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hat's the loss that the Indian economy has to bear per week, courtesy the surge in pandemic cases, which has forced many states to curb mobility and businesses, according to the British brokerage Barclays. If the current restrictions remain in place until May-end, the cumulative loss of economic and commercial activity could be around \$10.5 billion.



Among all the major infection hotspots, the worst hit are **Mumbai and Pune** 

As regards Maharashtra, which contributes **to over 16** per cent to the national **GDP**, the mobility curbs put in place in the wake of risThe amount of inter-planetary dust that lands on the Earth every day, according to a new report. Rich in iron and nickel, the vast majority of these particles come from the passing comets and asteroids, and amount to more than 5,000 tons each year



# HERE DO THEY AE FRO

Most extra-terrestrial particles burn up in our atmosphere. While some pass through as shooting stars, a small amount reach the ground as micrometeorites. Around 80 per cent of micrometeorites come from comets, with the remainder from asteroids

# **ARE THEY A THREAT TO OUR PLANET?**

NO. Scientists are of the view that these particles do not pose a threat to our world, rather they are of the view that understanding these particles can provide an insight into the primitive solar system that birthed them

👩 DID YOU To determine just how much of these particles reach the Earth's surface, nuclear physicist Jean Durant led six expeditions over the last 20 years to the Franco-Italian about 1,000 miles from the South Pole, and 680 miles off the coast of Adélie Land. Dome C is an ideal collection spot, as it has a near absence of terrestrial dust



Each of these micrometeorites, as they're known, are minuscule – from a few tenths to hundredths of a millimetre



ing situation, will

soon decide on

conducting class X,

XII Board exams

he Council for the Indian School Certificate Examinations (CISCE) on Wednesday said that it is reviewing the Covid-19 situation and will soon take a decision on conducting the class X and XII Board exams. The CICSE announcement comes following the CBSE's decision to cancel class X exams and postpone class XII papers, in view of the surge in Covid-19 cases.

The International Baccalaureate (IB) has decided to cancel the board exams in India. Students, however, will be promoted, based on a special assessment system

report said, with key economic hubs of Maharashtra, Gujarat, Tamil Nadu and Rajasthan, the national economy level witnessing rising cases and falling mobility

restrictions now, the

subject to mobility

ing cases, will take a dip in the gross value added to the growth by 0.32 % at this fiscal, a recent Care **Ratings report said** 

# Pets eased children's LONELINESS IN lockdown: Study



amily pets help children to better manage the feelings of stress and loneliness, which have been greatly exacerbated by virtual schooling as a result of the pandemic, shows a new survey. The Mars Petcare survey of parents reveals that more than eight in 10 parents found that their family pet helped their child feel less lonely during the lockdown, with more than threequarters feeling that day-to-day interactions with their cat or dog reduced their child's stress and anxiety. Parents agreed that their pet supported their child during the unprecedented break from in-person schooling by improving their mood, providing companionship and giving them the much-needed emo-

For many families navigating the stress and challenges of home-schooling, pets have offered children crucial support

2 The survey also found that pets positively impacted a child's experience of virtual learning and academic performance across all the ages - with nine in 10 parents seeing improvements in their child's emotional, social and core skill development,

gy and improved concentration, providing a fun topic of conversation to engage with their classmates and teachers, and giving them a much-needed break, away from the screen

This increased bond **between children and** their pets has many benefits for the pet too. Three-fourth believed their pet is also calmer now, as they spend more time with their child

tional support. DID YOU including having more ener-According to UNICEF, at least 1 in 7 chil-

> million globally lived under nationwide stay-athome policies for at least nine months since the start of the Covid-19 pandemic. putting their mental health and wellbeing at risk

dren – or 332

# **OLLY ALEXANDER'S SET TO RELEASE HIS 'BEST' SONGS**

inger Olly Alexander, who was part of the band 'Years & Years' with Mikey Goldsworthy and Emre Turkmen, will soon be sharing some of his unreleased songs. He also wants to offer these to other artistes, so that they can do something creative with these songs. "Some of the songs, I never wanted to throw them away, as they still are my babies and I still like parts of them. Maybe another artiste would listen and like it, and want to do something like their own thing, so I've kept a lot of them. "But, to be honest, the ones that are the best ones, I'm going to put them out," he said.



KNOW

Alexander just released the single 'Starstruck' as his first project after the band split

# QUIZ How many times has MS Dhoni been 0 dismissed for zero in IPL? 0

# FOUR

Recently, CSK captain MS Dhoni, while batting against Delhi Capitals in IPL 2021, got out on the bowling of Avesh Khan for zero. This was Dhoni's fourth duck in the history of IPL, and first since IPL 2015. Harbhajan Singh (2015), Dirk Nannes (2010), and Shane Watson (2010), are the other bowlers to dismiss Dhoni for a duck

# New Zealand introduces climate change law for financial firms in world first



The New Zealand government has introduced several policies to lower emissions during its second term, including promising to make its public sector carbon-neutral by 2025, and buy only zero-emissions public transport buses from the middle of this decade

 $oldsymbol{0}$  Is it a good move? Should other countries follow suit? Share your views at toi

New Zealand has become the first country in the world to introduce a law that will require banks, insurers and investment managers to report the impacts of climate change on their business, minister for climate change James Shaw said.

