NSMC 2026 · QUESTION PAPER

National Science and Math Championship

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GRADE 07

GRADE	TOTAL QUESTIONS	MAXIMUM MARKS	MARKING SCHEME
07	40 MCQs	160	+4 / −1

GENERAL INSTRUCTIONS

1. This question paper contains 40 multiple-choice questions.
2. Each correct answer carries 4 marks.
3. One mark will be deducted for every incorrect answer.
4. Choose the most appropriate answer from the four options.

PAPER PATTERN

SEC.	SUBJECT	Q. NO.	QS	MARKS
A	Mental Ability	1–8	8	32
B	Science	9–24	16	64
C	Mathematics	25–40	16	64
	Total	**1–40**	**40**	**160**

SECTION A — Mental Ability

Questions 1–8 · 8 × 4 = 32 marks

1. If BIRD is coded as ESJC, how is FISH coded?

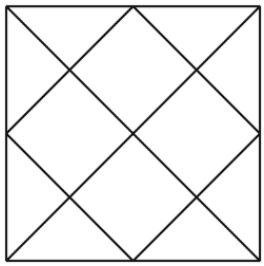
A) ITJG **B)** GJTI **C)** ISJG **D)** HTJG

2. Choose the correct mirror image of the given figure.



A)  **B)**  **C)**  **D)** 

3. How many triangles are there in the figure?



A) 16 **B)** 18 **C)** 20 **D)** 24

4. Author : Book :: Composer : ?

A) Painting **B)** Music **C)** Statue **D)** Film

5. Find the odd one out.

A) Violin **B)** Flute **C)** Guitar **D)** Sitar

6. C, F, L, U, ___

A) E **B)** F **C)** G **D)** H

7. If all the letters in the word EDUCATION are arranged alphabetically, which letter will be fourth from the left?

A) D **B)** I **C)** C **D)** E

8. A library is 7 km North of a school. A playground is 7 km East of the library. A hospital is 7 km South of the playground. In which direction is the hospital from the school?

A) North **B)** South **C)** East **D)** West

SECTION B — Science

Questions 9–24 · 16 × 4 = 64 marks

9. Asha builds a circuit tester with a cell, a bulb and two free wire ends. She joins the following six objects one after another in a single chain (end to end) and connects the two free ends of the tester across the whole chain: an iron nail, a dry wooden piece, a copper coin, a graphite pencil lead, a plastic bottle cap and an aluminium foil strip. The bulb does not glow. She wants the bulb to glow by replacing as few objects as possible with copper wire. Which objects must she replace?

A) The wooden piece only

B) The wooden piece and the plastic cap

C) The wooden piece, plastic cap and graphite lead

D) The iron nail and the aluminium foil

10. A circuit has a battery of cells, a switch S1, and two identical bulbs B1 and B2 joined one after the other in a single loop. A thick copper wire with its own switch S2 is connected directly across the two ends of B2 only.

I. With S1 closed and S2 open, B1 and B2 glow equally brightly.
II. With S1 and S2 both closed, B2 goes off and B1 glows brighter than before.
III. With S1 and S2 both closed, B1 also goes off, because the current has stopped.
IV. With S1 closed and S2 open, if the filament of B1 breaks, B2 also goes off.

Which statements are correct?

A) I, II and IV **B)** I and III only **C)** II and III only **D)** I and IV only

11. Divya stands 2 m in front of a large plane mirror and raises her right hand. She then walks 1 m towards the mirror. What is the distance between Divya and her image now, and which hand does the image appear to raise?

A) 2 m; the image appears to raise its left hand

B) 2 m; the image appears to raise its right hand

C) 1 m; the image appears to raise its left hand

D) 4 m; the image appears to raise its right hand

12. Two plane mirrors, M1 and M2, are joined at right angles to each other. A ray of light strikes M1 with an angle of incidence of 30°. After reflecting from M1, it strikes M2. What is the angle of reflection at M2, and how does the final ray move compared with the original incident ray?

A) 30°; parallel to it, in the same direction **B)** 60°; parallel to it, in the opposite direction

C) 60°; parallel to it, in the same direction **D)** 30°; parallel to it, in the opposite direction

13. A doctor measures the temperature of two children. Child A's reading is 310 K on a Kelvin thermometer. Child B's reading is 99.5 °F on a Fahrenheit thermometer. Which child has the higher temperature, and by how much?

