

# TEST YOUR PHYSICS

Trushar Patel, Educator, Anand Niketan School, Ahmedabad presents Physics mock paper. Check out, how much you score....

### GENERAL INSTRUCTIONS

- Answers to this paper must be written on the paper provided separately.
- You will not be allowed to write during the first 15 minutes.
- This time is to be spent reading the question paper.
- The time given at the head of this paper is the time allowed for writing the answers.
- Section I is compulsory. Attempt any four questions from Section II.
- The intended marks for questions or parts of questions are given in brackets [ ].

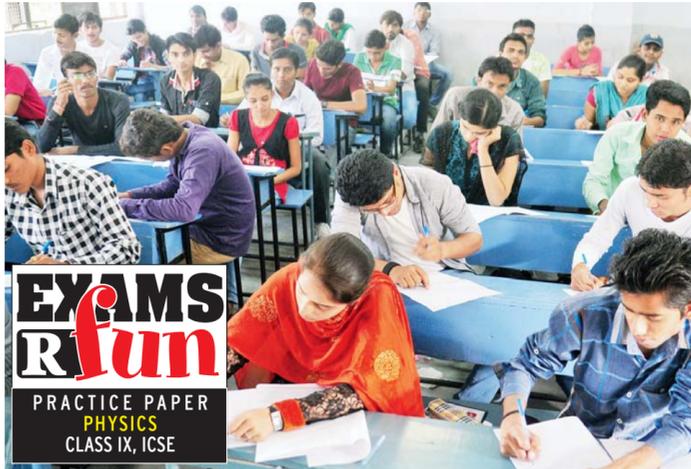
### SECTION I (40 MARKS)

Attempt all questions from this section

- Q.1** a) i) What is a simple pendulum ?  
ii) State two factors affecting the time period of a simple pendulum. [2]  
b) A car travels a distance 100 m with a constant acceleration and average velocity of 20 m/s. The final velocity acquired by the car is 25 m/s. Find the initial velocity of car. [2]  
c) i) What is meant by the term 'moment of force' ?  
ii) If the moment of force is assigned a negative sign then what will be the turning tendency of the force ? [2]  
d) i) The incident ray and the reflected ray from a mirror are at right angle to each other. What is the angle of incidence ?  
ii) A person standing in front of a plane mirror finds his image at a distance of 6 m from himself. What is the distance of the person from the mirror. [2]  
e) i) Differentiate between watt and watt hour.  
ii) Complete the following sentence :  
1 J = ..... calorie. [2]
- Q.2** a) i) Define linear momentum.  
ii) State C.G.S. unit of momentum. [2]  
b) State two points of difference between Light waves and Sound waves. [2]  
c) An electric bulb draws 1.2A current at 6 V. Find the resistance of filament of bulb while glowing. [2]  
d) State two advantages of an electromagnet over a permanent magnet. [2]  
e) A uniform metre scale is in equilibrium position. Calculate the mass of the ruler. [2]



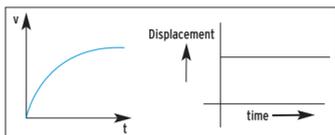
- Q.3** a) The work done by a fielder when he takes a catch in a cricket match, is



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negative. Explain. [2]

- b) State the type of motion indicated by the following graphs. [2]



- c) State the function of the following parts of Screw gauge. [2]  
i) Sleeve ii) Ratchet  
d) i) Define Wavelength  
ii) Sound in air propagates in form of Transverse waves. State True or False. [2]  
e) When starter motor of a car is switched on for 0.12 seconds, 48 Coulomb of charge passes through the coil of the motor. Calculate the current in the coil. [2]

