



NATIONAL SCIENCE OLYMPIAD
MODEL PAPER

MODEL PAPER
ROUND-I

A.MATH

1. What is the median of the following set of numbers: 7, 5, 9, 2, 8?

- a) 5
- b) 7
- c) 8
- d) 9

Correct Answer: b)

2. Find the mode of the following data set: 3, 5, 2, 5, 6, 7, 5, 2, 8, 4.

- a) 5
- b) 2
- c) 8
- d) 6

Correct Answer: a)

3. Calculate the mean of the numbers 12, 8, 5, 15, and 10.

- a) 12
- b) 10
- c) 8
- d) 11

Correct Answer: d)

4. In a school competition, the scores of 10 students out of 100 are as follows:
85, 92, 88, 95, 72, 88, 78, 92, 88, 90. What is the mode of the scores?

- a) 72
- b) 78
- c) 88
- d) 92

Correct Answer: c)

5. The following data represents the number of hours spent on homework by a group of students: 2, 3, 4, 5, 2, 2, 6, 7, 3. What is the mean number of hours spent on homework?

- a) 3
- b) 4
- c) 5
- d) 6

Correct Answer: b)

6. If the mode of a data set is 17, what does this mean?

- a) 17 is the most frequently occurring value in the data set.
- b) 17 is the middle value of the data set.
- c) 17 is the average of all the values in the data set.
- d) 17 is the smallest value in the data set.

Correct Answer: a)

7. In a class of 25 students, 10 students scored 90, 5 students scored 85, and the remaining students scored various other marks. What is the median score in the class?

- a) 85
- b) 90
- c) It cannot be determined with the given information.

Correct Answer: b)

8. If the mean of a data set is 25 and the sum of the data values is 100, how many values are there in the data set?

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

Correct Answer: c)

9. A box contains 4 red balls, 3 green balls, and 2 blue balls. If you draw 3 balls with replacement, what is the probability of getting one ball of each color?

- a) $1/18$
- b) $1/12$
- c) $3/40$
- d) $1/6$

Correct Answer: d)

10. What is the probability of getting exactly two tails when flipping a fair coin three times?

- a) $1/4$
- b) $1/2$
- c) $3/8$
- d) $5/8$

Correct Answer: c)

B. PHYSCIS

1. What is the flow of electric charge called?

- a) Voltage
- b) Current
- c) Resistance
- d) Power

Correct answer: b) Current

2. What is the SI unit of electric current?

- a) Ampere
- b) Volt
- c) Ohm
- d) Watt

Correct answer: a) Ampere

3. Which particle carries a negative charge in an atom?

- a) Proton
- b) Neutron
- c) Electron
- d) Positron

Correct answer: c) Electron

4. What is the unit of electric resistance?

- a) Volt
- b) Ampere
- c) Ohm
- d) Watt

Correct answer: c) Ohm

5. Which material is a good conductor of electricity?

- a) Rubber
- b) Wood
- c) Copper
- d) Glass

Correct answer: c) Copper

6. What does AC stand for in electricity?

- a) Alternating Current
- b) Applied Current
- c) Amperes Charge
- d) Alternating Charge

Correct answer: a) Alternating Current

7. In a simple electric circuit, what is the purpose of a resistor?

- a) To store energy
- b) To control current
- c) To produce light
- d) To generate magnetic fields

Correct answer: b) To control current

8. Which law states that the current passing through a conductor between two points is directly proportional to the voltage across the two points?

- a) Ohm's Law
- b) Newton's Law
- c) Coulomb's Law

d) Faraday's Law

Correct answer: a) Ohm's Law

9. What is the unit of electric power?

a) Watt

b) Joule

c) Volt

d) Ampere-hour

Correct answer: a) Watt

10. What type of current flows in a flashlight bulb powered by a battery?

a) Alternating Current (AC)

b) Direct Current (DC)

c) Static Current

d) Magnetic Current

Correct answer: b) Direct Current (DC)