All banks with total assets of more than NZ\$1 billion (\$703 million), insurers with more than NZ\$1 billion in total assets under management, and all equity and debt issuers listed on the country's stock exchange will have to make disclosures ""We simply cannot get to net-zero carbon emissions by 2050 unless the financial sector knows what impact their investments are having on the climate," Shaw said in a statement ■"This law will bring climate risks and resilience into the heart of financial and business decision-making," he added The bill requires financial firms to explain how they would manage climate-related risks and opportunities

# **VARANASI TO BE KNOWN** AS SANSKRIT CITY

🝸 aranasi, the parliamentary constituency of Prime Minister Narendra Modi, will now be known as the Sanskrit city in the world. Varanasi has the maximum number of Sanskrit schools as well as the highest number of students studying Sanskrit. There are more than 110 Sanskrit schools that are functional in Varanasi.

### NAMESAKE



More than 97,000 students are studying in these Sanskrit schools. In order to connect Sanskrit schools with modern education, the computer education and NCERT books are being provided to students from classes VI to XII

SHARE YOUR VIEWS AT TOINIE175@GMAIL.COM

# 02

The only way to learn mathematics is to do mathematics.

# **MOCK PAPERS**

FRIDAY, APRIL 16, 2021

# 11 GET ALL DUCKS IN A ROV

#### **GENERAL INSTRUCTIONS**

1. This question paper contains two parts A and B.

2. Use of calculator is not permitted. PART A:

Section I has 16 questions of 1 mark each.

Section II has 4 questions on case study. Each case study has 5 case-study based questions sub-parts. An examinee is to attempt any 4 out of 5 sub-parts.

#### PART B:

Question No. 21 to 26 are Very short answer questions of 2 marks each. Question No. 27 to 33 are Short Answer Type questions of 3 marks each. Question No. 34 to 36 are Long Answer Type questions of 5 marks each.

#### **PART-A (SECTION-I)**

**Q1**. Without actually performing the long division, find if <u>987</u> will have 10500

terminating or non-terminating (re-peating) decimal expansion. Give rea-sons for your answer.

**Q2.** If  $\alpha$  and  $\beta$  are the zeroes of the polynomial  $ax^2 + bx + c$ , find the value of  $\alpha^2 + \beta^2$ . Q3. What is the point of intersection of the graph of  $\frac{x}{a} + \frac{y}{b} - 2 = 0$ 

with the x-axis and y-axis respectively? Q4. For what value of k, the pair of equations 4x-3y=9, 2x+ky=11 has no solution? Q5. The angles of a triangle are in A.P., the least being half the greatest. Find the angles.

**Q6.** Find the roots of  $\sqrt{2}x^2+7x+5\sqrt{2}=0$ by factorisation.

Q7. Find the nature of the roots of  $2x^2$  – 6x + 3 = 0

**Q8.** If TP and TQ are the two tangents to a circle with centre O so that  $\angle POQ = 140^{\circ}$ then what is the measurement of  $\angle PTQ$ . **Q9.** The length of the tangent from a point A at a distance of 13 cm from the centre of the circle is 12 cm. Find the radius of the circle.

**Q10.** Areas of two similar triangles are

## PRACTICE PAPER SET BY ANITA SHEKHAR, DELHI PUBLIC SCHOOL, SECUNDERABAD

a square base with depth 6 cm. Find the side of a square. **Q16.** A number x is selected at random

from the numbers 1, 4, 9, 16 and another number y is selected at random from the number 1, 2, 3, 4. Find the probability that the value of xy is more then 16.

#### (SECTION-II)

Case study based questions are compulsory. Attempt any four sub parts of each question. Each subpart carries 1 mark.

Q17. Case study based-1: Mohan went to Airport two and half hours before departure time. He observes

flies due north at a speed of 1000 km per hour. At the same time, he observes another aeroplane leaves the same airport and flies due west at a speed of 1200 km per hour. After de-



given below: (i) What is the distance travelled by aeroplane towards north after 1½ hours? **A)** 1000 km **B)** 1200 km

**C)** 1500 km **D)** 1800 km (ii) What is the distance travelled by aero-

plane towards west after 1<sup>1</sup>/<sub>2</sub> hours? **A)** 1000 km **B)** 1200 km C) 1500 km D) 1800 km

(iii) ∠AOB is

**A)**  $90^{\circ}$  **B)**  $45^{\circ}$  **C)**  $30^{\circ}$  **D)**  $60^{\circ}$ (iv) How far apart will be the two planes

after 1<sup>1</sup>/<sub>2</sub> hours? A)  $\sqrt{2250000}$  B)  $\sqrt{3240000}$ 

C)  $\sqrt{6250000}$  D)  $\sqrt{5490000}$ 

(v) The given problem is based on which concept? A) Triangles B) Trigonometry

C) Coordinate geometry D) Statistics Q18. Case study based-2: Aditya works as a librarian in Bright

and Mathematics He received 96 Eng

Children International School in Indore. He ordered for books on English, Hindi



Based on the above situation, answer the following questions. (i) Find the number of books in each

- Paul Halmos

stack. (A) 24 (B) 48 (C) 54 (D) 72 (ii) Find the total number of stacks

formed. (A) 7 (B) 10 (C) 14 (D) 16 (iii) How many stacks of mathematics

books will be formed? (A) 7 (B) 8 (C) 9 (D) 10

(iv) If the thickness of each English book

is 3 cm, then the height of each stack of English books is

(A) 120cm (B) 124cm (C) 136cm (D) 144cm (v) If each Hindi book weighs1.5kg, then find the weight of books in a stack of Hindi books.