A) A is higher by 0.5 °C **B)** A is higher by 1°C

C) Both have the same temperature **D)** B is higher by 0.5 °C

14. A metal ball just passes through a metal ring at room temperature, and both are made of the same metal. Read these statements.

I. If only the ball is heated, it will not pass through the ring.
II. If only the ring is heated, the ball will pass through easily.
III. If both are heated equally, the ball will still pass through.
IV. If the ball is heated and the ring is cooled, the ball will pass through easily.

Which statements are correct?

A) I, II and III **B)** I and III only **C)** II and IV only **D)** I, II and IV

15. Read the statements about magnets. Which statements are correct?

I. Hammering a bar magnet repeatedly can make it lose its magnetism.
II. Heating a bar magnet strongly can make it lose its magnetism.
III. Placing two bar magnets side by side with unlike poles together, with soft iron keepers across the ends, protects them from losing magnetism.
IV. Storing two bar magnets with like poles together is the best way to keep them strong.

A) I and IV only **B)** II, III and IV **C)** I, II and III **D)** I, II, III and IV

16. A student adds a white powder Y to dilute hydrochloric acid and sees brisk bubbling. The gas puts out a burning matchstick and turns lime water milky. Y and the gas are:

A) Marble powder and carbon dioxide **B)** Zinc granules and hydrogen
C) Copper turnings and hydrogen **D)** Common salt and chlorine

17. Arjun dipped a paper strip in solution X and dried it. He put a few drops of solution Y on it, in which the number of H^+ ions is more than that of OH^- ions. The paper turned dark pink (magenta). Solutions X and Y could be respectively:

A) Turmeric solution and vinegar **B)** China rose solution and lemon juice
C) Phenolphthalein and lime water **D)** Methyl orange and soap solution

18. Which of the following statements is/are correct?

I. Formation of clouds is a chemical change.
II. Iron objects rust faster in coastal areas.
III. Stainless steel is made by mixing iron with carbon and metals like chromium and nickel.
IV. Boiling an egg is a physical change.

A) II and III only **B)** I and IV only **C)** II only **D)** III and IV only

19. Which of the following statements is/are incorrect?

(i) A rusted nail weighs more than the original nail, if no rust falls off.
(ii) Rust forms where the iron surface touches both air and water.
(iii) Iron rusts faster in a dry desert than in a humid coastal city.
(iv) Rusting cannot be reversed simply by drying the nail.

A) (i) and (iii) only **B)** (iii) only **C)** (iii) and (iv) only **D)** (ii) and (iii) only

20. **Assertion (A):** Plants produced by layering often flower and fruit earlier and produce a quick yield.

Reason (R): Plants produced by layering develop a strong taproot system.

A) Both Assertion and Reason are true, and Reason is the correct explanation of Assertion
B) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion
C) Assertion is true, but Reason is false
D) Assertion is false, but Reason is true

21. Read the statements and choose the correct option.

(i) Moringa can be propagated both by seeds and by stem cuttings.
(ii) Seedlings raised from seeds always have exactly the same qualities as the mother plant.
(iii) Vegetative propagation can be faster than growing plants from seeds.

A) Only (i) is true
B) (i) and (iii) are true
C) (ii) and (iii) are true
D) All are true

22. Match the following:

Column I	Column II
P. Hydrochloric acid	1. Partially digests proteins
Q. Pepsin	2. Protects the stomach wall
R. Mucus	3. Kills many microbes in food
S. Lipase	4. Helps in digestion of fats

A) P-1, Q-3, R-2, S-4 **B)** P-4, Q-1, R-2, S-3 **C)** P-3, Q-2, R-1, S-4 **D)** P-3, Q-1, R-2, S-4

23. A person's gall bladder has been surgically removed. Which effect might that person notice after gall-bladder removal?

A) His stomach can no longer make hydrochloric acid
B) He cannot absorb water in the large intestine
C) He has difficulty digesting large, fatty meals
D) He cannot digest starch in the mouth

24. Match the following:

Column I	Column II
P. Vitamin B1	1. Cobalamin
Q. Vitamin B2	2. Phylloquinone
R. Vitamin B12	3. Thiamine
S. Vitamin K	4. Riboflavin

A) P-3, Q-4, R-1, S-2 **B)** P-4, Q-3, R-1, S-2 **C)** P-3, Q-1, R-4, S-2 **D)** P-3, Q-4, R-2, S-1

SECTION C — Mathematics

Questions 25–40 · 16 × 4 = 64 marks

25. Narendra has written $\frac{3}{4}$ of his essay. What percent of the essay has he written?

A) 25% **B)** 50% **C)** 75% **D)** 100%

26. What should be subtracted from $\frac{-9}{20}$ to get $\frac{-1}{5}$?

A) $\frac{-7}{4}$ **B)** $\frac{-5}{4}$ **C)** $\frac{-3}{4}$ **D)** $\frac{-1}{4}$

27. The mean age of 17 teachers of a school was 33 years. One new teacher aged 24 years joins the school. Find the new mean age of the 18 teachers.

