DHRUVA INTER SCHOOL OLYMPIAD
SAMPLE PAPER
CLASS 8
ENGLISH

1. Identify the type of underlined noun: "The jury gave its verdict after hours of deliberation."
   A) Proper Noun B) Common Noun
   C) Collective Noun D) Abstract Noun
2. Choose the correct pronoun: "Neither of the boys completed ____ homework."
   A) their B) his
   C) our D) them
3. Identify the adverb and its kind: "She spoke softly to the frightened child."
   A) Adverb of Time B) Adverb of Place
   C) Adverb of Manner D) Adverb of Degree
4. Which sentence uses an adjective in the superlative degree correctly?
   A) This is the most unique painting in the gallery.
   B) Mount Everest is higher than any mountain.
   C) She is the smartest girl in the class.
   D) He is more taller than his brother.
5. Fill in the correct preposition: "The cat jumped ____ the wall into the garden."
   A) in B) over C) under D) at
6. Identify the conjunction: "Work hard lest you should fail."
   A) Coordinating B) Correlative
   C) Subordinating D) Compound
7. State whether the verb in bold is transitive or intransitive: "The baby slept peacefully for three hours."
   A) Transitive B) Intransitive
   C) Ditransitive D) Linking
8. Change into Passive Voice: "The teacher is explaining a difficult concept."
   A) A difficult concept was explained by the teacher.
   B) A difficult concept is being explained by the teacher.
   C) A difficult concept has been explained by the teacher.
   D) A difficult concept explains the teacher.
9. Change into Reported Speech: He said to me, "Where are you going for your vacation?"
   A) He asked me where I am going for my vacation.
   B) He asked me where was I going for my vacation.
   C) He asked me where I was going for my vacation.
   D) He told me where I was going for my vacation.
10. Fill in the correct tense: "By next month, we ____ our final examinations."
    A) will finish B) will have finished
    C) finished D) have finished
11. Choose the correct determiner: "There is ____ milk left in the jug; we need to buy more."
    A) few B) little
    C) a little D) many
12. Choose the correct modal for strong obligation: "You ____ submit your assignment by tomorrow morning without fail."
    A) might B) should
    C) must D) can
13. Rearrange the parts (P, Q, R, S) to form a meaningful sentence:
    P: books
    Q: reading
    R: is
    S: a good habit
    A) QPRP B) QRPS
    C) PRQS D) RSPQ
14. Choose the synonym of "MANDATORY":
    A) Optional B) Obligatory
    C) Secondary D) Flexible
15. Choose the antonym of "ABUNDANT":
    A) Plentiful B) Scarce
    C) Copious D) Ample
16. Identify the figure of speech: "The camel is the ship of the desert."
    A) Simile B) Metaphor
    C) Personification D) Hyperbole
17. Identify the figure of speech: "O, my Luve's like a red, red rose."
    A) Metaphor B) Simile
    C) Alliteration D) Oxymoron
18. Identify the rhyming scheme of a stanza where the lines end with: night (A), bright (A), tree (B), free (B).
    A) AABB B) ABAB C) ABCB D) ABBA
19. Identify the sentence with correct punctuation:
    A) Whats your name asked the stranger.
    B) "What's your name?" asked the stranger.
    C) What's your name, asked the stranger.
    D) "Whats your name asked the stranger."
20. Identify the transitive verb sentence:
    A) Birds fly in the sky.
    B) The sun shines brightly.
    C) The dog chased the cat.
    D) He laughed loudly.