(A) 24kg (B) 48kg (C) 72kg (D) 96kg Q19. Case study based -3: Four students A, B, C and D are visited a

Park on Sunday along with their Mathematics teacher. The teacher instructed all four students to attempt sample paper test 06. They are sitting at the corners of a park, which is in the shape of a quadrilateral and started solving the test paper.





(i) How many students secured less than 40 marks? (A) 50 (B) 40 (C) 60 (D) 30

(ii) What is the upperlimit of modal class?

(A) 20 (B) 30 (C) 40 (D) 50

(iii) The median class is: (A) 10-20 (B) 20-30 (C) 30-40 (D) 40-50 (iv) The mean marks of the students is: (A) 35.8 (B) 35.9 (C) 36 (D) 36.5 (v) Class mark of the class preceding the modal class is:

(A) 35 (B) 30 (C) 25 (D) 45

#### **PART-B**

All questions are compulsory. In case of internal choices, attempt any one.



PS are drawn to a circle with centre O such that  $\angle$ SPT  $= 120^{\circ}$ . Prove that OP = 2PS.



CLASS: X - 2020-21

**SUBJECT:** MATHEMATICS (CBSE) Maximum Marks: 80 Time Allowed: 3 Hours

**Q27.** Prove that is  $\sqrt{5}$  an irrational number.

Q28. Solve the following quadratic equation for x:  $4x^2 - 4a^2x + (a^4 - b^4) = 0$ . Q29. In the given figure, the line segment XY is parallel to the side AC of  $\triangle ABC$  and it divides the triangle into two parts of equal areas.

Find the ratio of  $\frac{AX}{AR}$ AB

Q30. The mean of the following frequence distribution is 62 Find the missing fr quency x.

1e	Class	Frequency
	Interval	
cv	0-20	5
ŏ	20-40	8
ö.	40-60	x
0	60-80	12
6-	80-100	7
	100-120	8



ducted and the following data was obtained. Find the median height.

Q32. In the given figure, APB and CQD are semi-circles of diameter 7 cm each, while ARC and BSD are semicircles of



diameter 14 cm each. Find the perimeter of the shaded region.

Q33. The horizontal distance between two pillars of different heights is 150 m. The angle of depression of the top of the first pillar when seen from the top of the second pillar is 30°. If the height of the first pillar is 60 m, find the height of the second pillar.(Use  $\sqrt{3} = 1.732$ ]

Q34. Draw the graphs of the following system of linear equations on the same graph paper: 2x - y = 1, x + 2y = 13. Find the coordinates of the vertices of the triangle formed by the two straight lines and the y – axis and the area enclosed by



36 cm<sup>2</sup> and 100 cm<sup>2</sup>. If the length of a side of the larger triangle is 20 cm, then what is the length of the corresponding side of the smaller triangle?

Q11. To draw a pair of tangents to a circle which are inclined at an angle of  $60^{\circ}$ At which angle are the two radii inclined to each other, at the ends of which tangents are required to be drawn?

**Q12.** If sec  $\theta$  + tan  $\theta$  = 7, then evaluate  $\sec \theta - \tan \theta$ 

**Q13.** Given  $2\cos(3\theta) = \sqrt{3}$ , find the value of  $\theta$ 

**Q14.** What is the area of the circle that can be inscribed in a square of side 6 cm? **Q15.** Two tanks are of the same capacity. The dimensions of the first tank are 12 cm x 8 cm x 4 cm. The second tank has lish books, 240 Hindi Books and 336 Math books. He wishes to arrange these books in stacks such that each stack consists of the books on only one subject and the number of books in each stack is the same. He also wishes to keep the number of stacks minimum.





Please give answers to these questions (i) Write the coordinates of A and B. (A) A(-3, 1), B (1, 4) (B) A(-3, 1), B(-1, 4) (C) A(3, 1), B(-1, 4) (D) A(-3, -1), B(-1, 4) (ii) Write the coordinates of C and D. (A) C(-3, 2), D(1, 2) (B) C(-3, 2), D(1, 2) (C) C(3, 2), D(-1,-2) (D) C(3, 2), D(1,-2) (iii) Distance of point A from the origin is:

**(A)**  $\sqrt{10}$  **(B)**  $\sqrt{20}$  **(C)**  $\sqrt{15}$  **(D)**  $\sqrt{13}$ (iv) The distance from A to B is: (A)  $\sqrt{15}$  (B)  $\sqrt{13}$  (C)  $\sqrt{7}$  (D)  $\sqrt{5}$ (v) Which of the following may be true if B, C and D become collinear?

