

THE TIMES OF INDIA

www.toistudent.com

TODAY'S EDITION

Did you know a simple low-end laptop can be made at home with a few bare minimum equipment? **PAGE 2**



They say, there's no shortcut to success. Rightly so, as we tell you how you can achieve your goal through hard work **PAGE 3**



Serbia stun Portugal to qualify for the 2022 World Cup football tournament **PAGE 4**



STUDENT EDITION
TUESDAY, NOVEMBER 16, 2021

CLICK HERE: PAGE 1 AND 2

Man breaks world record after standing on hot air balloon at 13,175 feet



A French man broke a world record for standing on top of a hot air balloon at more than 13,000 feet up in the air. He rode the hot air balloon to raise money for a charity. Remi Ouvrard, 28, posted a view of himself standing on the hot air balloon while he was at 3,637 metres (11,932 feet) above the ground. The altitude represents the phone number of France's annual charity campaign Telethon, 36-37. He aimed to raise money for rare neuromuscular diseases. Ouvrard thought it would be great to reach the altitude but the balloon soared even higher to 13,175 feet over Chateaufort in western France. The ride lasted for about 90 minutes and was operated by Ouvrard's father. Ouvrard live-streamed his adventurous ride on Facebook using a selfie stick during the early part of the flight.

The ride on the hot air balloon broke Ouvrard's previous world record of 3,992 feet

CBSE Boards 2022: Students gear up for big offline test

The Central Board of Secondary Education (CBSE) is all set to conduct the first bifurcated board exams for classes X and XII from Nov 17 and Nov 16, respectively. As per the notification released by the Board, the students appearing for the exams will be given 20 minute-reading time. It will have MCQs and the duration for solving them is 90 minutes. Every question will have four options, of which the student has to encircle the correct one. As every answer sheet will be scanned, no question can be left unanswered. SOURCE: TNN

INSTRUCTIONS FOR D-DAY FOR STUDENTS

- Apart from remembering to carry their admit cards to the exam hall, students must report to the exam centre at least one hour prior to the commencement and be seated on time
- Covid-19 safety protocols to be followed. Hence, students must wear masks, use sanitisers and maintain social distancing at all times
- All exams will begin at 11:30 am and students would get 20 minutes of reading time, instead of the previous 15 minutes
- In case a student is having any symptoms of cold, cough or fever, they must report it to their school immediately
- Students must take extra care while filling the details in OMR sheet and make sure that all details are correct.



Meanwhile the Supreme Court of India on Monday postponed the hearing of the CBSE and CISCE students seeking an option of online mode along with the centre-based offline exams to November 18. The plea, filed by six students who would be taking the Board examinations, alleged that the entire exercise of the boards in conducting the term one or semester one examinations in offline mode only is "unreasonable"

FACTOID 3 BILLION YEARS

That's the time when Earth's first continents emerged from the oceans. According to scientists, it's at least 700 million years earlier than previously thought. Researchers from the Monash University studied the sedimentary and igneous rocks of an ancient continental fragment in India called the Singhbhum Craton.

THE RISE OF EARTH'S CONTINENTS



- 1 Scientists say, the emergence of Earth's earliest continental landmasses around 3.3-3.2 billion years ago would have had a profound impact on our planet's atmosphere, oceans and climate
- 2 The erosion of continental material into the oceans would have provided nutrients to coastal environments, leading to a boom in photosynthetic life that helped to create the oxygen rich atmosphere we breathe today
- 3 The presence of beaches at this time shows that a continental landmass must have emerged in what we now know as India by at least 3 billion years ago, in order to provide the material from which the beach formed, they add
- 4 Most ancient continents - the Singhbhum Craton included - are built up of granite, formed from the melting of pre-existing rocks at the base of the crust

IN OTHER NEWS

Bangladesh calls for inclusive Indian Ocean without any unilateral dominance

Bangladesh has called for an open, free, peaceful and inclusive Indian Ocean instead of any single country's dominance ahead of the upcoming Indian Ocean Rim Association (IORA) Council of Ministers' (COM) meeting on November 17. Bangladesh will be hosting the 21st IORA COM meeting as it takes up the chairmanship for the first time in 24 years. 'Indo-Pacific Vision' will also come up for discussion.