MATHEMATICS

1. If $2x = 3y = 6 - z$, find $\frac{1}{x}+\frac{1}{y}+\frac{1}{z}$.
   A) 1 B) 0 C) -1 D) 2
2. If $a + b + c = 0$, evaluate: $\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}$.
   A) 0 B) 1 C) 3 D) -3
3. Evaluate the surd expression: $\sqrt{7+4\sqrt{3}}-\sqrt{7-4\sqrt{3}}$.
   A) 2 B) 4 C) $2\sqrt{3}$ D) $4\sqrt{3}$

4. Dishonest merchant: sells at 10% loss on cost price, but uses 800g false weight instead of 1kg. Find actual profit/loss %.
A) 12.5% profit B) 10% loss
C) 15% profit D) 20% profit

5. If $x-\frac{1}{x}=4$, determine the value of $x^4+\frac{1}{x^4}$
A) 322 B) 324 C) 384 D) 194

6. A sum amounts to Rs 6,690 after 3 years and Rs 10,035 after 6 years under compound interest. Find the sum.
A) Rs 4,460B) Rs 4,200
C) Rs 4,560D) Rs 4,800

7. In parallelogram ABCD, interior bisectors of $\angle A$ and $\angle B$ intersect at P. Find $\angle APB$.
A) 45° B) 90° C) 120° D) 60°

8. 4 men & 6 boys finish work in 5 days; 3 men & 4 boys in 7 days. Time taken by 1 man and 1 boy?
A) 12 days B) 15 days
C) 18 days D) 20 days

9. Find the unit digit of the expression: $7^{95}-3^{58}$.
A) 4 B) 6 C) 0 D) 2

10. Factorise completely: $x^2+\frac{1}{x^2}-2-3x+\frac{3}{x}$.

A) $\left(x-\frac{1}{x}\right)\left(x-\frac{1}{x}-3\right)$

B) $\left(x+\frac{1}{x}\right)\left(x+\frac{1}{x}-3\right)$

C) $\left(x-\frac{1}{x}\right)^2-3$

D) $\left(x-\frac{1}{x}-1\right)\left(x-\frac{1}{x}+3\right)$

11. If $x+\frac{1}{x}=3$, find the value of $\frac{x^6+1}{x^3}$.
A) 18 B) 27 C) 24 D) 21

12. Circular wire of radius 42cm is bent into a rectangle with side ratio 6:5. Find the smaller side.
A) 60 cm B) 50 cm C) 55 cm D) 65 cm

13. If $\sqrt{1+\frac{x}{144}}=\frac{13}{12}$, find the value of x.
A) 13 B) 25 C) 1 D) 12

14. Milk-water ratio is 5 : 1. Adding 5 liters of water makes it 5 : 2. Find original quantity of milk.
A) 20 liters B) 25 liters
C) 30 liters D) 35 liters

15. If $\sqrt[3]{3x-2}=4$, calculate the value of x^2-3x+5.
A) 38 B) 45 C) 53 D) 61

16. What is the remainder when polynomial x^3-3x^2+4x-5 is divided by $x-2$?
A) -1 B) 3 C) 1 D) -3

17. Solid cylinder (r = 3cm, h = 5cm) is melted into small spherical balls of radius 0.3 cm. Number of balls?
A) 150 B) 250 C) 300 D) 500

18. If *a, b, c* are positive integers with $a^2+b^2=45$, $b^2+c^2=40$, and $c = 2$, find $a + b + c$.
A) 12 B) 13 C) 14 D) 15

19. Solve for *x*: $\frac{3x-2}{3x+2}=\frac{x-3}{x+1}$.

A) $x=\frac{4}{7}$ B) $x=-\frac{4}{7}$

C) $x=\frac{7}{4}$ D) $x=-\frac{7}{4}$

20. What is the sum of all coefficients in the expansion of $(2x-3y)^{10}$?
A) 1 B) -1 C) 1024 D) -1024

SCIENCE

1. Which organ system is primarily responsible for the transport of oxygen, nutrients, and hormones throughout the body?
A) Respiratory System
B) Circulatory System
C) Digestive System
D) Nervous System

2. The tissue responsible for the transport of water and minerals in plants is:
A) Phloem B) Xylem
C) Cambium D) Cortex

3. Which of the following forces is a contact force?
A) Gravitational force B) Magnetic force
C) Frictional force D) Electrostatic force

4. What is the commercial unit of electrical energy?
A) Watt B) Joule
C) Kilowatt-hour (kWh)D) Volt

5. If an object covers equal distances in equal intervals of time, it is said to possess:
A) Uniform motion B) Non-uniform motion
C) Accelerated motion D) Oscillatory motion

