



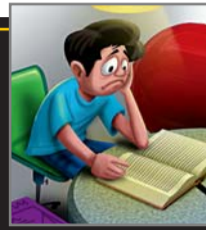
# THE TIMES OF INDIA

[www.toistudent.com](http://www.toistudent.com)
**TODAY'S  
EDITION**

➤ Sample papers are back!  
This week, we bring you maths  
and chemistry mock papers  
prepared by your teachers  
**PAGE 2**



➤ How to deal with your child's  
learning disabilities  
➤ We tell you the importance of  
self love  
**PAGE 3**



➤ Is England's  
rotation policy doing  
them more harm than  
good?  
**PAGE 4**


**STUDENT EDITION**

FRIDAY, FEBRUARY 19, 2021


**WEB EDITION**

CLICK HERE: PAGE 1 AND 2

## Synthetic MEAT

**WHAT**
**WHERE**
**HOW**

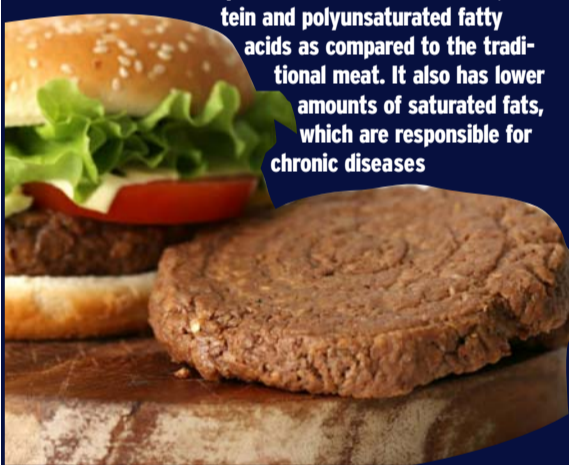
In his new book, 'How to Avoid a Climate Disaster', business magnate and philanthropist Bill Gates has given a solution to the impending climate change disaster: **Switch to synthetic meat.** "I think all the rich countries should move to 100% synthetic beef," Gates said in an interview, on how to cut 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 co-author 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 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.

### WHY SYNTHETIC?

- 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 quantities 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 amounts of saturated fats, which are responsible for chronic diseases


**X-PLAINED**

### IS IT A VIABLE OPTION?

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

surg- ing due to the concerns about health, animal welfare and the environment  
➤ Plant-based substitutes, popularised by the likes of Beyond Meat, Impossible Foods and Quorn, are increasingly featuring on the supermarket shelves and restaurant menus  
➤ In fact, some countries like Singapore has

given the US start-up 'Eat Just' the green light to sell its lab-grown 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  
➤ But the so-called clean or cultured meat, which is grown from animal muscle cells in a lab, is still at a nascent stage, given its high production costs

### 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 BEZOS IS WORLD'S RICHEST MAN AGAIN after Elon Musk's fortune dips by \$4.6 bn

**RICHIE RICH CLUB**

**J**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 e-commerce behemoth

### ECONOMY

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



**M**organ Stanley has raised India's GDP growth estimates by 200basis 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 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)



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

**BUZZ**

**D**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

**1** Back in 2017, the former pro-wrestler said, there was a "real possibility" that he would run for the hot seat

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

at the Republican National Convention in 2000, and attended the Democratic National Convention the same year

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

### Now, a smart helmet that can save fuel

Students of Ashoka Institute of Technology and Management in Varanasi have made a smart helmet that has the potential to save lives and fuel...

#### INNOVATION



representational pic

➤According to the students 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

➤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-

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

**Fuel hike car pools**
**JUST LIKE THAT** AJIT NINAN


# CONQUER MATH WITH PRACTICE AND SPEED



CLASS: XII - 2020-21

SUBJECT:

MATHEMATICS (ISC)