IORA has six priority and two focus areas identified on the basis to promote sustained growth and balanced development in the Indian Ocean Region. These are maritime safety and security, trade and investment facilitation, fisheries management, disaster risk management, tourism and cultural



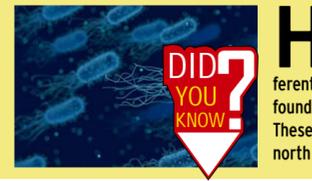
exchanges, academic, science and technology cooperation, blue economy, and women's economic empowerment

BTS, Ed Sheeran among top winners at MTV European Music Awards

At the 2021 MTV European Music Awards held on Sunday, popular Korean band BTS and British singer-songwriter Ed Sheeran emerged as the big winners. As per Variety, BTS won the most awards, including Best Pop, Best Group, Best K-Pop and Biggest Fans, but were not on hand to collect the awards. Sheeran, who was present, won the Best Artiste and Best Song for 'Bad Habits'. Justin Bieber, who was the frontrunner with eight nominations, didn't win any awards.



Antarctic bacteria live on air and make their own water using hydrogen as fuel!



Humans have only recently begun to think about using hydrogen as a source of energy, but bacteria in Antarctica have been doing it for a billion years. Scientists studied 451 different kinds of bacteria from frozen soils in East Antarctica and found most of them live by using hydrogen from the air as a fuel. These incredible microorganisms come from ice-free desert soils north of the Mackay Glacier in East Antarctica.

Eyeing LA Olympics, ICC could award 2024 T20 World Cup to USA

The USA is likely to host the T20 World Cup in 2024, which could serve as a launch pad in the ICC's bid for cricket's inclusion in the 2028 Los Angeles Olympics. The ICC is expected to award a joint bid by USA Cricket and Cricket West Indies to host the 2024 T20 showpiece.

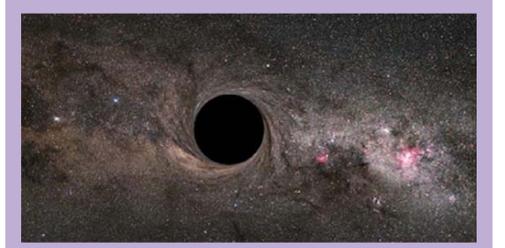


The 2024 T20 WC is expected to have 20 teams and 55 matches as compared to the 2021 and 2022 editions, which have seen 16 teams playing 45 matches. Between 2024 and 2031, the ICC is set to host several global tournaments

If all goes as per the plans, it would be the first global tournament not hosted by either India, England or Australia since the 2014 T20 World Cup in Bangladesh

Astronomers spot black hole outside Milky Way galaxy

Astronomers have discovered a small black hole outside the Milky Way by looking at how it influences the motion of a star in its close vicinity. The newly-found black hole was spotted lurking in NGC 1850, a cluster of thousands of stars roughly 160,000 light years away in the Large Magellanic Cloud - a neighbour galaxy of the Milky Way. The detection in NGC 1850 marks the first time a black hole has been found in a young cluster of stars (the cluster is only around 100 million years old, a blink of an eye on astronomical scales).



The black hole is roughly 11 times as massive as our sun. Astronomers started on the trail of this black hole due to its gravitational influence on the five-solar-mass star orbiting it

Instagram will soon start asking you to take a break if you use the app for too long

Facebook (now Meta)-owned photo sharing platform Instagram is all set to start a new feature that helps users take quick breaks from Instagram. Called 'Take a Break', this feature will help users to take a step towards taking a break from the social media platform after spending a certain amount of time on the platform. The feature has been announced in a bid to prevent addiction from the platform and comes at a time when several reports have pointed to the fact that Facebook apps are addictive for users.

This feature won't be enabled by default and users will have to turn it on to receive in-app reminders to take a break from the Instagram app after continuously using it for 10, 20, or 30 minutes



If you hear a voice within you say, 'you cannot paint,' then, by all means, paint and that voice will be silenced.
-Vincent Van Gogh