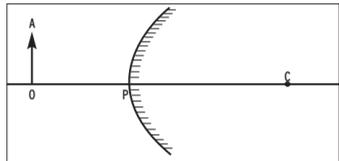
- Q.4** a) i) State Newton's law of gravitation.  
ii) State whether the gravitational force between two masses is attractive or repulsive ? [2]  
b) i) Which mirror has a wider field of view?  
ii) Calculate the number of images formed by two mirrors inclined at an angle of 120°. [2]  
c) i) Define magnetic equator. [2]  
ii) Draw magnetic field lines around bar magnets where like poles face each other.  
d) i) With reference to the direction of action,

how does a centripetal force differ from a centrifugal force ? [2]

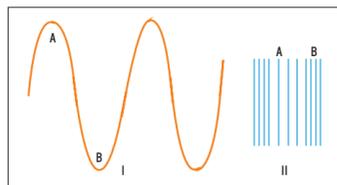
- i) Is centrifugal force the force of reaction of centripetal force ? [2]  
e) i) What is a longitudinal wave ?  
ii) Arrange the speed of sound in liquids V<sub>L</sub>, solids V<sub>S</sub> and gases V<sub>G</sub> in an ascending order. [2]

### SECTION II (40 MARKS)

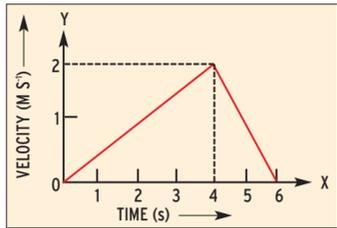
Attempt any four questions from this section



- Q.5** a) i) Complete the following ray diagram. [3]  
ii) Also state the characteristics of the image formed.  
b) i) Define least count of vernier callipers.  
ii) State least count of vernier callipers.  
iii) State its use. [3]  
c) i) State two points of difference between distance and displacement. [2]  
ii) A body moves from rest with a uniform acceleration and travels 270 m in 3 seconds. Find the velocity of the body at 10 second after the start. [4]



- Q.6** a) Observe the diagram carefully and answer the following questions :  
i) Which figure shows the waves produced when a tuning fork is struck in the air ?  
ii) How many waves are shown in figure I ?  
ii) Name the regions A and B labelled in figure II. [3]



- b) Figure shows the velocity-time graph of a particle moving in a straight line. [3]  
i) Find the displacement of particle at t = 6 s.  
ii) Compare the distance travelled by the particle from 0 to 4 s and from 4 s to 6 s.  
iii) Find the acceleration from 0 to 4 s.  
c) i) Draw circuit symbol for the following elements of an electric circuit :  
Rheostat, A.C. source  
ii) State two points of difference between Primary cell and Secondary cell. [4]

- Q.7** a) i) State Ohm's law.  
ii) How is the resistance of a wire affected if its a) length is doubled, b) radius is doubled ? [3]  
b) i) Define work.  
ii) A man having a box on his head, climbs up a slope and another man having an identical box walks the same distance on a levelled road. Who does more work against the force of gravity and why ? [3]  
c) i) State the characteristics of image formed by plane mirror.  
ii) An object of 4 cm height is placed at a distance of 18 cm from concave mirror having focal length 12 cm. Find the position and magnification of image. [4]

- Q.8** a) i) Define Induced magnetism  
ii) Induced magnetism is temporary'. Explain with the help of an example. [3]

- b) A body is dropped freely under gravity from the top of a tower of height 78.4 m. Calculate : (i) the time to reach the ground and (ii) the velocity with which it strikes the ground. (Take g = 9.8 m s<sup>-2</sup>) [3]  
c) i) The stone of hand flour grinder is provided with a handle near its rim. Give a reason.  
ii) Define the term 'centre of gravity'.  
iii) Where is the centre of gravity of a hollow cone located ? [4]