Time Allowed: 3 Hours

Maximum Marks: 80

## GENERAL INSTRUCTIONS

- The question paper consists of three sections A, B and C.
- Candidates are required to attempt all questions from Section A
- Answer all questions EITHER from Section B OR Section C
- 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.
- SECTION B: Internal choice has been provided in two questions of four marks
- 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  $f(x) = \sin^{-1}(2x-3)$  is  
 a)  $[1, 2]$  b)  $(1, 2)$   
 c)  $R - (1, 2)$  d) None of these
- ii) The value of  $\int_1^2 x^2 \cos x \, dx$  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)  $3x + y = 33$   
 c)  $x - 3y + 9 = 0$  d)  $x + 3y = 27$
- iv) The principle value of  $\cos^{-1}(\cos \frac{4\pi}{3})$  is  
 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 differential equation  $(\frac{dy}{dx})^3 + (\frac{d^2y}{dx^2})^2 = 0$  are  $a$  and  $b$ ,  $2a+3b =$   
 a) 5 b) 12 c) 10 d) 6
- vii) Two balls are drawn without replacement from a bag containing 6 black balls and 4 red balls the probability that 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  $x \in (0, \frac{\pi}{2})$

Paper set by Raghavan Badrinath, Gitanjali School, Hyderabad



$$a) \left(0, \frac{\pi}{4}\right) \cup \left(\frac{3\pi}{4}, \pi\right) \quad b) \left(\frac{\pi}{4}, \frac{3\pi}{4}\right)$$

$$c) \left(\frac{\pi}{2}, \pi\right) \quad d) \left(\frac{\pi}{2}, \frac{\pi}{4}\right)$$

ix) If the matrix  $\begin{bmatrix} 2 & 1 & -2 \\ 3 & 1 & 2 \\ x & 2 & 4 \end{bmatrix}$  given is singular,  $x =$   
 a) -6 b) 3 c) 6 d) 2

x) If in a set of triangles on a plane the relation R defined as  $aRb \Leftrightarrow a \equiv b$  is  
 a) reflexive b) symmetric  
 c) transitive d) equivalence [10]

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

ii) From cards numbered from 1 to 30 one card is drawn at random. Find the probability the drawn card is a multiple of 4 or 5

iii) Find the slope of normal to the curve  $y^2 = 8x$  at (2, -4)

iv) Find the Range of the function  $f(x) = 2x^2 - 7x + 3$

v) Find the integrating factor of differential equation  $x^2 \frac{dy}{dx} - xy = 2x + 3$  [5]

**Q3.** A die is thrown once if the outcome is greater than 4, find the probability that it's a prime. [2]

OR

From cards numbered from 1 to 30,

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]

**Q5.** Evaluate:  $\int_0^a x(a-x)^n \, dx$  [2]

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

**Q7.** If  $y = x^e$  find  $\frac{dy}{dx}$  [2]

**Q8.** If  $y = \frac{x \sin^{-1} x}{\sqrt{1-x^2}}$  prove that  $(1-x^2) \frac{dy}{dx} = x + \frac{y}{x}$  [4]

**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  $x = a \cos \theta$  and  $y = a \sin \theta$  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  $x$ :  $\cos^{-1} \left( \frac{1-x}{1+x} \right) = 2$  [4]

**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

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 output 5, 4 and 2 percent are respectively defective 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 manufactured by the machine B [6]

**Q14.** 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  
 $x - 2y + 3z = 6$   
 $2x + 3y - z = 5$   
 $x + y + z = 6$  [6]

**Q15.** Evaluate:  $\int \frac{3x-2}{(x+1)^2(x+3)} \, dx$   
 (OR)  
 $\int \frac{x + \sin x}{1 + \cos x} \, dx$  [6]

## SECTION-B

**Q16. Choose the correct option:**  
 i) The angle between vectors  $\vec{a}$  &  $\vec{b}$  whose magnitude are 3 and 2 respectively, if  $\vec{a} \cdot \vec{b} = 3$  is  
 a)  $\frac{\pi}{2}$  b)  $\frac{\pi}{3}$  c)  $\frac{\pi}{4}$  d)  $\frac{\pi}{6}$

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) None of these [2]

**Q17.** Find the angle between the vectors  $\vec{a} = 3\hat{i} - 2\hat{j} + 6\hat{k}$ ,  $\vec{b} = \hat{i} + 2\hat{j} + 2\hat{k}$  [1]

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

**Q19.** Find the volume of the tetrahedron whose coterminal edges are  $2\hat{i} - 2\hat{j} + \hat{k}$ ,  $3\hat{i} + 2\hat{j} - \hat{k}$  &  $\hat{i} + \hat{j} + \hat{k}$  [1]

**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

$$\frac{x-6}{3} = \frac{y-7}{2} = \frac{z-7}{-2} \quad [4]$$

(OR)