TUESDAY, NOVEMBER 16, 2021



CLASS: X - 2021-22

SUBJECT: MATHEMATICS

Time Allowed: 1½ Hours

Maximum Marks: 40



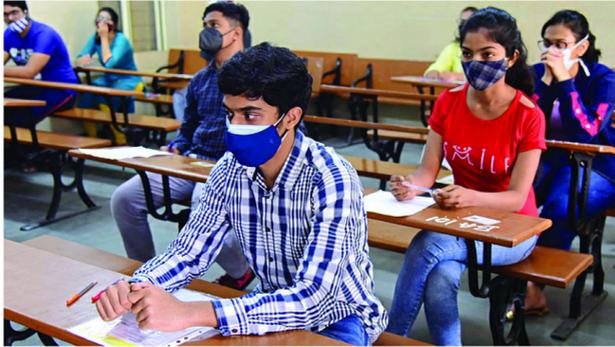
SUM UP YOUR SPEED & ACCURACY IN MATHS

PRACTICE PAPER SET BY MATHEMATICS DEPARTMENT, ASSISI VIDYANIKETAN PUBLIC SCHOOL, ERNAKULAM

SECTION-A

Section-A consists of 20 questions of 1 mark each. Any 16 questions are to be attempted

- Q1)** The decimal expansion of the rational number $\frac{10}{2 \cdot 5^2}$ will terminate after [1]
(A) one decimal place (B) two decimal places (C) three decimal places (D) more than 3 decimal places
- Q2)** The pair of equations $5x - 15y = 8$ and $3x - 9y = \frac{24}{5}$ has [1]
(A) one solution (B) two solutions (C) infinitely many solutions (D) no solution
- Q3)** ABC and BDE are two equilateral triangles such that D is the mid point of BC. Ratio of the areas of triangles ABC and BDE is [1]
(A) 1:2 (B) 2:1 (C) 1:4 (D) 4:1
- Q4)** If in triangles ABC and DEF, $\frac{AB}{BC} = \frac{DE}{FD}$, then they will be similar, when [1]
(A) $\angle B = \angle E$ (B) $\angle A = \angle D$ (C) $\angle C = \angle F$ (D) $\angle A = \angle C$
- Q5)** The probability of getting a bad egg in a lot of 400 is 0.035. The number of bad eggs in the lot is [1]
(A) 7 (B) 14 (C) 21 (D) 28
- Q6)** D and E are respectively the points on the sides AB and AC of a triangle ABC such that $AD=2$ cm, $BD=3$ cm, $BC=7.5$ cm and $DE \parallel BC$. Then, length of DE (in cm) is [1]
(A) 2.5 (B) 3 (C) 5 (D) 6
- Q7)** If $\sin \theta - \cos \theta = 0$, then the value of $(\sin^2 \theta + \cos^2 \theta)$ is [1]
(A) 1 (B) $\frac{3}{4}$ (C) $\frac{1}{2}$ (D) $\frac{1}{4}$
- Q8)** If two positive integers a and b are written as $a = x^2 y^2$ and $b = xy^3$, x, y are prime numbers, then HCF (a, b) is [1]
(A) xy (B) xy^2 (C) $x^2 y^2$ (D) $x^2 y^3$
- Q9)** One equation of a pair of dependent linear equations is $-5x + 7y = 2$. The second equation can be [1]
(A) $10x + 14y + 4 = 0$ (B) $-10x - 14y + 4 = 0$ (C) $-10x + 14y + 4 = 0$ (D) $10x - 14y = -4$



- (A) $\frac{2}{3}$ (B) $\frac{1}{3}$ (C) $\frac{1}{2}$ (D) $\frac{3}{4}$

Q15) If the sum of the areas of two circles with radii R_1 and R_2 is equal to the area of a circle of radius R , then [1]
(A) $R_1 + R_2 = R$ (B) $R_1^2 + R_2^2 = R^2$ (C) $R_1 + R_2 < R$ (D) $R_1^2 + R_2^2 < R^2$

Q16) If $\triangle ABC \sim \triangle QRP$, $(ar(\triangle ABC)) = 9$, $AB = 18$ cm and $BC = 15$ cm, then PR is equal to [1]
(A) 10 cm (B) 12 cm (C) $\frac{20}{3}$ cm (D) 8 cm

Q17) $\triangle ABC$ is such that $AB=3$ cm, $BC=2$ cm and $CA=2.5$ cm. If $\triangle DEF \sim \triangle ABC$ and $FE=4$ cm, then find the perimeter of $\triangle DEF$. [1]
(A) 12 cm (B) 13 cm (C) 14 cm (D) 15 cm

Q18) The value of $\frac{2 \tan 30^\circ}{1 + \tan^2 30^\circ}$ is: [1]
(A) $\sin 60^\circ$ (B) $\cos 60^\circ$ (C) $\tan 60^\circ$ (D) $\sin 30^\circ$