C. BIOLOGY

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D. CHEMISTRY

1. Who is credited with the development of the periodic table?

- A. Dmitri Mendeleev
- B. Marie Curie
- C. Antoine Lavoisier
- D. Robert Boyle

Correct Answer: A

2. Which element is named after the Greek word for "hidden"?

- A. Xenon
- B. Krypton

- C. Helium
- D. Neodymium

Correct Answer: A

3. Which group of elements is known as the "noble gases"?

- A. Group 1
- B. Group 2
- C. Group 17
- D. Group 18

Correct Answer: D

4. What is the symbol for the element with the highest atomic number currently recognized?

- A. Uub
- B. Uuo
- C. Uus
- D. Uuh

Correct Answer: B

5. In which period is the element fluorine located?

- A. 1st period
- B. 2nd period
- C. 3rd period
- D. 4th period

Correct Answer: B

6. Which element has the highest electronegativity?

- A. Fluorine
- B. Oxygen
- C. Chlorine
- D. Nitrogen

Correct Answer: A

7. What is the common oxidation state of hydrogen in compounds?

- A. -1

- B. 0
- C. +1
- D. +2

Correct Answer: C

8. Which element has the highest ionization energy?

- A. Lithium
- B. Beryllium
- C. Helium
- D. Neon

Correct Answer: C

9. What is the total number of electrons in a water (H₂O) molecule?

- A. 2
- B. 4
- C. 6
- D. 8

Correct Answer: D

10. How many valence electrons does carbon have?

- A. 2
- B. 4
- C. 6
- D. 8

Correct Answer: B

E. COMPUTER SCIENCE

1. What is the basic building block of digital circuits?

- a. Resistor
- b. Capacitor
- c. Transistor

d. Diode

Correct Answer: c

2. How many NAND gates are required to implement an OR gate?

a. 1

b. 2

c. 3

d. 4

Correct Answer: b

3. In binary addition, what is the result of

1

+

1

1+1?

a. 0

b. 1

c. 2

d. 10

Correct Answer: d

4. What is the purpose of a multiplexer (MUX)?

a. To combine multiple signals into one

b. To perform addition

c. To store data temporarily

d. To perform logical operations

Correct Answer: a

5. What is the hexadecimal equivalent of the binary number 11011010
11011010?

a. DA

b. B6

c. 1A

d. 6E

Correct Answer: a

6. What is the characteristic of an XOR gate?

- a. Output is high only if all inputs are high
- b. Output is high if an odd number of inputs are high
- c. Output is high if an even number of inputs are high
- d. Output is always low

Correct Answer: b

7. How many bits are required to represent 8 different values?

- a. 2
- b. 3
- c. 4
- d. 8

Correct Answer: b

8. What is the purpose of a decoder in digital logic design?

- a. To convert binary to hexadecimal
- b. To convert binary to BCD (Binary Coded Decimal)
- c. To convert binary to gray code
- d. To convert binary to octal

Correct Answer: b

9. In a flip-flop, what is the term for the input that sets the output to a high state?

- a. Set input
- b. Reset input
- c. Clock input
- d. Data input

Correct Answer: a

10. What is the output of an AND gate if both inputs are LOW?

- a. HIGH
- b. LOW
- c. Depends on other factors
- d. Undefined

Correct Answer: b

F. GENERAL SCIENCE

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- d. Diode

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- b. 1
- c. 2
- d. 10

Correct Answer: d

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Correct Answer: b

G. ECONOMICS

Q1. What do you mean by the supply of goods?

- a) Stock available for sale
- b) Total stock in the warehouse
- c) The actual production of the goods
- d) Quantity of the goods offered for sale at a particular price per unit of time

Answer:- d

Q2. What do you mean by ‘under conditions of a perfect competition in the product market’?

- a) $MRP = VMP$
- b) $MRP > VMP$
- c) $VMP > MRP$
- d) None of the above

Answer:- a

Q3. Which of the following is the relation that the law of demand defines?

- a) Income and price of a commodity
- b) Price and quantity of a commodity
- c) Income and quantity demanded
- d) Quantity demanded and quantity supplied

Answer:- b

Q4. What do you mean by a mixed economy?

- a) Modern and traditional industries
- b) Public and private sectors
- c) Foreign and domestic investments
- d) Commercial and subsistence farming

Answer:- b

Q5. What do you mean by the demand of a commodity?

- a) Desire for the commodity
- b) Need for the commodity
- c) Quantity demanded of that commodity
- d) Quantity that consumers are able and willing to buy at various prices during any particular period of time

Answer:- d

Q6. Starting from the time of independence, why did India follow a planned economy?

1. India followed a five-year plan and required an outlook.
2. Directive Principles of Indian Constitution indicated the planned vision of India.
3. There was no indication whatsoever from the five year plans regarding how much of each and every good and service is to be produced.

Choose the correct statements from the given options

- a) Only 2
- b) 2 and 3
- c) 1 and 3
- d) All of the above

Answer:- b

Q7. What do you mean by Gross National Product?

- a) The total value of goods and services produced in the country
- b) The total value of all the transactions in the country
- c) The depreciation in the total value of goods and services produced in the country
- d) The total value of goods and services produced in the country and the net factor income from abroad

Answer:- d

Q8. Which of the following is the reason for the decline in the child sex ratio in India?

- a) Low fertility rate.
- b) Female foeticide
- c) Incentives for a boy child from the government
- d) None of the above

Answer:- b

Q9. What factors are taken into consideration while revising the poverty line periodically?

- a) By conducting a survey every five years
- b) Survey carried out by National Sample Survey Organisation
- c) Both a and b
- d) None of the above

Answer:- c

Q10. In India, which banks/institutions have the highest share in the disbursement of credit to agriculture and allied activities?

- a) Cooperative banks
- b) Regional Rural Banks
- c) Commercial banks
- d) Microfinance institutions

Answer:- c

*This is only model paper for paper pattern of each subject having ten MCQs. Final Paper will have 70 MCQs for Round-I. This is combined model paper, actual paper will be related to student's selected subject.