Each question carries 2 marks

**Q21.** Find the zeroes of the quadratic polynomial  $p(x) = 4x^2 - 3x - 1$  and verify the relationship between the zeroes and the coefficients.

**Q22.** Prove that points (7, 10), (-2, 5) and (3, -4) are the vertices of an isosceles right triangle.

Q23. A quadratic polynomial 2x<sup>2</sup>–3x+1 has zeros as  $\alpha$  and  $\beta.$  Form a quadratic polynomial whose zeros are  $3\alpha$  and  $3\beta$ . **Q24.** Draw a circle of radius 6 cm. From a point 10 cm away from its centre, construct a pair of tangents. **Q25.** Prove that (cosecA – sinA)

 $(\operatorname{secA} - \operatorname{cosA})_{-} = \frac{1}{\tan A + \cot A}$ **Q26.** In given figure, from a point P, two the triangle thus formed.

Q35. A 1.2 m tall girl spots a balloon moving with the wind in a horizontal line at a height of 88.2 m from the ground. The angle of elevation of the balloon from the eves of the girl at any instant is  $60^{\circ}$ . After some time, the angle of elevation reduces to 30°. Find the distance travelled by the balloon during the interval. (Use  $\sqrt{3} = 1.732$ ]

Q36. Sushant has a vessel, of the form of an inverted cone, open at the top, of height 11 cm and radius of top as 2.5 cm and is full of water. Metallic spherical balls each of diameter 0.5 cm are put in the vessel due to which 2/5 th of the water in the vessel flows out. Find how many balls were put in the vessel.

#### **MOCK PAPER** SUBJECT: PSYCHOLOGY (CBSE) **CLASS XII MARKS: 70**

# **BE POSITIVE IN PSYCHOLOGY** PAPER SET BY TARANJIT DAVE, PGT PSYCHOLOGY, UDGAM SCHOOL, AHMEDABAD

#### **SECTION-I**

Q1. Koh's block design test is an example of \_ test of intelligence. [1]

Q2. Children with high self-esteem are more liked by their

peers. [1]

Q3. Worries and stress can manifest as frightening, painful sensa-tion which could be mistaken for heart attack. (T/F) [1] Q4. Which of the following is true of depression? [1] a) It affects men more frequently

than women. b) It is a component of Disso-

ciative Identity Disorder. c) It is caused by low activi-

ty of serotonin. d) It is more prevalent

among the wealthy than the poor. Q5. The Vietnam war which led to

the loss of many American and Vietnamese lives, is an example of

Q6. The Nazis committed atrocities against the Jews. This is an example of [1]

Q7. Dr. Joshi, a Neurosurgeon, would be high on intelligence, according to Howard Gardner. [1] **O8** Mr Bakshi lost his wife recently due to pandemic. However, every single day he calls her on the mobile hoping for her to answer his call. He is in the phase of ego defence mechanism. [1]

Q9. Shivam is being provided with books and uniforms by the school. He is receiving \_ kind of support.

Q10. Sanjana doesn't seem to enjoy

many activities lately. She stays in bed most of the day, doesn't eat properly and shows no interest in interacting with her family or friends. If these symptoms continue for more than 2-3 weeks, she will be at risk of being diagnosed with [1]

Q11. Whenever Raj walks out of his office feeling stressed, he goes out drinking with his friends that evening. He would feel a bit relaxed after having drunk, and hence, this behaviour became a pattern with him. Over time, he developed the habit of taking to alcohol on facing even a minute stressor in his life, as alcohol was something that helped him relax. The antecedent factor in Raj's life is \_ and the maintaining factor is [1]

\_\_\_\_mode of message **Q12**. The transmission is more effective in bringing about an attitude change.

Q13. Learning alphabets and digits is an example of simultaneous processing. (T/F)[1]

[1]

Q14. Rohit recently got a heart attack. Rohit's wife reported that he is high on motivation and a go getter. However, the downside is that he is always in a hurry, lacks patience and feels burdened with work. Rohit would be categorised as hav-\_ personality type. [1] ing

### **SECTION-II**

**Q15.** Read the case and answer the questions that follow: [1x3=3]A 27-year-old, Yash, an athletic young man, has an intense fear of needles. He tries to rationalize his fear by explaining that he is just being cautious and protecting himself from acquired immunodeficiency disease syndrome (AIDS). He realises that his fear is irrational but is unable to control it. The patient has fainted twice in the past when his blood was drawn during a physical examination. He becomes ex-



tremely anxious at the sight of a needle and worries for days before an appointment with his physician or dentist I. Identify Yash's disorder.

II. Name the category of this disorder. [1] III. Name the other sub types of this category of disorder. [1] **Q16.** Read the case and answer the questions that follow: [1x4=4] Heena is a registered nurse in a busy emergency room. She deals with life and death situations regularly at work without missing a beat. She finds that if she does not take time out occasionally for herself by exercising and spending time with her

family and friends, she is not quite

as effective as she would like to be. But she thinks it is really nothing to worry about.