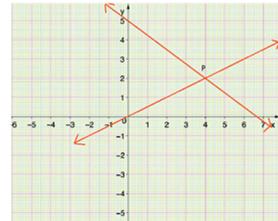
Q19) For what value of k , the pair of equations $4x - 3y = 9$, $2x + ky = 11$ has no solution: [1]
(A) $\frac{9}{11}$ (B) $\frac{1}{2}$ (C) $-\frac{3}{2}$ (D) $\frac{2}{3}$

Q20) The probability that a non-leap year selected at random will contain 53 Sundays is [1]
(A) $\frac{1}{7}$ (B) $\frac{2}{7}$ (C) $\frac{3}{7}$ (D) $\frac{5}{7}$

SECTION-B

- Section-B consists of 20 questions of 1 mark each. Any 16 questions are to be attempted
- Q21)** The largest number which divides 70 and 125, leaving remainders 5 and 8, respectively, is [1]
(A) 13 (B) 65 (C) 875 (D) 1750
- Q22)** If the lines given by $3x + 2ky = 2$ and $2x + 5y + 1 = 0$ are intersecting, then the value of k is [1]
(A) $-\frac{5}{4}$ (B) $\frac{2}{5}$ (C) $\frac{15}{4}$ (D) any real number other than $\frac{15}{4}$
- Q23)** $\sqrt{3} \cot 2x = \cos 60^\circ + \sin 45^\circ \cdot \cos 45^\circ$, then x equal to [1]
(A) 15° (B) 30° (C) $1/\sqrt{3}$ (D) 60°
- Q24)** The area of the triangle formed with the graph of equations

$x - 2y = 0$, $3x + 4y = 20$ and y -axis is [1]



- (A) 20 sq. units (B) 10 sq. units (C) 7 sq. units (D) 6.5 sq. units

Q25) The LCM of two prime numbers p and q ($p > q$) is 143. Find the value of $3p - q$. [1]
(A) 20 (B) 28 (C) 38 (D) 48

Q26) A jar contains 24 marbles, some are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is $\frac{2}{3}$. Find the number of blue balls in the jar. [1]
(A) 16 (B) 8 (C) 14 (D) 12

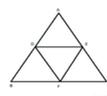
Q27) The probability of selecting a prime number from numbers lying between 10 and 30 is [1]
(A) $\frac{1}{5}$ (B) $\frac{3}{10}$ (C) $\frac{1}{3}$ (D) $\frac{6}{19}$

Q28) $\frac{\sin \theta}{1 + \cos \theta} + \frac{1 + \cos \theta}{\sin \theta} =$ [1]
(A) $2 \csc \theta$ (B) $2 \cos \theta$ (C) $2 \sec \theta$ (D) $2 \sin \theta$

Q29) A line intersects the y -axis and x -axis at the points P and Q , respectively. If $(-2, -5)$ is the mid-point of PQ , then the coordinates of P and Q are, respectively [1]
(A) $(0, -5)$ and $(2, 0)$ (B) $(0, 10)$ and $(-4, 0)$ (C) $(0, 4)$ and $(-10, 0)$ (D) $(0, -10)$ and $(4, 0)$

Q30) $\triangle ABC$ is an isosceles triangle with $AB = AC = 13$ cm. The length of the altitude from A on BC is 5 cm. Find BC . [1]
(A) 20 cm (B) 26 cm (C) 24 cm (D) none of these

Q31) D, E and F are respectively the mid-points of sides AB, BC and CA of $\triangle ABC$. Find the ratio of the areas of $\triangle DEF$ and $\triangle ABC$. [1]
(A) 2:1 (B) 4:1 (C) 1:2 (D) 1:4



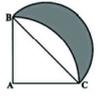
Q32) The value of $\sec A (1 - \sin A)$ ($\sec A + \tan A$) is [1]
(A) 1 (B) 3 (C) 2 (D) 4

Q33) In a school there are two sections, namely A and B, of class X. There are 30 students in section A and 28 students in section B. Find the minimum number of books required for their class library so that they can be distributed equally among students of section A or section B. [1]
(A) 58 (B) 420 (C) 2 (D) None of these.

