

Student's Signature



NGSE

CLASS 5

Time :
90 Minutes

**National Genius Search
Examination® : Mains**

Student Name

NGSE Roll No

Test Booklet Code:

INSTRUCTIONS TO THE CANDIDATE

- 1. DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO.**
- Fill the information required in the answer sheet. Your test may not be evaluated if the required details are not entered on the answer sheet.
- Do not seek clarification on any item in the test booklet from anyone including the test invigilator or the centre supervisor. Use your best judgment.
- This booklet consists of three sections, as given below :
 - Mathematics – 20 Questions
 - Science – 20 Questions
 - General Knowledge – 5 QuestionsIn case of any problem with your test booklet, inform the invigilator immediately. You will be provided with a replacement.
- Each question carries 2 marks.

Questions from 1 to 45 have only one right answer. **To score marks for each question, bubble for the right answer option should be shaded. Shading more than one bubble or a wrong answer bubble makes the answer wrong. No marks are given for wrong answers.**
- Only **BLACK/BLUE BALL POINT PEN** is to be used for marking answers on OMR sheet. Do not use fountain pens/gel based pens or pencils. Remember that you cannot erase and re-shade any bubble.
- Use the margin in the test booklet for rough work. NO other piece of paper is permitted to be used for rough work.
- NEGATIVE MARKS** are not allotted to any question.
- Failure to follow instructions and examination norms will lead to disqualification.
- Complete the feedback form before you leave the examination hall.

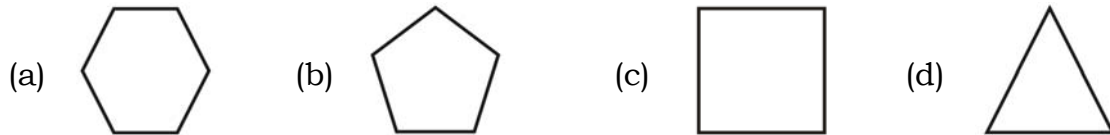
PLEASE WAIT FOR THE SIGNAL TO OPEN THE TEST BOOKLET

Open from this side \longrightarrow

SECTION 1: MATHEMATICS

Important Note: Questions from 1 to 45 have only one right answer. To score marks for each question, bubble for the right answer option should be shaded. Shading more than one bubble or a wrong answer bubble makes the answer wrong. No marks are given for wrong answers.

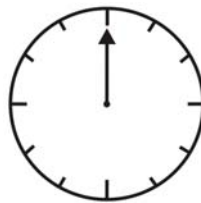
01. Which of the following has at least a right angle?



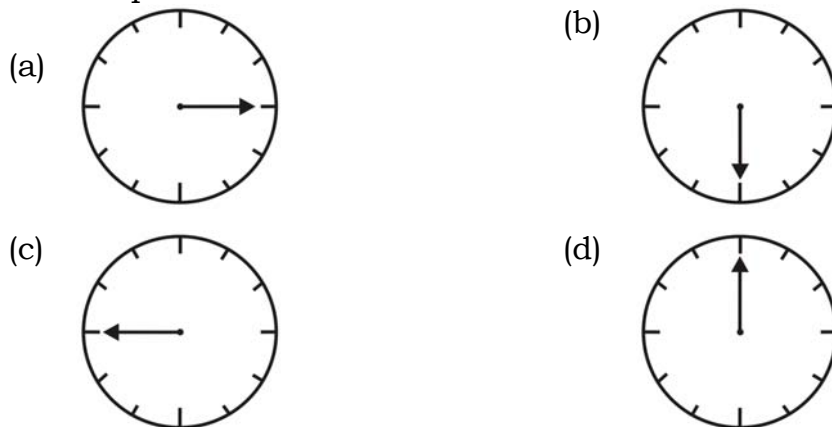
02. Quana's teacher called her and gave 16 squares of side 2 cm, cut from a thick plastic sheet. The teacher asked her to form different rectangles by arranging those squares and find the perimeter of each of them. After a day, the teacher called Quana and asked her which shape had the smallest perimeter and how much. Choose the correct answer.