Find the equation of the plane passing 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  $x + 2y = 7$  and  $3x + y = 6$ , then  $(\bar{x}, \bar{y})$  is  
 a) (1, 3) b) (3, 1) c) (6, 4) d) (4, 6) [2]

**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 line of  $y$  on  $x$  is given by  $-2x + 3y = 14$ .

Determine the value of ' $r$ ' if the coefficient of correlation is  $1/\sqrt{10}$  [4]

**Q29.** Determine graphically the minimum value of the objective function  $z = -50x + 20y$ , subject to constraints  $2x - y \geq -5$ ,  $3x + y \geq 3$ ,  $2x - 3y \leq 12$  &  $x, y \geq 0$  [4]

# Find the catalyst to drive scores up

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

## GENERAL INSTRUCTIONS

(i) All questions are compulsory.

(ii) Question 1 is of 20 marks having four subparts, all of which are compulsory.

(iii) Question 2 to 8 carry 2 marks each, with two questions having an internal choice.

(iv) Question 9 to 15 carry 3 marks each, with two questions having an internal choice.

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

(vi) When solving numerical problems, use the following data:  
 Gas constant  $R = 1.987 \text{ cal deg}^{-1} \text{ mol}^{-1} = 8.314 \text{ JK}^{-1} \text{ mol}^{-1} = 0.0821 \text{ dm}^3 \text{ atm K}^{-1} \text{ mol}^{-1}$   
 $1 \text{ atm} = 1 \text{ dm}^3 \text{ atm} = 101.3 \text{ kJ}$   
 $1 \text{ Faraday} = 96500 \text{ coulombs}$ . Avogadro's number  $= 6.023 \times 10^{23}$

**Q7. a)** You are given benzene, conc.  $\text{H}_2\text{SO}_4$  and  $\text{NaOH}$ . Write the equations for the preparation of Phenol using these reagents. [2]

(OR)

**b)** How will you obtain the following 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  $272.4 \text{ K}$ , while pure water freezes at  $273.0 \text{ K}$ . Determine  
 i) The molality of the solution  
 ii) Boiling point of the solution  
 iii) Lowering of vapour pressure of water at  $298 \text{ K}$   
 (Given:  $K_f = 1.86 \text{ K kg mol}^{-1}$ ;  $K_b = 0.512 \text{ K kg mol}^{-1}$ ; vapour pressure of water at  $298 \text{ K} = 23.756 \text{ mm Hg}$ ) [3]

(OR)

**b)** A solution of sucrose has been prepared by dissolving  $68.4 \text{ g}$  of sucrose in one kg of water. Calculate

the following:

i) The vapour pressure of the solution at  $298 \text{ K}$ .

ii) Osmotic pressure of the solution.

iii) Freezing point of the solution. (Given: Vapour pressure of water at  $298 \text{ K} = 0.024 \text{ atm}$ ;  $K_f$  for water  $= 1.86 \text{ K kg mol}^{-1}$ )

**Q10.** Aluminum crystallises in a cubic close pack structure. Its metallic radius is  $125 \text{ pm}$ .  
 i) What is the edge length of the unit cell?  
 ii) How many unit cells are there in one  $\text{cm}^3$  of Al?  
 iii) What is the density? (Atomic mass of Al = 27)

**Q11.** Describe the role of the following:  
 i) Depressant in the froth floatation process.  
 ii) Silica in the extraction of Cu from copper pyrites.  
 iii) Cryolite in the metallurgy of Al.

**Q12.** For the complex  $[\text{Fe}(\text{en})_2\text{Cl}_2]\text{Cl}$  identify the following: [3]

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)  $\text{KMnO}_4$  forms purple coloured solution.

**Q14.** Write balanced chemical equations: [3]

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  $\text{Zn(s)}/\text{Zn}^{2+}(0.0004\text{M})//\text{Cd}^{2+}(0.2\text{M})/\text{Cd(s)}$ , the standard reduction potential of  $\text{Zn}^{2+}/\text{Zn}$  and  $\text{Cd}^{2+}/\text{Cd}$  are -0.763V and -0.403V respectively. [5]

i) Give the cell reaction

ii) What is the standard cell emf,  $E^\circ$ ?

iii) What will be the emf,  $E$  for the cell reaction at  $25^\circ\text{C}$ ?

iv) Calculate  $\Delta G$  for the cell reaction.

v) Predict whether the cell reaction is spontaneous or not?