One day, however, she receives a phone call at work to find out that her father has had a stroke. Initially. Heena takes it in stride and tells herself 'everything will be fine.' After three months of physical therapy in a long-term care unit. Heena decides that her father will have to come and live with her and her family, so she can help care for him dai-

She notices that she is not sleeping well. One day at work, she unintentionally makes a critical mistake and gives a patient the wrong medication. She decides she needs help to care for her father and hires. an agency that provides home visits to take care of her father four times a week With this small amount of ex-

tra time, Heena makes self-care a priority and begins exercising and meditation regularly. After a short time, Heena begins to feel more like herself and finds that she responds to the stress in a more productive way. She begins to have a better relationship with her father and family and is regaining her confidence at work as well.

i. What was the source of Heena's stress? [1] ii. She notices that she is not sleeping as well. One day at work, she unintentionally makes a critical mistake and gives a patient the wrong medication. Which stage of the General Adaptation Syndrome model

was Heena in? [1] iii. Which set of words best describe

Heena's hardiness? [1] iv. With this small amount of extra time. Heena makes self-care a priority and begins exercising and meditation regularly. Identify the coping strategy used by Heena. [1]

## **SECTION-III**

**Q17.** Discuss the main limitation of Hans Selve's model of stress. [2] Q18. Nisha is experiencing generalised anxiety disorder. Enumerate any two causes with reference to diathesis stress model which may

have led to the disorder. [2] Q19. What is separation anxiety disorder? List any two symptoms. [2] Q20. Elucidate any 2 techniques to help you deal with exam stress. [2] **Q21.** Enumerate any 4 characteristics of a group. [2] Q22. What are the ethical consid-

erations that need to be followed by psychotherapists? [2]

### **SECTION-IV**

**Q23.** Anu is a good dancer who is well adjusted in school as she cooperates with her teachers and classmates in all school related activities. She is also liked by friends and family. Identify and explain the types of intelligences that Anu is exhibiting. [3] Q24. Explain Allport's Trait Theo-

[3] Q25. Explain the concept of cognitive dissonance with example. [3]

## **SECTION-V**

**Q26.** Sheldon is an eight year old

who has profound difficulty in relating to other people. Often, he is found to be unresponsive to other people's feelings and exhibits stereotypical patterns of behaviour. Identify this disorder and describe its features. [4]

Q27. Prisha has been feeling anxious and depressed. She is convinced that no one loves her and that it would be very difficult for her to succeed. How will Beck's cognitive therapy help her deal with her negative thoughts? [4] **Q28.** Your friend eats too much junk food. How would you be able to bring about a change in her/his attitude towards food using concept of balance? Q29. Your class has been allocated the responsibility of putting up a cultural show for the special assembly in which you have to showcase about 5-6 performances. Describe the stages of group formation that your classmates will go through. [4]

## **SECTION-VI**

**Q30.** Elaborate the theories based on psychometric approach. [6] **Q31**. Disccuss Freudian 5-stage theory of personality development.[6]

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

# CLICK HERE: PAGE 3 AND 4

# **A2Z OF CONCEPTS**

"A man who carries a cat by the tail learns something he can learn in no other way." - Mark Twain

#### FRIDAY, APRIL 16, 2021



**Beginning the journey** of learning in an alphabetical order, Times NIE takes you through one concept from each subject every fortnight

**TEACHERS, IF YOU HAVE A CONCEPT THAT CAN CHANGE A CLASSROOM, SHARE IT ON** 

03

toinie175@gmail.com WITH YOUR PHOTOGRAPH

# CLASSROOMS TO EXPERIENCE ZONES

## **EQUINOX**

n equinox occurs when the position of the Sun is exactly over the equator. When this happens, the hours of daylight and the hours of darkness are about equal almost

**GEOGRAP** 

DID YOU The equinoxes are times of celebra-KNOW tion for many cultures. The autumnal equinox happens at a time when crops are ready for harvest. In the Zoroastrian culture, it marks the beginning of the new year, Nowruz. Each year, on September 22/23, the Druids and Pagans gather at Stonehenge in the morning to mark the spring equinox and to see the sunrise above the stones.



everywhere on the Earth. Equinoxes take place twice a year.

Autumn, or Fall, begins with the autumnal equinox. After the autumnal equinox, the days become shorter and the nights are longer. The autumnal equinox occurs around September 23 in the Northern Hemisphere and around March 21 in the Southern Hemisphere The vernal equinox marks the be-

ginning of spring. After the vernal equinox, the days become longer and the nights become shorter. The vernal equinox occurs around March 21 in the Northern Hemisphere and around September 23 in the Southern Hemisphere.

## ACTIVITIES TO TEACH EQUINOX

MAKE YOUR OWN CALENDAR To create changeable circles have students fold a piece of paper into four sections. With a colour pencil and a compass, draw four circles large enough to fill each section.

Students fold another piece of paper and divide it into four sections. To create windows,

draw a rectangle in each section near an outer edge. Make three large openings (month, season and day) and a fourth a little smaller (date). Cut out the openings. Students decorate each section with pictures.

Students create moveable wheels by placing each circle behind a section so that a small portion sticks out slightly beyond the edge. Hold in place with paper fasteners. They write January in one opening. Turn wheel so it can no longer be seen, then write February. Continue through

the rest of the months and other boxes (date and days).

- the edges of the cardboard square as a point of orientation.
- late the observations.