- (a) square, 16 cm (b) square, 32 cm
(c) rectangle, 32 cm (d) rectangle, 16 cm

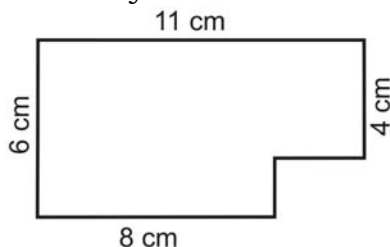
03. At noon, the minute hand of a clock is in the following position:



What will be the position of the minute hand be after half an hour?



04. Tony has a chocolate bar consisting of square pieces $1\text{ cm} \times 1\text{ cm}$ in size. He has already eaten some of the corner pieces (see the picture). How many pieces does Tony have left?



- (a) 66 (b) 64 (c) 62 (d) 60

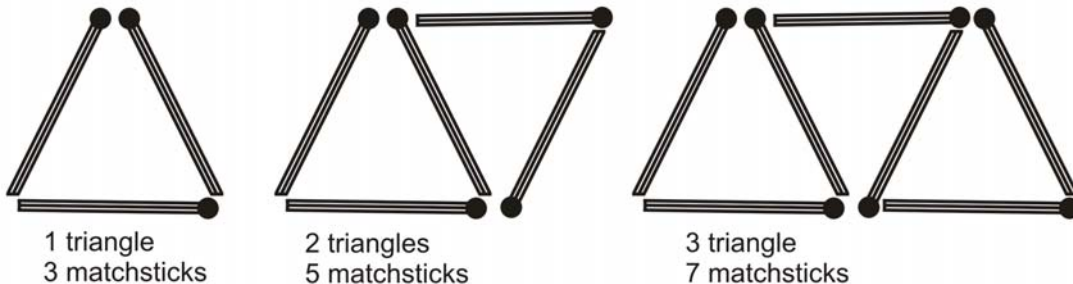
05. Out of all four numbers below, Quana chose one. The number is even and all of its digits are different. The hundreds digit is double the ones digit. The tens digit is greater than the thousands digit. Which number did Quana choose?

- (a) 1246 (b) 3874 (c) 4683 (d) 4874

06. There were 9 pieces of paper. Some of them were cut into three pieces. As a result, there are 15 pieces of paper now. How many pieces of paper were cut?

- (a) 2 (b) 3 (c) 4 (d) 5

07. The class teacher asked her students to use various number of matchsticks to form triangles and list their observations. Back at home, Vidya took several matchsticks and tried to form triangles with odd number of matchsticks. After sometime, she felt that she can make a formula from the observations she has made.



The formula Vidya made from her observations to find the number of triangles in the above pattern is:

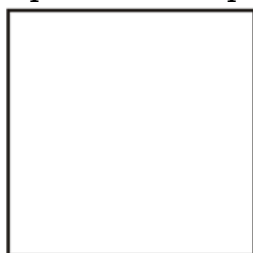
$$\text{Number of triangles} = \frac{(\text{Number of Matchsticks} - 1)}{2}$$

When she has explained this in the class, Quana wants to try 75 matchsticks to make the same pattern.

Do you think Vidya's formula is correct? If correct, Use the formula to find how many triangles Quana can make. If not correct, find your own way to find the number of triangles that Quana can make.

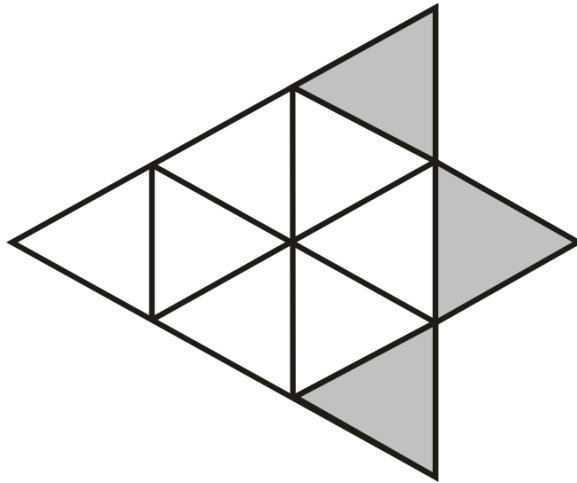
- (a) No, 33 (b) Yes, 37
(c) Yes, 74 (d) No, 34 triangles with 1 extra matchstick

08. Richa and Vidya are investigating areas and perimeters of shapes. They have made a square with a perimeter of 24 cm. What is the area of the square?



