

Requirement: Expert Question Creators for Centre for Teacher Accreditation (CENTA)

Background: Centre for Teacher Accreditation (CENTA) aims to empower teachers and catalyze teacher professional development through its CENTA Certification that will connect outstanding teachers and aspiring teachers to great opportunities. CENTA was founded in 2014 by Ramya Venkataraman and Anjali Jain, both seasoned professionals with IIT- IIM backgrounds and 15 to 20 years of experience in global organizations such as McKinsey & Company and HCL.

The Assessment: CENTA's assessment for teachers includes tests with MCQs (multiple choice questions) on select themes, especially specific subjects. Question creation is an on-going process at CENTA. To ensure a ready pool of questions availability, we keep adding to our team of question creators and a growing question bank. For 'subject' related questions, we also **selectively work with college students** who demonstrate in-depth conceptual understanding.

Who are we looking for? Question creators in the following subjects: EVS, Mathematics, Physics, Chemistry, Biology, History, Geography, Civics & Economics, Languages (English, Hindi, Tamil, Telugu). In all cases, the question creators can select one or two of the four grade level groups (Primary: I to V, Middle School: VI to VIII, Secondary: IX to X, Higher Secondary: XI to XII) they want to focus on.

What's in it for you? This is a **paid part-time role (Rs.100-150/- per question accepted by CENTA)**. Question creators can work from anywhere. They must be able to dedicate a few hours per week based on the contract/volume of questions agreed upon with CENTA. **High performers will also receive a Certificate of Appreciation and/or Letter of Recommendation from CENTA and may get broader exposure based on interest.**

Question Creator Profile: The typical profile of a question creator is someone with in-depth knowledge and conceptual understanding of the diverse topics in the chosen subject and strong analytical reasoning (important for multiple choice question design). Basic proficiency with Excel and Word is important. In-depth ability to use technology is not required.

Selection Process: Question creators will be selected based on a rigorous process, including the creation of sample questions, response to feedback received and commitment to deadlines.

If you would like to apply, please follow the following steps:

1. Scroll down and check the sample questions provided for the subject area and grade level group of your choice.
2. Consider your own expertise and ability to create questions at par with the sample questions. Please note that your questions must be original and based on the NCERT syllabus.
3. Email your resume along with the section(s) and theme(s) in which your expertise lies to jayjit.das@centa.org .We will revert to you with the next steps in the selection process.

Sample Questions

1) Primary English language

The Taj Mahal was built by the king in memory of his wife. Therefore, it helps the government attract a lot of tourists.

Class IV teacher Mr. Kapoor asked Raju to replace 'Therefore' by a different transition word. What do you think is Mr. Kapoor's reason to say that?

- A. 'Therefore' is not a commonly used transition word. It is a conjunction.
- B. 'Therefore' is used to denote consequence of something but that is not the case here.
- C. Though commonly practiced, it is grammatically incorrect to start a sentence with 'therefore'.
- D. 'Therefore' can be used in an essay only if you are arguing in favour of a subjective opinion.

Correct Option: Option B

2) Middle School English language

The heart attack was a setback. Amrita had to rest and take medicines. Her mother helped out with the kids and with dinner. Her hours at the bakery were reduced.

Including the sentence, "The bakery, Splendiferous, sold delicious pastry." would:

- A. Clarify the passage as Amrita works at the bakery.
- B. Distract as details of the bakery are unnecessary here.
- C. Not add or detract from the passage, as it is more of the same.
- D. Make the passage more personal.

Correct Option: Option B

3) Secondary and Senior Secondary School English language

Which of the following aspects would you LEAST focus on, if you are trying to mirror an author's 'style' in your writing piece?