A) 34.5 years **B)** 33.5 years **C)** 32.5 years **D)** 31.5 years

28. The length of a rectangular field is thrice its breadth and its perimeter is 120 m. Find the length of the field.

A) 30 m **B)** 35 m **C)** 40 m **D)** 45 m

29. Read the given statements carefully and select the correct answer.

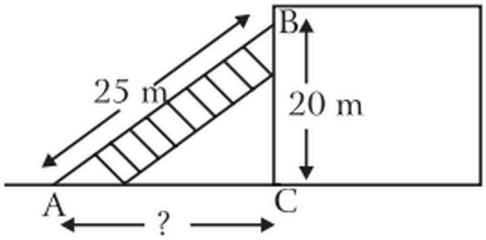
[i] The difference between the lengths of any two sides of a triangle is less than the length of the third side.

[ii] The two sides of a right triangle other than the hypotenuse are called its legs.

A) Both statements [i] and [ii] are true. **B)** Only statement [i] is true.

C) Only statement [ii] is true. **D)** Both statements [i] and [ii] are false.

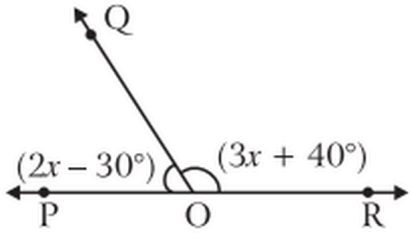
30. A ladder 25 m long reaches a window of a building 20 m above the ground. Determine the distance of the foot of the ladder from the building.



(Figure not to scale)

A) 12 m **B)** 13 m **C)** 14 m **D)** 15 m

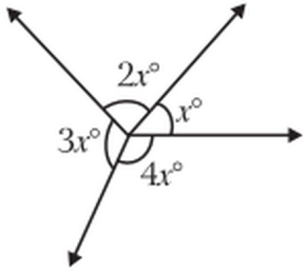
31. In the given figure, POR is a straight line and the ray OQ stands on it. Find the value of x.



(Figure not to scale)

A) 34° **B)** 38° **C)** 142° **D)** 132°

32. Find the value of x in the following figure.



(Figure not to scale)

A) 36° **B)** 35° **C)** 38° **D)** 40°

33. The selling price of 10 pencils is equal to the cost price of 11 pencils. Find the gain percent.

A) 10% **B)** 20% **C)** 15% **D)** 5%

34. Sohail bought 12 chocolates for Rs 5.50 each and Kusum bought 8 chocolates for Rs 6 each. Find the ratio of their spending.

A) 8:11 **B)** 8:9 **C)** 9:8 **D)** 11:8

35. Three less than half the age of a father is his daughter's age. If the daughter is 22 years old, find the father's age.

A) 45 years **B)** 50 years **C)** 65 years **D)** 60 years

36. The value of 3.3 × 0.3 × 0.001 is equal to:

A) 9.9 **B)** 0.99 **C)** 0.00099 **D)** None of these

37. Raman travels $155\frac{1}{2}$ km in $3\frac{3}{4}$ hours. What is his speed in km/h?

A) $41\frac{4}{15}$ km/h **B)** $41\frac{7}{15}$ km/h **C)** $41\frac{8}{15}$ km/h **D)** $41\frac{11}{15}$ km/h

38. Which of the following does not represent a pair of integers (a, b) such that $a \div b = 2$?

A) (−6, −3) **B)** (−2, 1) **C)** (−10, −5) **D)** (8, 4)

39. The product of four distinct integers is 36. What is the smallest possible value of their sum?

A) −9 **B)** −12 **C)** −16 **D)** −20

40. Find the smallest natural number which leaves a remainder of 5 when divided by each of 12, 16 and 24, and is exactly divisible by 7.

A) 101 **B)** 197 **C)** 245 **D)** 293

END OF QUESTION PAPER