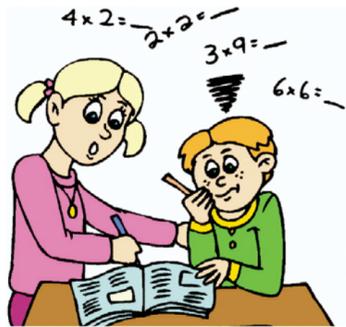
- Q.9** a) i) Define Force.  
ii) Explain the phenomena taking place. [3]  
iii) State the law of motion obeyed in the above situation.  
b) i) Define fundamental unit.  
ii) State two guidelines for writing the units. [3]  
c) A boy of mass 40 kg runs up a flight of 50 steps, each 10 cm high in 14 second. Find : (i) the work done by the boy (ii) the power developed. (g = 9.8 m s<sup>-2</sup>)

- Q.10** a) A uniform metre rule of mass 100 g is balanced on a fulcrum at mark 40 cm by suspending an unknown mass m at the mark 20 cm. (i) Find the value of m.  
(ii) To which side the rule will tilt if the mass m is moved to the mark 10 cm ?  
(iii) What is the resultant moment now ? [3]  
b) i) What is neutral point ?  
ii) State the position of neutral points when a magnet is placed with its axis in the magnetic meridian and with its north pole a) pointing towards the geographic north b) pointing towards the geographic south. [3]  
c) i) State two properties of ultrasound that makes it useful to us.  
ii) Assuming the speed of sound in air equal to 340 m/s and in water equal to 1360 m/s, find the time taken to travel a distance 1700 m by sound in (I) air and (II) water.

These questions and the marks alongside 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.

## BE A MATHS MASTER

Ogrima Mukherjee, class X, Navy Children School, Mumbai, tells how she tackled the subject she dreaded the most Maths by applying simple techniques...



The moment someone said "Maths" and I would get that natural frown on my face and I used to hit the panic button, despite all self-assurances in Aamir Khan's style that "All is well!" But then, I felt this is not the right approach, with few simple techniques my fear crumbled like cookies.

**PRACTICE:** I increased my practice hours and requested my father to support me by giving assignments and monitoring my progress. So, he used to give me sums to solve after lunch and I was supposed to finish them by evening.

**SETTING BENCHMARK:** Everyone needs something to drive them forward, so it's important to set a benchmark or some kind of incentive for oneself. The only person I ever had to compete with was me and it should be the case for you, too. On getting the sums right or scoring well, my parents would always reward me.

**SHIFT IN THINKING PATTERN:** With practice, my fear started reducing as my problem solving ability improved. Soon, I found myself enjoying the exercises. This shift ensured that Maths is fun for me and I stopped studying to score and started studying for fun.

**HISTORY DATES TURNED FUN TOO:** Since there were numbers too, I also faced problem in remembering history dates. But I made a conscious effort to remember them by writing down. Even when you are studying, you can use a white board to write or simply write the dates on a paper and pin it to a soft board in your room. Whenever free, I would stand by the board and just go through the dates. Over a period of time, I memorised them.

## 'TEXTBOOKS WERE MY BIBLE'

Arwa Abdul Rahman, class X student, Tunbridge High School, Bengaluru shares how she ensured good percentage in her exams



**SUCCESS MANTRA:** Although hard work must be one's mantra to success, I believe that ultimately, the main reason behind one's success every

**TUITIONS ARE A WASTE OF TIME:** They do not help and I say this with confidence. Because why would a student want to go to another place just to listen to the same thing that has already been taught in class. If one is attentive enough, school classes are enough and if not, even tuitions won't be enough.

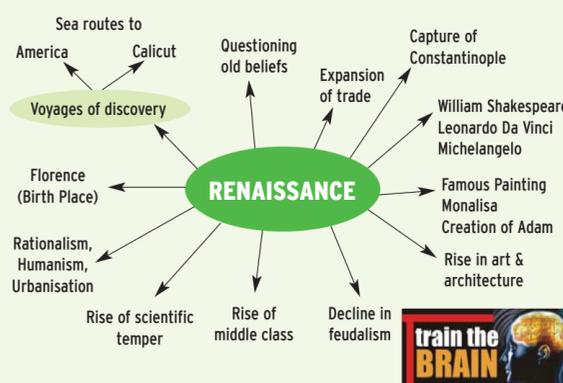
time involves the the sacrifices one makes.  
**STUDY STRATEGY:** Today, studying by writing things down is considered to be old fashioned and not something right for the kind of syllabus we have. But trust me, when you write it, you never forget it. The key is not just to write, but to draw out flow charts and connect things.