# SUN EXPERIMENT



- Glue the wooden stick to the cardboard square so that it stands upright (as shown in the sketch). To assure that the full shadow fits on the cardboard, you may want to glue the stick closer to one of the edges.
- Once the glue is dried and the stick can stand by itself, place the cardboard square on a flat surface where it will be exposed to the Sun. Take note of the time of day. Mark the point on the board where the tip of shadow is located and write the date.
- It is important that the board be oriented in the same direction each time you lay it on the ground. You might mark one of
- Repeat this daily or weekly at the exact same time each day. Tabu-



Discuss your observations with your family. Ask them if they think that there are any days where the shadow will appear in the same place at the same exact time.

#### **Learning Outcome**

one-forty-

ABA is 10

144 Block

144 Block

D

1 Block

5 Block

x 12)

12)

fours (0 x 1 +

 $1 \ge 12 + 1 \ge 12$ 

The only two days where the Sun's location matches at any time are March 21 (vernal equinox) and September 21 (autumnal equinox). The only place on the Earth where the Sun's location matches every day is on the equator.



By Kartik Bajoria Jaipur-based **Communication Skills Educator & Writer** 

**EUPHEMISI** 

nglish is a beautiful language that gives Us the inherent opportunity to be polite and sophisticated. There are many situations in life wherein it would seem inappropriate and rude to describe a situation as it is. For instance, when a person has died. Or when a person has been sacked from their job. This is when euphemisms can assist us greatly in relieving some of that blunt edge that the news innately carries with it.

For example, if one had to say a few words at a funeral meeting, rather than saying the word 'died', you could use euphemisms such as departed or passed away. There is also an aspect of being politically correct that a euphemism helps us with. For instance, rather than calling someone 'fat', which may be interpreted as body shaming in the modern era, one could use 'bigboned'. Similarly, rather than calling someone 'old' outright, 'getting on' sounds more appropriate. Therefore, a euphemism can be a single word or a phrase. All these terms and expressions make the language more agreeable and make for a polite society and people.



EFFERVESCENCE AND

from a solid or liquid.

**EFFLORESCENCE** 

**By Sandeep Srivastava** Educator since 20 yrs, he specialises in making Maths easy and fun

he decimal number system is only unique in that it has 10 unique digits, 0 – 9. We use many number systems such as, 0-6 for weekdays, 0-11 for dozen, 0-59 for second/minute, besides 0-1 for binary for computers. Knowledge of these (Extended) number systems, helps us better appreciate decimals. Let's briefly learn some other number systems, which follow the same logic as decimals.

#### BINARY

Only two digits - 0 and 1 - can be used to represent all quantities

10 is 0 ones and 1 tw	vos, shown as	$\vdash$
11 is -		
100 is 1 x 2 x 2; just a 100 in decimal is 1 x	as : 10 x 10.	

10101011 is 1 ones, 1 twos, 0 fours, 1 eights, 0 sixteens, 1 thirty-twos, 0 sixty-fours and 1 one-hundred-twentyeights.



you need.

some small bowls with 1/2 cup of

vinegar with a few drops of food

colouring and a dropper is all that

touches the baking soda a fizzy chem-

ical reaction occurs. Colourful bub-

bles begin appearing immediately

once the powder and liquid make

contact. The colours mix together

really easily to create new colours.

**Efflorescence** is the process of

losing the water of hydration from

Efflorescence is a whitish crys-

a hydrate compound.

As soon as the coloured vinegar

#### **EXPERIMENT THIS**

We generally see effervescence while opening a cold-drink bottle after shaking it. Similarly, this



experiment will show effervescence with erupting colored volcanoes due to a reaction by using an acid, base, water colours and dishwashing liquid

Here is an easy, fizzy science experiment for kids that requires only a few commonly found household ingredients. This science experiment, which uses baking soda and vinegar, teaches children about

ffervescence is the foaming formed chemical reactions. as a result of a gas being evolved A baking dish with a layer of

64 Block

bricks. Usually magnesium sulphate, calcium sulphate and carbonate of sodium and potassium are found in efflorescence. The movement of groundwater into the foundations of buildings and by capillary action into brickwork is very often the cause of efflorescence.

#### **EXPERIMENT THIS**

Fill distilled water in shallow dish and place one end of brick in dish. Water should fill in dish such that bricks should immersed in water up to 25 mm depth.

Place this whole arrangement baking soda (or baking powder), talline deposit on surface of the in a warm ventilated room such that



 $13_{10} = 1101_2 (1x2^3 + 1x2^2 + 0x2^1 + 1x2^0)$ 

0-7 are used to represent all

10 is 0 ones and 1 eights (1x8)

– 8 ones does not exist.

Octal

quantities.

101 is 1 ones, 0

eights and 1

sixty-fours (0 x 1 + 0 x 8 +

1 x 8 x 8)

311 is

64 Block

The 'Remainder' cannot be anything other than 0 and 1 – the permissible digits in binary system. Thus, we keep dividing the given quantity (1310) by 2 (binary system) to express it using 0 and 1 only.