- A. Sentence structure of the writing
- B. The extent and kind of literary devices used
- C. The words chosen to reflect meaning, emotions and ideas
- D. The viewpoint the character takes to describe events in the story

Correct Option: Option D

4) Primary Mathematics

A sneaky milkman uses his own scale to buy and sell milk. He uses a scale that reads 500 mL but measures 600 mL while buying from the wholesale dealer, and a scale that reads 500 mL but measures 400 mL while selling to the customer. If he claims to sell the milk at wholesale price, what percent profit is he making?

- A. 32%
- B. 40%
- C. 50%
- D. 83%

Correct Option: Option C

5) Middle School Mathematics

A child takes a rectangular sheet of paper with area $64\pi \text{ cm}^2$ and folds it without overlapping into a cylinder. Then, he puts a right circular cone with the same height above the cylinder, with bases coinciding. If the radius were doubled, the volume of this new figure would be $1024\pi^3 \text{ cm}^3$. The height of the cylinder is:

- A. 2 cm
- B. 4 cm
- C. 16 cm
- D. Data insufficient

Correct Answer Option: C

6) Secondary Mathematics

Mr. Joseph wants to discuss at least one interesting problem in class during one of his high school maths classes. He finally decides to discuss the following scenario: "A barber in a village cuts the hair of every person in that village who will not cut their own hair. Under such a circumstance, will the barber cut his own hair?"

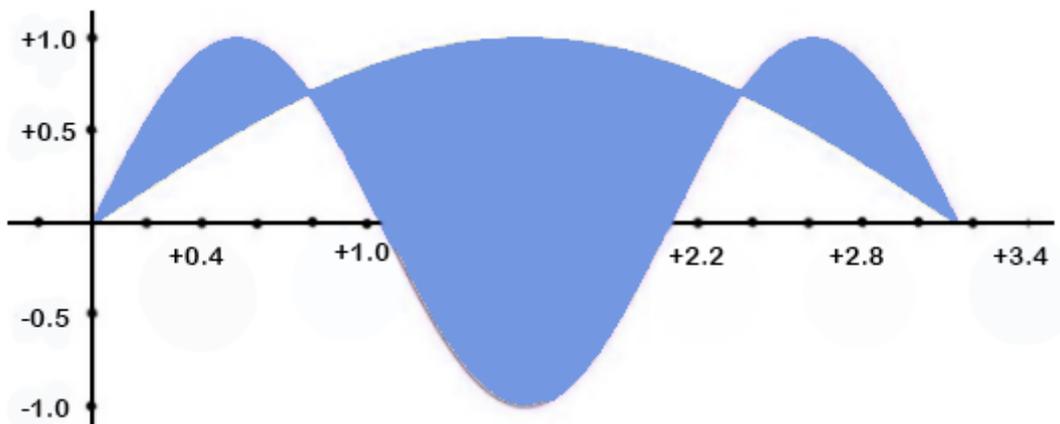
If Mr. Joseph models this problem mathematically, and introduces it as an example of an interesting problem from a particular topic, which topic should he choose?

- A. Linear Algebra
- B. Sequence and Series
- C. Binomial Theorem - Probability
- D. Set Theory

Correct Option: Option D

7) Senior Secondary Mathematics

A painter wants to paint the area between the curves $y=\sin x$ and $y=\sin 3x$, as x goes from 0 to π . If he uses 1L of paint per square unit area, how much paint does he need for the area between these curves?



- A. 83 L
- B. $43(22-1)L$
- C. $43(1-22)L$
- D. $83(22-1)L$

Correct answer option: Option B

8) Middle School Physics

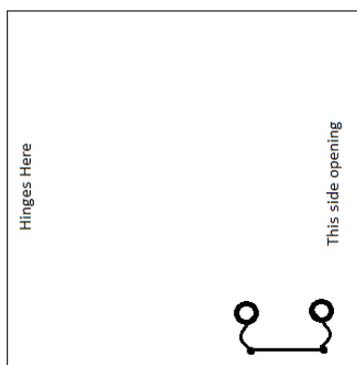
If a man was hammering a nail into the ground and an elephant was standing on the ground, which of the following statements is true?