**TEXTBOOKS WERE MY BIBLE:** I referred to no other books and guides other than my own school textbooks because the knowledge you gain from them is adequate for the Board exams.

**RIGHT STUDY TIME:** It is best to wake up in the morning and feed your fresh mind. To be honest, being more of a night person, I actually used to study until dawn and then sleep because I felt more inclined to study at those hours. However, every person has to prepare a schedule according to what works best for them.

**MY ADVICE**  
Well, it is technically the first exam you are about to give, when it comes to the amount of syllabus you have. It's never too early to start your preparations, but it's too early to get stressed about your Boards. People who are used to studying a night before the exam, need to take this one more seriously.

## HISTORY: RENAISSANCE



RISHI BALSE, Class VIII, Campion School, Colaba, Mumbai

## Cambridge English

CEFR Level A2 Writing



**Task:** How well can you identify the correct word for the definitions below which describe people or places. (All the answers to these questions are Common Nouns.)

an actor	a ring master	a library	a dentist
a pilot	a secretary	a chemist's	an artist
a café	a mechanic	a journalist	an airport
a circus	a clown	a cinema	a hospital
a bank			

**Example:** You can go to this place if you want to watch a film - a cinema

- You can go to this shop to buy medicine and other things ..... (1)  
This is a place you go to if you want to catch a plane ..... (2)  
If you want to be one of these, you need to be very good at drawing or painting ..... (3)  
You usually see this inside a big tent. You might see horses, lions and elephants here ..... (4)  
This is someone who works in the theatre, in films or on TV ..... (5)  
People laugh when they see this person with his round, red nose, big feet and strange clothes ..... (6)  
An ambulance might take you here if you are very ill ..... (7)  
You go to this place if you want to get money or talk to someone about your money ..... (8)  
This person makes you better when you have a toothache ..... (9)  
This person writes in a newspaper about things that have happened ..... (10)

**Tip of the day:**  
A comma (,) is an important punctuation mark in writing. An absence of a comma can completely change the meaning of the message. You must be very careful how you use it! For example:  
**Let's eat Grandma!**  
Without a comma, this statement suggests that Grandma should be eaten. With a comma, the meaning completely changes.  
**Let's eat, Grandma!**  
This sentence means that you are calling Grandma to eat...rather than eating your Grandma!

**What do you think of the activities and tasks?**  
Please send your feedback to times.nie@timesgroup.com  
Log on to www.toistudent.com and leave your feedback in the comments section.

## HOW GOOD IS YOUR ENGLISH?

CEFR Level B1 Speaking

**Task:** Decisions! Decisions! Decisions can be tough! It is important to consider all the factors involved before making a decision.

Do the activity below with a friend and discuss the factors involved when making a decision. Take a minute to decide what you will say and then talk to your friend for a minute about one of the two topics.

**Try to record yourself so you can play it back to hear how well you speak.**

**What is important when...?**

Choosing a training course

- Size of group
- Cost
- Times of course

**What is important when...?**

Booking a hotel for a business trip

- Location
- Facilities
- Charges

**Useful Language for speaking**

**Phrases/Sentence structure**

- There are many things to think about when choosing.....
- When you are thinking about.....it is important to consider.....
- You should also think about ...

**After you have spoken ask yourself the following questions:**

- Did I use my one minute to plan what I am going to say?
- Did I have something interesting and important to say?
- Did I give examples to support my ideas?
- Did I use any clues from the useful language section?

**Answer Key:**

1. a chemist's
2. an airport
3. an artist
4. a circus
5. an actor
6. a clown
7. a hospital
8. a bank
9. a dentist
10. a journalist