- (a) 20 cm² (b) 24 cm² (c) 32 cm² (d) 36 cm²

09. Look at this diagram. What part of the diagram is shaded?

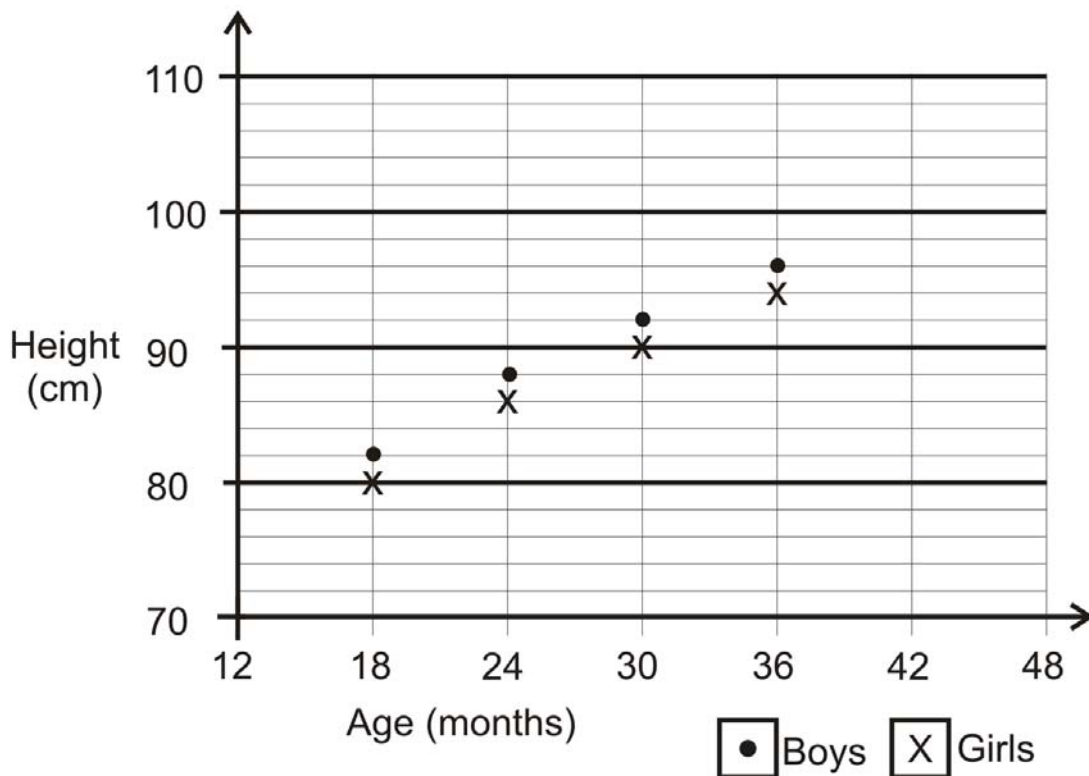


- (a) $\frac{3}{10}$ (b) $\frac{3}{9}$ (c) $\frac{3}{18}$ (d) $\frac{3}{7}$

10. Vidya's teacher needs 200 NGSE Question Booklets. The Question Booklets are in a pack of 12. The Booklets can be ordered in packs only. Each Booklet weighs 50g. How much do the required Booklet packs weigh altogether? Give your answer in kgs.