Q34) D and E are points on the sides AB and AC respectively of a $\triangle ABC$ such that $DE \parallel BC$. Find the value of 'x' when $AD = x$ cm, $DB = (x - 2)$ cm, $AE = (x + 2)$ cm and $EC = (x - 1)$ cm. [1]
(A) 2 cm (B) 3 cm (C) 4 cm (D) None of the above

Q35) The point on x -axis which is equidistant from the points $(5, -2)$ and $(-3, 2)$ is [1]
(A) $(0, 1)$ (B) $(-1, 0)$ (C) $(1, 0)$ (D) $(0, 9)$

Q36) In the below figure, $ABPC$ is a quadrant of a circle of radius 14 cm and a semicircle is drawn with BC as diameter. Find the area of the shaded region. [1]
(A) 98 cm² (B) 154 cm² (C) 210 cm² (D) 406 cm²



Q37) Area of the largest triangle that can be inscribed in a semi-circle of radius r units is [1]
(A) r^2 sq. units (B) $\frac{1}{2} r^2$ sq. units (C) $2 r^2$ sq. units (D) $\sqrt{2} r^2$ sq. units

Q38) If α, β are the zeroes of the polynomial $x^2 - 16$, then $\alpha^2 + \beta^2$ is [1]
(A) 32 (B) -16 (C) -32 (D) 16

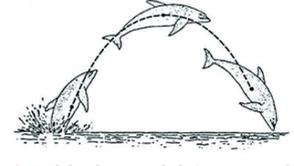
Q39) The solution of pair of equations $2^x - 16$ and $3^{x-7} = 9$ is [1]
(A) $(1, 3)$ (B) $(3, 1)$ (C) $(-1, 3)$ (D) $(-3, 1)$

Q40) Three horses are tethered with 7-metre-long ropes at the three corners of a triangular field having sides 22 m, 34 m and 40 m. Find the area of the plot, which can be grazed by the horses. [1]
(A) 77 sq. units (B) 154 sq. units (C) 33.5 sq. units (D) 11 sq. units

SECTION-C

Section-C consists of 10 questions of 1 mark each. Any 8 questions are to be attempted.

Q41-Q45 are based on Case Study-1
The figure given below shows the path of a dolphin when it takes a dive. Clearly it is a parabola which is the graphical representation of quadratic polynomial.



Q41) If the above parabola is represented by the polynomial $P(x) = ax^2 + bx + c$ then

'a' should be [1]
(A) less than zero (B) greater than zero (C) equal to zero (D) greater than or equal to zero

Q42) The number of real zeroes for the quadratic polynomial is [1]
(A) exactly two (B) at least two (C) at most two (D) less than two

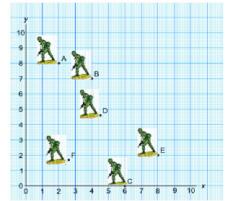
Q43) If one zero of the quadratic polynomial $P(x) = kx^2 + 4x - 1$ is $\frac{1}{2}$ then the value of k is [1]
(A) 1 (B) -4 (C) 4 (D) -12

Q44) If α and β are the zeroes of a quadratic polynomial $P(x) = -3x^2 + 2x - 1$ then the value of $\frac{1}{\alpha} + \frac{1}{\beta}$ is [1]
(A) 2 (B) $\frac{2}{3}$ (C) $\frac{1}{3}$ (D) None of these

Q45) If α and β are the zeroes of a quadratic polynomial $P(x) = -3x^2 + 2x - 1$ then the polynomial whose zeroes are $\frac{1}{\alpha}, \frac{1}{\beta}$ is [1]
(A) $P(x) = 3x^2 - 6x + 1$ (B) $P(x) = 3x^2 + 2x + 1$ (C) $P(x) = x^2 - 2x + 3$ (D) None of these

Q46-Q50 are based on Case Study-2

Our military deserves to be honored and appreciated. The freedom and liberty we enjoy is much because of the brave men and women of the military who dedicate their lives to protecting the nation. In the below figure the soldiers are ready for the action and have taken positions A, B, C, D, E and F. Observe the co-ordinates of A, B, C, D, E, F and answer the following questions.