8 Block

P

1 Block

P

8 Block 1 Block

64 Block

111 is 1 ones, 1 eights and 1 sixty -

fours (1 x 1 + 1 x 8 + 1 x 8 x 8)

64 Block

### 0000 When we show 1 thing

more than 4, that one more thing becomes 1 five and is written as 10. 10 is 0 ones and 1 fives (1 x 5) – 5 ones don't exist, it's 5 Block written as 1 five and 0 ones

11 is 1 ones and 1 fives (1 x 1 + 1 x 5)

211 is 1 ones, 1 fives, and 2 twentyfives  $(1 \times 1 + 1 \times 5 + 2 \times 5 \times 5)$ Let



Let us understand how to convert 100 in decimal system to a quinary number.

	Step	Division by 5	Quotient	Remainder			
	1	100/5	20	0			
	2	20/5	4	0			
	3	4/5	0	4			
$100_{10} = 400_5$							
10 0							

whole water is absorbed by the specimen and the surplus water will get evaporated

Cover the dish containing brick with suitable glass cylinder so that there will not excessive evaporation

When whole water get absorbed and brick appears to be dry, place a similar quantity of water in the dish and allow it to evaporate as before. After this process, examine the bricks for efflorescence and report

results.

144 Block 144 Block 1 Block 1 Block 1 Block 1 Block 1 Block 1 Block Let us convert 10010to a dozenal number. by 12 100/12 8 4 2 0 8 8/12  $100_{10} = 84_{12}$ Next, we will discuss Fraction for F, the more common form of numbers.

144 Block

144 Block 144 Block

144 Block

144 Block

forty ]fours (10 x 1 + 11 x 12 + 10 x 12 x

ones, 11 twelves, and 10 one

144 Block

144 Block

12 Block

If you have queries for Professor Srivasatava, write to us on toinle175@gmail.com

#### **Results Of Efflorescence Test**

be reported as nil, slight, moderate, heavy or serious.

Results of efflorescence test shall



A

8 Block 1 Bloc

Winning isn't everything. It is about personal excellence, what I am today and what best I can be. **Pullela Gopichand, Chief National Badminton Coach**  **SIMPLY SPORTS** 

FRIDAY, APRIL 16, 2021

# WILL DHONI LEAD FROM THE FRONT?

Chennai Super Kings would look for inspiration from skipper Mahendra Singh Dhoni and a much-improved bowling effort when they take on a power-packed Punjab Kings in the IPL in Mumbai on Friday

04

In CSK's opening match against Delhi Capitals Dhoni batted for just two balls before he was cleaned up by Avesh Khan. The former India skipper looked to play a pull shot, but only managed to get an inside edge back onto the stumps

## CSK eye improved bowling effort

- The two sides experienced contrasting fortunes in their respective tournament opener. While CSK lost by seven wickets against Delhi Capitals, Punjab Kings eked out a fourrun win over Rajasthan Royals in a highscoring thriller.
- With the dew playing a crucial role at Wankhede, the side winning the toss would

(54), Moeen Ali (36), Sam Curran (34), Ravindra Jadeja (26) and Ambati Rayudu (23).

- Despite failures from the opening duo of Rituraj Gaikwad and Faf du Plessis besides skipper Dhoni, CSK managed to put up a decent total on the board.
- But the Chennai outfit's bowling unit looked completely out of sorts and clueless against the DC opening duo of Shikhar Dhawan and Prithvi Shaw, who were ominous from the word go and stitched a 138-run stand to take the proceeding form COV
- went for big runs and looked rusty. Come Friday, the onus would be on master tactician Dhoni to inspire his teammates to lift their performance and give Punjab a run for their money.
- But for that to happen, the CSK skipper himself needs to lead from the front after failing to score against DC.

Question mark on Punjab's overseas pacers

Opening the batting, KL Rahul played a captain's knock of 91 off just 50 balls. He was ably supported by big-hitting Chris Gayle (40 off 28) and Deepak Hooda (64 off 28).

- For Punjab Kings and Rahul, batting is not at an area of concern as they showed with their performance in the opener, but just like CSK, the bowling unit remains a major worry despite spending big money at the auction.
- RR skipper Sanju Samson almost singlehandedly took the game away from Punjab

won't be a happy man with the performances of his bowlers.

- Young Arshdeep Singh (3/35) eventually emerged as Punjab's saviour. Needing 13 runs off the last over, the left-arm pacer gave away just eight runs to pull off a fine win for his team.
- Besides Arshdeep, veteran Mohammad Shami (2/33) too had a decent outting with the ball but the performance of Australian pace duo of Jhye Richardson (1/55) and Riley

want to bowl first. In their first match here, CSK posted a competitive 188 for seven, riding on fine contributions from Suresh Raina

the game away from CSK.

 The likes of Deepak Chahar, Sam Curran, Shardul Thakur, Jadeja and Moeen Ali all Punjab Kings, on the other hand, had a narrow escape against RR despite posting a mammoth 221 for 6 on the board.

Kings with his whirlwind 63-ball 119-run knock in their opener, but fell short just by four runs in the end. And Rahul definitely Meredith (1/49) should be a concern for Punjab, having shelled out ₹22 crore for their services.

