NATIONAL TEACHERS COUNCIL

NATIONAL LEVEL

SCIENCE OLYMPIAD

Class
4

Time Allowed: 90 Minutes   **Maximum Mark: 50**

This Test Booklet contains 12 pages. Do not open the Test Booklet until you are asked to do so.

Important instructions

1.   **The Answer Sheet is inside this Test Booklet.** *When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars carefully with* **blue/black ball point pen OR Pencil.**

2.   *The question paper is divided into two sections.* **Environmental Science** *(40 Questions) and* **Logical Reasoning** *(10 Questions)*

3.   *All the two Sections contain Multiple Choice Questions (MCQs). Each of these questions has four options out of which only one option is correct.*

4.   *Each question should be answered by* **darkening** *the appropriate circle (A, B, C, or D) with a* **blue or black ball pen**.

5.   *All questions are compulsory. There is no negative marks for wrong answer.*

6.   *Answer recorded once in the answer sheet cannot be altered.*

7.   *All rough works should be done only in the space provided for* **rough work** *in this question paper.*

8.   *Calculator is not permitted in the examination hall.*

9.   *Candidate should write his / her name in the space provided for the purpose.*

Candidate's Name:

Roll Number   :

…………………….
Candidate's Signature

…………………...
Invigilator's Signature

SCIENCE

1. The adaptation mechanism of chameleon is to

   [A] Hibernate in winter

   [B] Change colour to suit its surroundings

   [C] Develop scaly skin on its body to maintain moisture

   [D] Migrate to long distances in winter

2. Stars give off their own light, hence they are like

   [A] Moon   [B] Earth

   [C] Planets   [D] Sun

3. The last chain of food chain is

   [A] Produces   [B] Parasites

   [C] Decomposers   [D] Primary consumers

4. The figure given below shows human digestive system. Study the figure and answer the question given below.

   Which of the following organs produces digestive juices and an acid?

   [A] P

   [B] Q

   [C] R

   [D] S
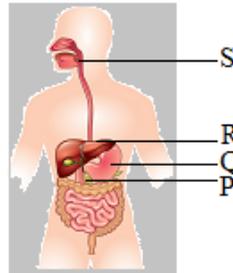
5. Arun wants to dissolve rock salt in a glass of water at room temperature. Which process will speed up the time it takes for the salt to dissolve?

   [A] Add hot water to the glass.

   [B] Add cold water to the glass.

   [C] Pour the water into a larger container.

   [D] Pour the water into a smaller container.

6. Which of the following changes is wrong?

   [A] Solid —Heat→ Liquid

   [B] Solid —Cool→ Gas

   [C] Liquid —Cool→ Solid

   [D] Liquid —Heat→ Gas

7   Which of the following animals should come in the empty box given below?

Herbivore	Carnivore	Arboreal animal
Cow	Tiger	

   [A] Cat   [B] Man

   [C] Monkey   [D] Vulture

8   Which of the following are called the food factories of a plant?

   [A] Root   [B] Stem

   [C] Flowers   [D] Leaves
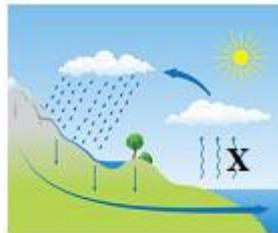
9   Water droplets that can be seen on grass in winter mornings is because of

   [A] The secretion of water from the leaves

   [B] Rain that takes place every night

   [C] Condensation of water particles in the air

   [D] Excessive absorption of water from the soil

10 Process **X** in the following figure is a part of water cycle. Identify the process **X**.

   [A] Condensation

   [B] Evaporation

   [C] Freezing

   [D] Melting

11 Which of the following life cycle is correct?

   [A] Baby ⟶ Teenagar ⟶ Child ⟶ Adult

   [B] Seed ⟶ Flower ⟶ Plant ⟶ Fruit

   [C] Cocoon ⟶ Larva ⟶ Egg ⟶ Adult

   [D] Egg ⟶ Caterpillar ⟶ Pupa ⟶ Butterfly

12 Varun added two spoons of salt to 100 ml of water in a beaker and stirred it well. After some time he noticed that the volume did not change. This is because

   [A] The salt particle did not dissolve

   [B] The salt particles do not have any volume

   [C] The salt particles evaporated upon stirring

   [D] The salt particle occupied the empty spaces between water particles

13 The planet, Mercury can be seen only in the morning and evening because

    [A] It is very close to the sun   [B] It is very small

    [C] It is very hot   [D] It does not have any light of its own

14 The man shown below is suffering from blood pressure and heart attack because of obesity. Which of the following food is causing this?