MODEL PAPER (English Grammar)
ROUND-II

1. The details of the accident were hard for the driver to _____ because it happened so fast.
- (A) narrative
 - (B) Fable
 - (C) mythical
 - (D) recount

Answer: D

2. “Complete or humiliating failure” is described as
- (A)MSUE
 - (B)SUBSEQUENTLY
 - (C)Racket
 - (D)Fiasco

Answer: D

3. Which of the following is an oxymoron?
- (A)Eat your broccoli
 - (B)Agree to disagree
 - (C)Hide and seek
 - (D)Play the field

Answer: B

4. What is the use of components in a sentence that are grammatically the same or similar in their construction, sound, meaning or meter called:
- (A) Parallelism
 - (B) Foreshadowing
 - (C) Alliteration
 - (D) Suspense

Answer: A

5. A _____ looks like a winking child who still has something to say.
- (A)Semicolon
 - (B)Comma
 - (C)Quotation
 - (D)Colon

Answer: D

6. Use a _____ before FANBOYS when it joins independent clauses in a compound sentence.

- (A) Semicolon
- (B) Comma
- (C) Quotation
- (D) Colon

Answer: B

7. The root SENT, SENS means:

- (A) to think, determine
- (B) to believe, trust
- (C) to feel
- (D) to believe

Answer: C

8. What is the term for a word that is spelled the same but has different meanings and pronunciations?

- (A) Homonym
- (B) Synonym
- (C) Antonym
- (D) Homophone

Answer: A

9. Identify the sentence with a misplaced modifier:

- (A) Running quickly, the finish line was crossed by the athlete.
- (B) The athlete crossed the finish line quickly.
- (C) Quick as lightning, the finish line was crossed by the athlete.
- (D) The finish line was crossed by the athlete, running quickly.

Answer: A

10. Choose the correct sentence:

- (A) Neither of the answers are correct.
- (B) Neither of the answers is correct.
- (C) Neither of the answers were correct.
- (D) Neither of the answers was correct.

Answer: B

11. What literary device involves a part representing the whole or the whole representing a part?

- (A) Hyperbole
- (B) Metonymy
- (C) Synecdoche
- (D) Oxymoron

Answer: C

12. Identify the sentence with a subjunctive mood:

- (A) If I was you, I would study harder.
- (B) If I were you, I would study harder.
- (C) If I have been you, I would study harder.
- (D) If I am you, I would study harder.

Answer: b) If I were you, I would study harder.

13. What is an anaphora?

- (A) A type of metaphor
- (B) The repetition of a word or phrase at the beginning of successive clauses
- (C) A figure of speech that combines contradictory words
- (D) A type of rhyme scheme

Answer: b) The repetition of a word or phrase at the beginning of successive clauses

14. Which sentence uses an ellipsis correctly?

- (A) The cat...jumped over the fence.
- (B) The cat jumped...over the fence.
- (C) The cat jumped over...the fence.
- (D) The cat jumped over the fence....

Answer: a) The cat...jumped over the fence.

*This is only model paper for paper pattern of Round-II. Final Paper will have 100 MCQs for Round-II.

MODEL PAPER (General Knowledge)
ROUND-III

1. Which famous scientist developed the theory of relativity?
 - a) Isaac Newton
 - b) Albert Einstein
 - c) Galileo Galilei
 - d) Nikola Tesla

2. The Great Barrier Reef is located in which country?
 - a) Australia
 - b) Brazil
 - c) India
 - d) South Africa

3. Which ocean is the largest?
 - a) Atlantic Ocean
 - b) Indian Ocean
 - c) Arctic Ocean
 - d) Pacific Ocean

4. What is the capital city of France?
 - a) Berlin
 - b) London
 - c) Paris
 - d) Rome

5. Who painted the Mona Lisa?
 - a) Vincent van Gogh
 - b) Leonardo da Vinci
 - c) Pablo Picasso
 - d) Michelangelo

6. What is the process by which plants make their own food using sunlight?
 - a) Respiration
 - b) Photosynthesis
 - c) Digestion
 - d) Fermentation

7. Which mountain is the tallest in the world?
 - a) Mount Kilimanjaro
 - b) Mount Everest
 - c) Mount McKinley
 - d) Mount Fuji

8. What is the largest mammal on Earth?
 - a) African Elephant
 - b) Blue Whale
 - c) Polar Bear
 - d) Giraffe

9. Who wrote the play "Romeo and Juliet"?
 - a) William Shakespeare
 - b) Charles Dickens
 - c) Jane Austen
 - d) Mark Twain

10. What gas do plants use for photosynthesis?
 - a) Oxygen
 - b) Carbon Dioxide
 - c) Nitrogen
 - d) Hydrogen

*This is only model paper for paper pattern of Round-III. Final Paper will have 100 MCQs for Round-III.