- A. The elephant applies greater force and pressure.
- B. The man hammering the nail applies greater force and pressure.
- C. The elephant applies greater force and man hammering a nail applies greater pressure.
- D. The man hammering the nail applies greater force and elephant applies greater pressure.

Correct Answer Option: C

9) Secondary Physics

A high cupboard has a door handle fixed with two screws as shown. After sometime, the screw that is towards the side which opens comes out; as result, with use, the handle comes slightly out from the side where the screw is missing. See the two images below which show a top view of the handle originally and after breaking. If the handle now makes an angle of 30 degree with the original, what is the ratio of original force and the force now required to open the cupboard?



- A. 1:2
- B. 2:1
- C. 23:20
- D. 20:23

Correct Option: D

10) Senior Secondary Physics

In a beta-decay experiment, the energy of the electrons was hypothesized to be: $E = E_i - E_f$ (where E_i = initial energy of nucleus, E_f = final energy of nucleus). However, even when initial and final energy of nucleus were kept constant, energy of electrons dropped to almost 0. What was responsible for this behaviour?

- A. Other elementary particles were emitted which carried away the energy.
- B. Electrons lost energy by colliding with other nucleons.
- C. Electrons from nucleus collided with orbital electrons and lost energy.

D. Energy of the electrons was zero due to uncertainty principle. It can be something else, if experiment was repeated.

Correct Option: Option A

11) Middle School Chemistry

Which of the following is most true about alloys:

I: It is a homogenous mix of two or more metals alone

II: It is a homogenous mix of metals and some non-metals

III: The following are made up of alloys: bronze jewellery, brass figurines, and gold jewellery

- A. Only I
- B. I and III
- C. Only II
- D. II and III

Correct Option: D

12) Secondary Chemistry

Which of the following combinations would be best while designing a propellant for a rocket?

- A. Liquid hydrogen because of high calorific value and liquid nitrogen because it can act as a catalyst for combustion.
- B. Liquid hydrogen and liquid nitrogen because both have low enthalpy of combustion and are light.
- C. Liquid hydrogen because it provides high exhaust velocity and liquid oxygen because it is a great supporter of combustion.
- D. Liquid hydrogen because of high calorific value and liquid oxygen it is a great supporter of combustion.

Correct Option: Option C

13) Senior Secondary Chemistry

For majority of reactions, what would increase the rate of reaction?

- A. Decrease concentration of reactants, decrease surface area, increase amount of catalyst, decrease temperature.
- B. Increase average kinetic energy of molecules, increase concentration of reactants, increase exposed areas for reactants to collide, decrease the number of catalysts.
- C. Increase concentration of reactants, increase surface area, increase amount of catalyst, increase temperature.
- D. Increase average kinetic energy of molecules, increase concentration of reactants, decrease exposed areas for reactants to collide, increase the number of catalysts.

Correct Option: Option C

14) Middle School Biology

A farmer, through a soil test, found that the soil in her field was depleted of nutrients and so had low fertility. Which of the following actions would be LEAST effective in restoring nutrients and making her field more fertile?

- A. Use organic manure like vermicompost in her field to increase nutrient availability.
- B. Grow legumes alongside her main crop, as a method of inter-cropping to improve nitrogen fixation.
- C. Grow legumes before planting her next crop as a method of crop rotation to improve nitrogen fixation.

D. Grow the same crop again to ensure that the crop adapts to the soil nutrients, improving fertility.

Correct Option: Option D

15) Secondary Biology

A person has been diagnosed with a blockage in his pancreatic duct. This would

- A. affect the production of insulin and glucagon.
- B. affect the digestion of proteins, carbohydrates and fats.
- C. affect the emulsification of fats.
- D. affect the absorption of nutrients.