- (a) 10.6 Kgs (b) 10 Kgs (c) 10.2 Kgs (d) 9.6 Kgs

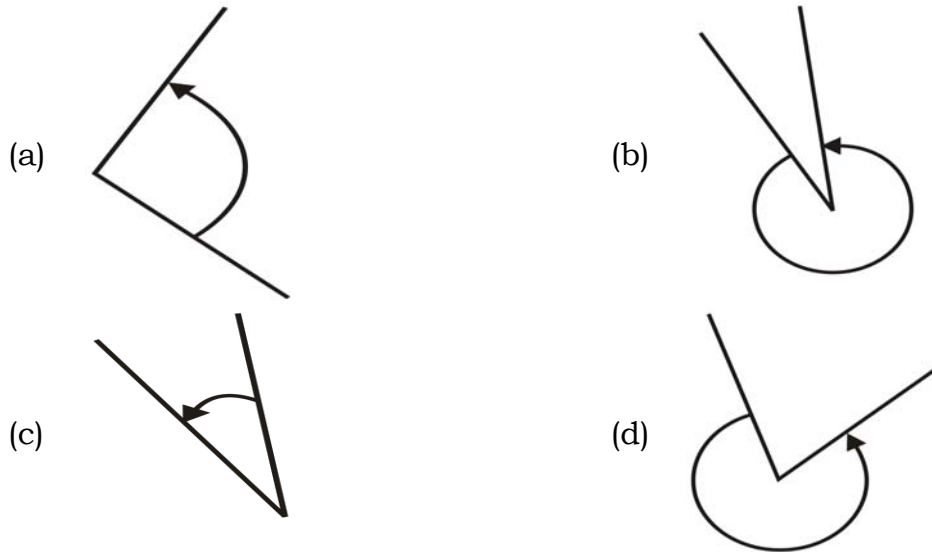
11. The graph shows the average heights of young children



What is the average height of a girl aged 24 months?

- (a) 88 cm (b) 86 cm (c) 90 cm (d) 92 cm

12. Look at these angles. Which diagram can be made a right-angle by making minimal increase in its angle size?



13. How many dotted lines can be drawn to divide the butterfly into two mirror halves ?



- (a) 1 (b) 2 (c) 3 (d) 4

14. Quana is making flower arrangements. She has 8 roses and 16 marigolds. If she wants to make arrangements identical with no flower left over, what is the greatest number of arrangements possible?

- (a) 16 (b) 8 (c) 4 (d) 2

15. State Bank of India has a chart to show us how many Indian Rupees we can get when we change the money of different countries as on 30th November, 2012.

Country	Currency	Changed into Indian Rupees
England	Pound	87.40
Germany	Euro	70.35
UAE	Dirham	14.80
USA	Dollar	54.50

Afreen received US Dollar 100 as her birthday gift from her Uncle in USA. Using this money she wanted to buy a book online from a British Publisher. For this she has to make the payment in Pounds. She has converted the Dollars in to Indian Rupee first and then converted it again to Pound. The

book costs 80 Pounds. How much more money in Indian Rupees is required to buy the book online?

- (a) Rs.178 (b) Rs.255 (c) Rs.321 (d) Rs.378

16. Tony used to spend Rs.15 on his favourite cold drink on school days. After the work shop on 'Good food habits' in his school, he stopped drinking cold drinks. Instead he has decided to save the money and use half of that money to buy books on Mathematics.

Assuming that the school works for 22 days in December, how much money he spent on books during that month?

- (a) 125 cm (b) Rs.165 cm (c) 215 cm (d) 235 cm

17. Vidya, Quana, Richa and Afreen were the participants for long-jump on their school's Sports Day. The following table shows their jumping lengths.

Name	Jumping length
Afreen	4.55 m
Vidya	3.95 m
Quana	4.20 m
Richa	4.10 m

What is the difference in jumping lengths between the winner and Richa? Express it in centimeters.

- (a) 25cm (b) 30 cm (c) 35 cm (d) 45 cm

18. Vidya's mother used to buy fish from Jhansi, a fisherwoman in the neighborhood. This morning, she sat beside Vidya's mother and narrated how she works. She bought fish from another fisherman who has mechanized fishing equipments. She paid him Rs. 4500 in the morning for 100 kg of fish. Jhansi sold the entire stock of fish for Rs. 6250. If she had rupees 5 lakhs to invest in mechanized fishing equipments, she could have made Rs. 80,000 per month as profit, like the fisherman from whom she bought fish today.