6. Which phenomenon is responsible for the formation of a rainbow?
A) Reflection
B) Dispersion and Refraction
C) Scattering
D) Total internal reflection

7. Which substance turns blue litmus red?
A) Sodium hydroxide B) Lemon juice
C) Soap solution D) Lime water

8. What are the products of a neutralisation reaction?
A) Acid and Base

B) Salt and Water
C) Metal and Hydrogen gas
D) Oxide and Gas

9. The hormone responsible for the onset of puberty in males is:
A) Estrogen B) Insulin
C) Testosterone D) Thyroxine

10. Which metal is liquid at room temperature?
A) Sodium B) Mercury
C) Gallium D) Iron

11. Heat transfer in fluids (liquids and gases) takes place primarily through:
A) Conduction B) Convection
C) Radiation D) Reflection

12. The pitch of a sound depends upon its:
A) Amplitude B) Frequency
C) Loudness D) Speed

13. Which endocrine gland is known as the "Master Gland"?
A) Thyroid gland B) Pituitary gland
C) Adrenal gland D) Pancreas

14. Tiny pores on the underside of leaves through which transpiration takes place are called:
A) Stomata B) Lenticels
C) Chloroplasts D) Cuticles

15. Pressure is defined as:
A) Force × Area B) Force / Area
C) Area / Force
D) Mass × Acceleration

16. Which device is used to measure electric current in a circuit?
A) Voltmeter B) Ammeter
C) Galvanometer D) Rheostat

17. The angle of incidence is always equal to the angle of reflection according to:
A) First law of reflection
B) Second law of reflection
C) Snell's law
D) Law of refraction

18. Which non-metal is a good conductor of electricity?
A) Sulphur B) Phosphorus
C) Graphite D) Iodine

19. The adolescent growth spurt is characterized by a sudden increase in:
A) Height and weight
B) Brain capacity only
C) Red blood cell count only
D) Bone density decrease

20. In an electric bell, which component acts as an electromagnet?
A) Iron core wrapped with a copper coil
B) Plastic hammer
C) Battery cell
D) Push switch

SOCIAL SCIENCE (SST)

1. Resources that can be renewed or replenished quickly are called:
A) Non-renewable resources
B) Renewable resources
C) Biotic resources
D) Potential resources

2. The process of breaking down of rocks on the Earth's surface by natural agents is called:
A) Erosion B) Weathering
C) Deposition D) Metamorphism

3. The Battle of Plassey was fought in the year:
A) 1757 B) 1764 C) 1857 D) 1761

4. Who introduced the Permanent Settlement system in Bengal in 1793?
A) Lord Dalhousie B) Lord Cornwallis
C) Warren Hastings D) Lord Wellesley

5. The Birsa Munda movement took place among which tribal group?
A) Santhals
B) Mundas of Chota Nagpur
C) Kols
D) Khonds

6. The highest court of appeal in India is the:
A) High Court B) Supreme Court
C) District Court D) Lok Adalat

7. Who was proclaimed as the leader of the 1857 revolt in Delhi?
A) Nana Sahib B) Bahadur Shah Zafar
C) Tantia Tope D) Rani Lakshmibai

8. The total number of people living in a country or region at a specific time is known as:
A) Demography B) Population
C) Census D) Migration

9. Resources found everywhere, like air and sunlight, are termed:
A) Localized resources
B) Ubiquitous resources
C) Biotic resources
D) Non-renewable resources

10. The system of subsidiary alliance was devised by:
A) Lord Wellesley B) Lord Dalhousie
C) Robert Clive D) William Bentinck

11. Shifting cultivation practised by tribal groups in Northeast India is known as:
A) Jhum cultivation
B) Plantation agriculture
C) Intensive farming
D) Commercial farming

12. The separation of powers in the Indian Constitution involves which three organs of government?
A) Legislature, Executive, Judiciary
B) President, Prime Minister, Parliament
C) Lok Sabha, Rajya Sabha, Supreme Court
D) Police, Courts, Prisons