# **5 SHOW' IS BACK**

When it rains, it pours. The adage holds true for Glenn Maxwell who is on a run-making spree in this edition of the Indian Premier League (IPL) after less than average performances with the bat over the last few years

lenn Maxwell, who scored his first IPL half-century on Wednesday after three barren seasons, is relishing a newfound form and confidence with his new franchise, Royal Challangers Bangalore that has pushed him into a role he plays for Australia.

## 'Kohli's good at keeping

**me on task'** Maxwell, who aggregated just 108 in 13 matches at an average of just over 15 in IPL 2020 and was therefore released by the Punjab franchise ahead of this season, has been pushed up to the No. 4 batting slot this season by RCB. for us Maxi (Glenn Maxwell) gave us that momentum and got us closer to 150 (against SRH). Virat Kohli, RCB captain

I think Maxwell's innings was the dif-

momentum in the first six overs, but

ference for us. It's about getting

"It's a very nice start, a new franchise for me and they have given me a specific role. To start like this is really nice. It's nice to have batters behind you, you have freedom with AB to come and it's a very similar role I have in the Australian cricket team," said Maxwell, who was awarded Man of the Match for his 41-ball 59.

"Kohli's good at keeping me on task. Having those guys behind me is a nice little luxury. It's my fourth IPL team and there is pressure on me to turn up and make an impact," added Maxwell.

### In the 2020 season, Maxwell couldn't hit a single six

In the first match, his 39 played a key role in helping RCB win. In his second match of the season, Maxwell topscored for RCB with 59 off 41 balls. While he hit two sixes in the tournament opener against Mumbai Indians, he hit three sixes on Wednesday night. In the 2020 season, he couldn't hit a single six.

The last time Maxwell hit a half-century was back in 2016. Since then, his highest had been 47 each in 2017 and 2018 and 32 in 2020. He didn't play the 2019 edition.

# VERY BITTER PILL TO SWALLOW: WARNER

SunRisers Hyderabad (SRH) skipper David Warner was deeply hurt after his side lost to Royal Challengers Bangalore (RCB) from a winning position. Warner's half-century had put SRH in the driver's seat but Shahbaz Ahmed ran through their middle order to help RCB register a thrilling six-run win at the MA Chidambaram Stadium. The SRH skipper feels his side needs a big partnership in the middle overs to get over the line. "It was just about building a partnership and I was quite disappointed with how we went, cross-batted shots against left-arm orthodox. It just hurts," Warner said. "We have another three games here, the wickets are going to get better: We need powerplay wickets and have one big partnership in the middle," he added. ANI

The last time Maxwell hit a half-century was back in 2016. Since then, his highest had been 47 each in 2017 and 2018 and 32 in 2020. He didn't play the 2019 edition

# QUIZ TIME!

FINCORP

Q1. In 2011, David Warner made his Test debut against which country? a) South Africa b) India c) England d) New Zealand

Q2. Which player has made the most football Premier League appearances? a) Ryan Giggs () b) Frank Lampard () c) David James () d) Gareth Barry ()

Q3. Which was the first International cricket tournament played in the bio-bubble? a) New Zealand in Aus 🖵 b) Eng in Sri Lanka 🖵 c) West Indies in Eng 🖵 d) Pakistan in Eng 🖵

Q4. Golfer Miguel Angel Jimenez broke the European Tour record for most career starts. Who was the previous record holder? a) Seve Ballesteros D b) Sam Torrance C c) Bernhard Langer d) Barry Lane

Q5. Name the para athlete who won the Rajiv Gandhi Khel Ratna Award in the recently announced National Sports Awards 2020? a) Rani b) Devendra Jhajharia c c) Purushotham Rai d) Mariyappan T Q6. How many wickets has Mohammed Shami taken in ODIs?

a) 178 🗅 b) 156 🖵 c) 134 🖵 d) 148 🖵



Q7. Kyle Edmund won the New York Open 2020. Who did he beat in the final? a) John Isner b) Milos Roanic c) Andreas Seppi d) Rafael Nadal 

Q8. Which player was the most expensive Premier League import in the summer of 2020?

a) Kai Havertz 🗅 b) Thomas Partey 🗅 c) Timo Werner 🗅 d) Lionel Messi 🗅

Q9. Who has been named as 'India's Most Valuable Test Player of the 21st Century' by Wisden?

a) Mahendra Singh Dhoni  $\square$  b) Virat Kohli  $\square$ 

c) Ravindra Jadeja 🖵 d) R Ashwin 🖵

TŤ

David

Warner

Q10: Which Indian Grand Master recently won the Cannes Open Chess Tournament? a) Praggnanandhaa b) D. Gukesh c) Harshavardhan d) Sasi Kiran 

Q11. Who is the first super heavyweight (+91kg) Indian boxer to qualify for the Olympic Games?

a) Amit Panghal 🗅 b) Sakshi Chaudhary 🗅 c) Manish Kaushik 🗅 d) Satish Kumar 🖵

ANSWERS: 1. d New Zealand 2. d. Gareth Barry 3. c West Indies in Eng 4. b. Sam Torrance 5. d. Mariyappan T 6. d. 148 7. c. Andreas Seppi 8. a. Kai Havertz 9. c. Ravindra Jadeja 10. b. D Gukesh 11. d. Satish Kumar