Q46) The co-ordinates of A and E are [1]
(A) $(8, 2)$ and $(6, 0)$ (B) $(8, 2)$ and $(8, 2)$ (C) $(2, 8)$ and $(8, 2)$ (D) $(2, 8)$ and $(2, 8)$

Q47) The distance AE is [1]
(A) $3\sqrt{2}$ units (B) $6\sqrt{2}$ units (C) $2\sqrt{6}$ units (D) None of these

Q48) The distance of point B from the Origin is [1]
(A) $\sqrt{65}$ units (B) 11 units (C) $\sqrt{55}$ units (D) None of these

Q49) The mid-point of BC is [1]
(A) $(5, 3.5)$ (B) $(7, 2, 5)$ (C) $(-1, 3.5)$ (D) $(10, 7)$

Q50) The point on y -axis which is equidistant from the A and B is [1]
(A) $(\frac{3}{2}, 0)$ (B) $(\frac{7}{2}, 5)$ (C) $(0, 1.5)$ (D) $(\frac{3}{4}, 0)$

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.

MY SCHOOL PROJECT | DIY COMPUTER

A custom-made connect with cyber world

Electronics prices peaked during the time of the pandemic. Today, a simple low-end laptop/PC costs a lot of money, but did you know that we can make one for about half the price of the original one.

So, to build a PC that performs exceptionally well, we need a few things:

- Single-board computer
- SD card
- Peripherals
- Hard Drive (optional)

And that's it! That's all we need. Also, no need of power supply like in those huge PCs, as these are powered by a normal phone charger and these single board computers have in-built RAM.

We can use either a Raspberry Pi or a NVIDIA Jetson Nano. For those of you who don't know about Raspberry Pi, it is a sin-

gle board computer made in UK for teaching basic computer science in schools and Jetson Nano is a low-power system and is designed for accelerating machine learning applications and computing. Both have different RAM configurations and do not need an SSD or a HDD to boot, as they use an SD-card as primary storage and for the booting process.

Raspberry Pi comes with a RAM configuration of 1GB, 2GB, 4GB and 8GB. (prices vary based on RAM configuration). Jetson Nano has comparatively less options, ie: 2GB and 4GB.

Nano has a more powerful GPU in it, while Raspberry Pi has a wide range OS to be used with it, ranging from Linux to Windows10, 11 to gaming OS and many more, but Jetson Nano has only a special image (OS) of Ubuntu that is made by NVIDIA. You can buy them from trusted websites.

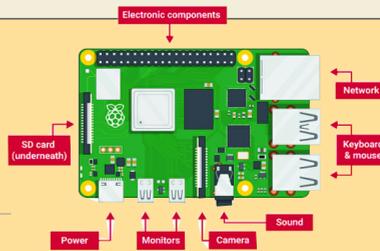
HOW TO SET IT UP

• An SD card of at least 8GB is required, one of up to 1TB capacity can be used. Now we need a laptop/PC for the next step. We need to install SD card formatting app, and an application that writes or flashes the respective OS to SD card like etcher.io.

• You can find more information online about supported images and how to flash them. We need to download the OS or image from their website for eg: <https://www.raspberrypi.org/software/operating-systems/#raspberrypi-os-32-bit>. We can use a HDD, SSD or a thumb drive as extended storage. Both of these boards have 4 USB ports, an ethernet port, HDMI.

• In addition to this Raspberry Pi has wifi and bluetooth built in unlike Nano (Nano doesn't have built-in wifi or bluetooth). Both of these have GPIOs (general purpose input output pins) using which you can build projects based on robotics.

• "Rasbian OS" is the basic OS for Raspberry Pi



based on Linux. Like this there are many operating systems for the Raspberry Pi and Ubuntu for Jetson.

• Now we need to format the SD card using SD card formatter (formatting will delete all the files on it). After downloading the OS file, locate it (the OS zip file) extract it and open up etcher.io and flash the image (OS) to the SD card.

(Instead of the etcher, we can also use the original Raspberry Pi flasher app built by their team. It has more options like in-built OS downloader and flasher, SD card formatter and third party OS).

Now all we have to do is to eject the SD card from the laptop/PC and place it in the Jetson Nano's or Raspberry Pi's SD card slot. We will need a monitor. If you don't have one, you can connect it to TV as they use HDMI for video output.

Connect it to a charger and watch it boot. After booting, connect it to a mouse and keyboard and you can use it as a PC. (If you don't have a computer to flash OS to SD card you can buy a kit that comes with NOOBS SD card. NOOBS is in-built setup os for Raspberry Pi).



M PUNEETH, class X D, DDMS, P Obul Reddy Public School, Hyderabad