13. The Doctrine of Lapse was introduced by:
A) Lord Cornwallis B) Lord Dalhousie
C) Lord Canning D) Lord Curzon

14. Which factor heavily influences population distribution?
A) Topography and climate
B) Stock market trends
C) Political party affiliations
D) Language spoken

15. The conservation of water resources can be achieved through:
A) Rainwater harvesting
B) Deforestation
C) Over-irrigation
D) Industrial waste dumping

16. The East India Company acquired the Diwani rights of Bengal in:
A) 1757 B) 1765 C) 1773 D) 1784

17. Dikus was the term used by tribal groups to refer to:
A) Tribal chiefs
B) Outsiders and moneylenders
C) British missionaries
D) Forest officers

18. An independent judiciary ensures:
A) Rule of law and protection of fundamental rights
B) Control over the legislature
C) Direct taxation powers
D) Military command

19. Mangal Pandey was hanged for attacking British officers in:
A) Meerut B) Barrackpore
C) Delhi D) Kanpur

20. The movement of people in and out of an area is called:
A) Birth rate B) Death rate
C) Migration D) Growth rate

REASONING

1. Find the missing number in the series:
2, 6, 12, 20, 30, 42, ?
A) 54 B) 56 C) 60 D) 64

2. Find the missing character in the figure puzzle:
If $3 \times 4 = 19$, $4 \times 5 = 29$, then $5 \times 6 = ?$
A) 39 B) 41 C) 43 D) 45

3. Choose the odd one out:
A) Copper B) Aluminium
C) Iron D) Glass

4. A person walks 5 km North, turns right and walks 4 km, turns right again and walks 5 km. In which direction and distance is he from the starting point?
A) 4 km East B) 4 km West
C) 9 km North D) 5 km East

5. Which Venn diagram best represents the relationship between Animals, Carnivores, and Tigers?
A) Three disjoint circles
B) Two overlapping circles inside a third circle
C) Concentric circles
D) Three mutually intersecting circles

6. Pointing to a photograph, a woman says, "He is the son of the only daughter of my father." How is the man in the photograph related to the woman?
A) Brother B) Son
C) Nephew D) Uncle

7. If '+' means '×', '-' means '+', '×' means '÷', and '÷' means '-', evaluate: $16 \times 4 + 5 - 2 \div 3$.
A) 21 B) 23 C) 25 D) 27

8. How many pairs of letters are there in the word "BRIGHT" which have as many letters between them in the word as in the English alphabetical series?
A) None B) One C) Two D) Three

9. In a certain code language, "PENCIL" is written as "OFMBDK". How is "PEN" written in that code language?
A) OFM B) ODM C) QFO D) OED

10. Complete the analogy: Doctor : Hospital :: Teacher : ?
A) Book B) School
C) Student D) Blackboard

11. Find the next term in the alphabetical series: AZ, CX, EV, GT, ?
A) IR B) HS C) JR D) IS

12. In a row of 40 students, Riya is ranked 15th from the left. What is her rank from the right end?
A) 25 B) 26 C) 27 D) 28

13. If A = 1, CAT = 24, then DOG = ?
A) 26 B) 27 C) 28 D) 29

14. Find the missing number in the series: 5, 11, 23, 47, 95, ?
A) 189 B) 191 C) 193 D) 195

15. Choose the odd one out:
A) 27 B) 64 C) 125 D) 144

16. If South-East becomes North, North-East becomes West, and so on, what will West become?
A) North-East B) South-East
C) South-West D) North-West

17. Complete the analogy: Clock : Time :: Thermometer : ?
A) Heat B) Temperature
C) Fever D) Mercury

18. Introducing a boy, a girl said, "He is the son of my mother's brother." How is the girl related to the boy?
A) Sister B) Cousin
C) Niece D) Aunt

19. In a code, "GATE" is coded as "71205". How is "ZONE" coded?
A) 2615145 B) 2614155
C) 2515145 D) 2615144

20. Find the number of triangles in a square divided into two diagonals and two perpendicular bisectors.
A) 4 B) 8 C) 12 D) 16