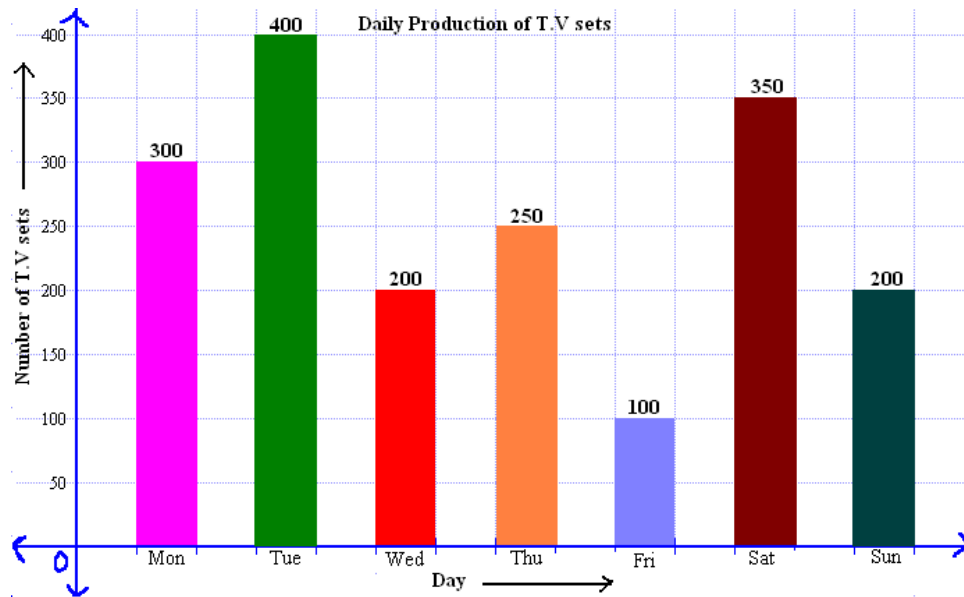
If she continues to earn the same amount what she has earned today, how much less she will earn in 30 days than the other fisherman?

- (a) Rs. 27500 (b) Rs. 52500
(c) Rs. 47200 (d) Rs. 17500

19. Rupee $\frac{99}{100}$ is equal to 99 paise. 99 paise is equal to

- (a) Rupee 0.01 (b) Rupee $\frac{0.01}{100}$ (c) Rupee $\frac{1}{100}$ (d) Rupees 0.99

20. The bar graph below shows the production of T V sets by a company during a week. The company produces only LED TVs on Tuesdays and Fridays.



What is the total number of TV sets other than LED TVs, produced during a week ?

- (a) 500 (b) 800 (c) 1300 (d) 1800

SECTION 2: SCIENCE

21. The range of vision of a bird decreases when
- When a man looks at the bird
 - When bird focuses its eyes on two objects
 - When bird focuses its eyes on one object
 - When a man looking at the bird closes one of his eyes
22. Vidya observed that Mosquito bites are less when she keeps the fan on while sleeping. At the same time she also observed that the mosquitoes can fly under a rotating fan. Which of the following is a wrong statement about mosquitoes?
- Mosquitoes find us through the smell and heat of our body
 - Mosquitoes bites will be less if we apply cold cream on our body
 - Mosquitoes bites will be less if we sleep with the air-conditioner on
 - Mosquitoes bites will be less if we cover the sole of our feet
23. People living in forests used to observe the behavior of animals and their warning calls to understand danger. What is the relevant observation possibly done by such people just before the tsunami in December 2004?
- Dogs and birds gave some special sounds than what they usually give
 - Birds went back to its nest as if it is going to be dusk
 - Dogs and birds have moved to higher grounds
 - Dogs and birds have started showing signs of distress
24. Richa made a riddle as part of her formative assessment. Here is it.
 "It looks like a bear but is not.
 It spends almost 17 hours a day sleeping.
 It eats the leaves of the same tree on which it lives.

- It hardly needs anything else.
It move around only in eight trees, during its life span.”
Who is it?
(a) Treehopper (b) Koala (c) Sloth (d) Flying Lemur
25. Which of the following is not an indication of hungriness?
(a) The neighbour’s angry shouts
(b) Vomiting by a school boy
(c) The cry of aunt’s dog
(d) The cry of a child on the footpath
26. Quana saw a snake in the school campus while playing. Her school is in a city. The watchman of the school came with a stick to kill the snake. Quana recollected what she read in her text book - we should not kill snakes. She ran to her teacher. What is the most appropriate step the teacher should take?
(a) The teacher should let the snake go away
(b) Teacher should show the students how they can catch a snake
(c) Teacher should ask the watchman to catch the snake and release it at a remote place.
(d) Teacher should call the fire station who can catch the snake
27. A snake has two hollow teeth (fangs). When it bites, the poison enters the person’s body through the fangs. There is a medicine for snake bites. The medicine is made from the snake’s poison and is available in all government hospitals.
What is snake poison called?
(a) Serum (b) Arsenic (c) Venom (d) Ricin
28. Vidya is put on glucose drip in the hospital. What can be the sickness she is suffering from?
(a) She is having high fever (b) She vomits the food she takes
(c) She got a minor injury on hand (d) She feels severe pain on her legs
29. Which of the following food takes the maximum time to digest?
(a) Boiled milk (b) raw egg (c) boiled egg (d) raw milk
30. Quana put a lemon in salty water. It floats on water. Why did the lemon float on water?
(a) The salt in water pushes the lemon up
(b) The salt water is heavier than lemon
(c) The lemon absorbs salt from water
(d) Salt water repells lemon away
31. Doctor suggested Afreen to take jaggery, amla, and leafy vegetables abundantly. What disease she is suffering from?
(a) Malaria (b) Anaemia (c) Tuberculosis (d) Measles