Correct Option: Option B

16) Senior Secondary Biology

Through a lipid profile test, the doctor identifies that Umesh, a 40-year-old man, has high cholesterol in his bloodstream. The doctor wants to find out the cause for the same. After asking Umesh a few questions and making clinical observations, the doctor asks him to undertake a thyroid test but says there is no need for a sugar test. What did the doctor most likely find out through the questions and observations?

- A. Umesh has been eating a lot of fried food and urinating frequently.
- B. Umesh has been eating normal food but has gained weight.
- C. Umesh is urinating frequently and has lost weight in spite of eating normal food.
- D. Umesh has been eating a lot of fried food and has gained weight.

Correct Answer: Option B

17) Middle School History

A new Government has been elected. Soon after, a new set of textbooks replace the current ones. Your students are curious about why their textbooks have changed so drastically from one year to the next. As a Middle School Social Studies teacher, what would be a responsible way to explain things to them?

- A. "Bring your old textbooks to class tomorrow and let us do a compare and contrast exercise between the old and the new textbooks. We can then, as responsible and involved citizens, send a summary of our feedback to the new government".
- B. "Every political party has its own views on education; the elected government may have asked the textbook committee to consider its views and the textbook committee may have incorporated them. It is also possible that changes were already happening".
- C. "We cannot have the same textbooks forever. It is important to keep updating them to keep up with developments around the world. Each new version is a better way to study the same subject".
- D. "Yes, it is really unfortunate that every time a new government comes to power, they try to replace the old textbooks. We as responsible citizens need to protest against such things".

Correct Answer: B

18) Middle School Geography

A mountain range is formed by the thrusting, collision and buckling of rocks near plate boundaries. Which type of mountain is it most likely to be? And which mountain range is an example for that?

- A. Fold mountain; Satpura
- B. Fold mountain; Aravalli
- C. Fault-Block mountain; Satpura
- D. Fault-Block mountain; Aravalli

Correct Option: Option B

19) Senior Secondary Economics

A random sample of households was taken from a locality to study their consumption patterns. Data was collected on their monthly income and consumption expenditure. The average consumption of the sampled households was found to be C; the unbiased estimate of the household income of the entire locality was found to be Y. Which of the following is NOT involved in the process of Statistical Inference?

- A. Estimating Y
- B. Finding C
- C. Testing if Y is different from the average income of the sample
- D. Deriving the relationship between C and Y

Correct Option: Option B

20) Primary EVS

Which one of the following statements is true?

- A. Some plants may not produce seeds, but all seeds that are produced will sprout or germinate given enabling conditions.
- B. All seeds will sprout or germinate if given enabling conditions, and on germination, a root will always appear first.
- C. All plants produce seeds, some of which will germinate.
- D. All seeds may not germinate even when they are given enabling conditions, but on germination a root will always appear first.

Correct Option: Option D

21) Primary Hindi

कठिन समय में सगे संबंधी भी आँख फेर लेते हैं। रेखांकित का उचित अर्थ बताएं

- A. असर ना होना
- B. बहुत दिनों बाद दिखाई देना
- C. साथ छोड़ देना
- D. डींगें मारना

Correct Option: Option C

22) Primary Tamil

இந்த ஆணை _____, கட்சி உறுப்பினர்கள் இன்னும் விழிப்பாடன் _____.

- A. கொடுக்கப்பட்டதிலிருந்து, இருக்கிறார்கள்.
- B. கொடுக்கப்பட்டதற்கு, இருக்கிறார்கள்
- C. கொடுக்கப்பட்டபின், இருந்திருப்பார்கள்
- D. கொடுக்கப்பட்டதினால், இருந்திருப்பார்கள்.

Correct Option: A

23) Primary Telugu

సామెతకు తగిన పదాలతో ఖాళీలను నింపండి: _____ తెలిసినవాడు లేడు, _____ తెలియనివాడు లేడు.

- A. అన్ని, కొంత
- B. కొంత, ఏదీ
- C. అన్ని, ఏమి
- D. ఏమి, కొంత

Correct Option: Option C