(OR)

**b) i)** The resistance of  $0.5 \text{ N}$  solution of an electrolyte in a conductivity cell was found to be  $25 \Omega$ . Cal-

culate the conductance, specific conductivity and equivalent conductivity of the solution if the electrodes in the cell are  $1.6 \text{ cm}$  apart and have an area of  $3.2 \text{ cm}^2$ .

ii) How many hours does it take to reduce 3 moles of  $\text{Fe}^{3+}$  to  $\text{Fe}^{2+}$  with  $2.0 \text{ A}$  of current?

**Q17. a) Give reason for the following:** [5]

1) Thermal stability of water is greater than  $\text{H}_2\text{S}$ .

2)  $\text{SO}_2$  is reducing while  $\text{TeO}_2$  is an oxidizing agent.

3)  $\text{ClF}_3$  exists but  $\text{FCl}_3$  does not.

4) White P is kept under water.

5) Noble gases have comparatively large atomic sizes.

(OR)

**b) i)** Give the structure, shape and hybridisation of:

i)  $\text{XeF}_4$  ii)  $\text{XeO}_3$

2) Give balanced chemical equation for the following:

i) Action of conc.  $\text{H}_2\text{SO}_4$  on  $\text{NaCl}$  in the presence of  $\text{MnO}_2$ .

ii) Copper reacts with hot concentrated nitric acid

**Q18. a)** Bring out the following conversions: [5]

1) Formic acid to formaldehyde

2) Benzoyl chloride to benzaldehyde

3) Acetaldehyde to 2-propanol

(OR)

**b) i)** How will you prepare the following compounds from benzene?

1) Benzaldehyde

2) Acetophenone

Give one chemical test to distinguish between the following pairs of compounds:

1) Phenol and benzoic acid

2) Acetaldehyde and acetone

These questions are meant for practice purpose 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.





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

# 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 five-match 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 is going on behind the scenes

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 in Chennai.

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: ANI

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 T20s equally, T20 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



Photo: GETTY IMAGES

## 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-year-old 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.

## MORRIS becomes most expensive signing in IPL auction history

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



Jennifer Brady

## 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

She 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.

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**

Photo: GETTY IMAGES

## QUIZ TIME!

**Q1:** After Muttiah Muralitharan, which player has won the most Player of the Series awards in Test cricket?

- a) Shane Warne ☐ b) Richard Hadlee ☐  
c) Imran Khan ☐ d) Jacques Kallis ☐

**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 ☐

**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 ☐

**Q4:** Birgit Fischer has won four Olympic medals in her 24-year kayaking career?

- a) Five ☐ b) Six ☐  
c) Seven ☐ d) Eight ☐

**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?

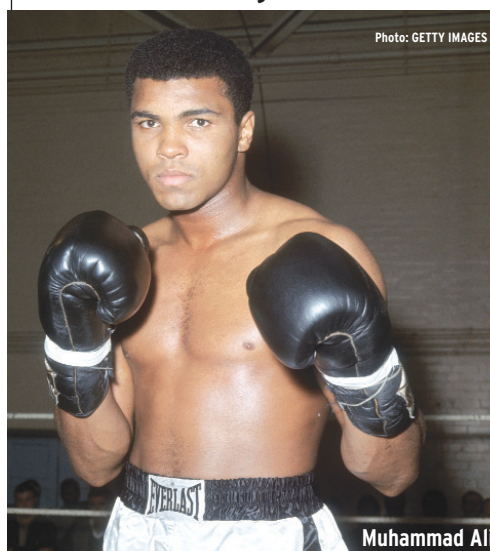


Photo: GETTY IMAGES

Muhammad Ali

- 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 ☐ b) MS Dhoni ☐  
c) Tillakaratne Dilshan ☐ d) Mahela Jayawardene ☐

**Q8:** In which year did Rafael Nadal win his first French Open title?

- a) 2004 ☐ b) 2005 ☐ c) 2006 ☐ d) 2007 ☐

**Q9:** Who won the 2010 NBA Coach of the Year award?

- a) Scott Brooks ☐ b) Mike Brown ☐

- 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) Shikhar Dhawan ☐ d) Virat Kohli ☐

**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 ☐

**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