32. Quana's mother always insists her to change water of the flower vase daily. Why she insists so?
- (a) Mosquitoes may breed in the flower vase
 - (b) Male mosquitoes sit on plants and flowers
 - (c) The smell of water in the flower vase can attract mosquitoes
 - (d) The flowers will remain fresh due to fresh water
33. Name the star you see during the day:
- (a) Polestar (b) Moon (c) Titan (d) Sun
34. Famine is a situation where people stay hungry without food due to drought. Bengali economist Amartya Sen wrote about famines and was awarded the Nobel Memorial Prize in Economic Sciences in 1998. What is drought?
- (a) Failed crops due to flood (b) Failed crops due to insects
 - (c) Water shortage due to shortage of rain (d) Food decay due to flooding
35. Where does the pea came from:
- (a) Europe (b) Asia (c) South America (d) North America
36. "People in Argentina and India are standing upside down in relation to each other" What you understand from this statement?
- (a) People stand straight on the surface of earth
 - (b) There is no up and down on earth since it is a sphere.
 - (c) Up and down is not a mathematically correct statement
 - (d) Up and down is a term used in daily life
37. Height of place is measured from
- (a) Ground level (b) Level of underground water
 - (c) Level of underground hard rock's (d) Sea level
38. Which of the following is food for Nepenthes?
- (a) frog (b) dog (c) cucumber (d) onion
39. Wisden blew strongly at the mirror. The mirror looked moist and hazy. He could wipe it using a paper napkin. What do you observe from this?
- (a) We should not stand too closely to the mirror
 - (b) The air we exhale contains moisture
 - (c) It happens when we travel in a car while raining
 - (d) The air we exhale condenses the moisture in air
40. Gregor Mendal did experiments with peas and found that the next generation peas show some traits of parent plants and it is transferred to the next generation. Many occasions it is transferred from the first to the third generation and so on. What is the transfer of traits from generation to

generation is called?

- (a) genetic transfer (b) behavior (c) inheritance (d) ancestral transfer

SECTION 3: GENERAL KNOWLEDGE

41. Who is Sunita Williams?
(a) First woman landed on Moon (b) Astronaut with space missions
(c) First person landed on Mars (d) Famous ISRO Scientist
42. A googol is a large number 10^{100} ; that is, the digit 1 followed by 100 zeroes: The term was coined in 1938 by 9-year-old Milton Sirotta, nephew of American mathematician Edward Kasner. Kasner popularized the concept in his 1940 book *Mathematics and the Imagination*. A famous internet company has derived its name from the word googol. Which of the following website belongs to the company?
(a) www.googol.com (b) www.facebook.com
(c) www.microsoft.com (d) www.google.com
43. Why Koodankulam is in the news for quite long?
(a) Generation of electricity (b) Extraction of nuclear fuels
(c) Anti nuclear protest (d) Nuclear energy conservation
44. Indian scientist Satyendra Nath Bose worked with Albert Einstein in the 1920s made discoveries that led to a kind of particle being named for him. It was Peter Higgs, a British physicist, who in the 1960s made advances in the field, resulting the naming of Higgs Boson. Do you know what is it popularly called?
(a) Higgs particle (b) God particle (c) Bose particle (d) Good particle
45. What is the most common form of energy on earth?
(a) Water (b) Light (c) Heat (d) Air

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