ENG: NASSER HUSSAIN

England need not moan about the condition of Indian pitches and instead rectify inconsistency in their spin department if they want positive results in the remaining two Tests against India, feels former captain Naseer Hussain. "If you compare that to how India's two spinners bowled and the control of Ravichandran Ashwin, they didn't do anything magical, they just jammed it in there ball after ball," said the 51-yearold Hussain, who played 96 Tests between 1990 and 2004. "If you're asking me the main reason why England lost the Test match, I would say if you look at India's main two spinners – Ashwin and Axar Patel – they were more consistent than the England spinners," he added. FTI

Mark Wood (in pic), Jonny Bairstow have been added to England squad for 3rd Test against India Chris Mori

(RR)

₹16.25

Cr

South African pacer Chris Morris, who was released by Royal Challengers Bangalore ahead of IPL 2021 mini-auction, created history by becoming the most expensive player in the history of IPL. Morris surpassed Yuvraj Singh (₹16 cr) to become the costliest player in IPL auction history

#### OTHER NOTABLE SIGNINGS GLENN MAXWELL (RCB) - ₹14.25 Cr JHYE RICHARDSON (PK) - ₹14 Cr K GOWTHAM (CSK) - ₹9.25 Cr RILEY MEREDITH (CSK) - ₹8 Cr

- MOEEN ALI (CSK) ₹7 Cr
- SHAHRUKH KHAN (CSK) ₹5.25 Cr
- **SHIVAM DUBE** (RR) ₹4.4 Cr
- ADAM MILNE (MI) ₹3.20 Cr
   \*As per latest reports before going to print

AU American 22nd se first Grand Slam Czech Karolina Australian Ope Iaster Muchova points off Brady's raced to a 30-0 lea point at 40-15. Ho next three points

**BRADY TO FACE OSAKA IN** AUSTRALIAN OPEN FINAL

American 22nd seed Jennifer Brady reached her first Grand Slam final after beating 25th seed Czech Karolina Muchova 6-4, 3-6, 6-4 in an Australian Open semi-final encounter that lasted nearly two hours

he faces Naomi Osaka in the final as the Japanese beat 23-time Grand Slam champion Serena Williams earlier in the day. Muchova saved as many as five match points off Brady's serve in the final game. Brady raced to a 30-0 lead and then got to her first match point at 40-15. However, Muchova then won the next three points consecutively before Brady held to make it deuce for the first time in the game. The pair then exchanged advantages over the next nine points before Muchova hit a return long, giving Brady the victory. IANS I can't feel my legs right now. They're shaking, my heart is racing. After the first set, I thought to myself, 'let's focus Jenny.' I actually felt strange when I came out, I was excited but also a bit flat-footed. I don't think I had that much intensity in the beginning of the match, but that improved over time.

I think it will be a really tough match against Naomi Osaka. She's won a few Grand Slams, and we had a really great battle at the US Open, in the semi-final. I'm just going to hang with my team now, spend some quality time, do some recovery work and have a good gym session. I'm going to be a bit nervous tomorrow, but also very excited. JENNIFER BRADY

QUIZ TIME!

noto: GETTY IMAGES

Q1. After Muttiah Muralitharan, which player has won the most Player of the Series awards in Test cricket? a) Shane Warne D b) Richard Hadlee C c) Imran Khan D d) Jacques Kallis D

Q2: In which year did Serena williams complete her career singles Grand Slam with a win over sister Venus in the Australian Open final? a) 2002 b) 2003 c) 2004 d) 2005 d

Q3. In 2012, which player's record did Brendon

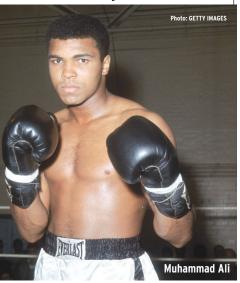
McCullum surpass for highest score in ICC Men's T20 World Cup? a) Chris Gayle () b) Tamim Iqbal () c) Alex Hales () d) Ahmed Shehzad ()

Jennifer Brady

Q4. Birgit Fischer has won four silver and \_\_\_\_ gold Olympic medals in her 24-year kayaking career? a) Five D b) Six D c) Seven D d) Eight D

Q5. After Sachin Tendulkar, which player has won the most Player of the Match awards in One Day Internationals?

a) Jacques Kallis 🗅 b) Virat Kohli 🗅 c) Sanath Jayasuriya 🗅 d) Ricky Ponting 🖵 Q6. In 1964, Muhammad Ali won the heavyweight World Championship for the first time after beating which boxer?



a) Sonny Liston 🗋 b) George Foreman 🖵 c) Floyd Patterson 📮 d) Joe Frazier 🖵

Q7. Which cricketer has played most matches in ICC Men's T20 World Cup? a) Shahid Afridi D b) MS Dhoni D c) Tillakaratne Dilshan D d) Mahela Jayawardene D

**Q8**. In which year did Rafael Nadal win his first French Open title? a) 2004 D b) 2005 D c) 2006 D d) 2007 D

Q9. Who won the 2010 NBA Coach of the Year award? a) Scott Brooks (a) b) Mike Brown (a) c) Byron Scott 🖵 d) Tom Thibodeau 🖵

Q10. After Virat Kohli, which Indian player has made the fastest 1000 runs in T20 Internationals? a) KL Rahul b) Rohit Sharma c c) Shikhar Dhawan d) Virat Kohli c

Q11. In which year did Simona Halep reach the final of the French Open, her first Grand Slam final? a) 2013 b) 2014 c) 2015 d) 2016 c

ANSWERS: 1 d) Jacques Kallis 2 b) 2003 3 a) Chris Gayle 4 d) Eight 5 c) Sanath Jayasuriya 6 a) Sonny Liston 7 c) Tillakaratne Dilshan 8 b) 2005 9 a) Scott Brooks 10 a) KL Rahul 11 b) 2014