    [A] Vitamins   – Green leaves

    [B] Proteins   - Pulses

   [C] Fats   - Oil & meat

    [D] Carbohydrates - Rice and wheat

15 The axis of the Earth is tilted at an angle. This explains why the

    [A] Northern hemisphere is away from the Sun and the Southern hemisphere is towards it.

    [B] Southern hemisphere is away from the Sun and the Northern hemisphere is towards it.

    [C] Season in the Northern hemisphere can never be the same as the season in the Southern hemisphere

    [D] All of these

16 Which of the following activities requires the presence of air?

    [A] Respiration   [B] Burning

    [C] Flying of aeroplane   [D] all of these

17 Water which is fit for drinking are called

    [A] Polluted water   [B]Distilled water

    [C] Potable water   [D] Purified water

18 In the given food web P, Q, R, S, T and U are consumers. Which of these consumers are both plant and animal eate
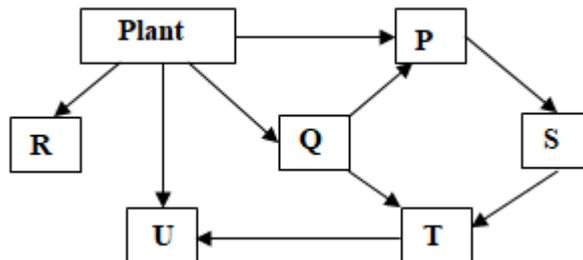
    [A] P and S   [B] P and U

    [C] Q and U   [D] R and T

19 Digestion is an important life process and many organs involve in it. Which is a part of digestive system where no digestion occurs?

    [A] Mouth   [B] Food pipe

    [C] Stomach   [D] Intestine

20 Which of the following is a disadvantage of most of the renewable energy sources?
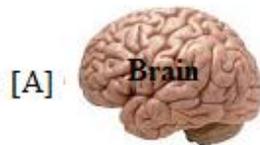
    [A] High waste disposal cost   [B] Unreliable supply

    [C] Highly polluting   [D] High running cost

21 Which body part belongs to the skeletal system?
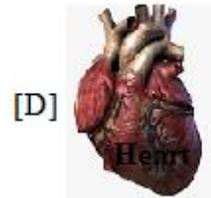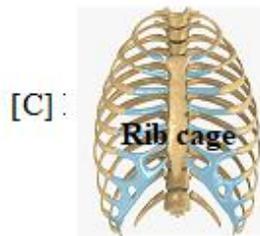
22 Which of the following will NOT cause water pollution?

    [A] Releasing harmful gases into the air

    [B] Using recycled waste water for cleaning

    [C] Putting unwanted waste in open field located nearby a water body

    [D] Throwing industrial and chemical waste products into rivers

23 I have a tail and gills like a fish, I swim in water but I can jump and hop when I'll grow up. Who am I?

    [A] Maggot   [B] Nymph

    [C] Caterpillar   [D] Tadpole

24 Unscramble the given options and select the one that gives a cause for soil erosion.

    [A] BANEEMKMNT   [B] RRTEAFARCEMING

    [C] FFORTAESTAION   [D] AVERONGRZIG

25 Select the correct option regarding solution

    [A] Solute + Solution = Solvent   [B] Solvent + Solution = Solute

    [C] Solvent – Solute = Solution   [D] Solution - Solute = Solvent

QUESTIONS 26 TO 29: Read the following passage carefully and answer the questions 26 to 29

Many animals hibernate during parts of the year, entering a state that is similar to a very deep sleep. But hibernation is more than simply a deep sleep. The animal's body temperature drops well below its normal range, the animal does not wake up for a long period of time, and its metabolism slows to the point that the animal does not need to eat or relieve itself during that period. In order to prepare for hibernation, the animal must build up its body weight and increase its body fat. This is important, since the animal will be living off its own body fat during the months of hibernation. Of course, once the period of hibernation is over, the animal "wakes up" to find itself slim and trim once again!

26 How does an animal prepare for hibernation?

      [A] It exercises for two months.   [B] It gradually increases its sleeping habits.

      [C] It grows extra fur.   [D] It eats more food than usual.

27 This passage best supports the statement that

      [A] All animals hibernate to some degree.

      [B] Food is scarce in the winter.

      [C] Hibernation is very different from normal sleep.

      [D] Bears hibernate every year.

28 During the period of hibernation, the animal's

      [A] Body temperature increases   [B] Metabolism speeds up

      [C] Body temperature decreases   [D] Both (2) & (3)

29 Which one of the following statement is true?

      [A] During hibernation, animals use its own body fats for survival

      [B] During hibernation, animals does not require any energy

      [C] Animals hibernate during summer

   [D] Hibernation is just like a deep sleep.

30 Rahul continued to heat 100 ml of pure water for 15 minutes after it reached boiling point. Which of the following figures shows the result at the end of his experiment?
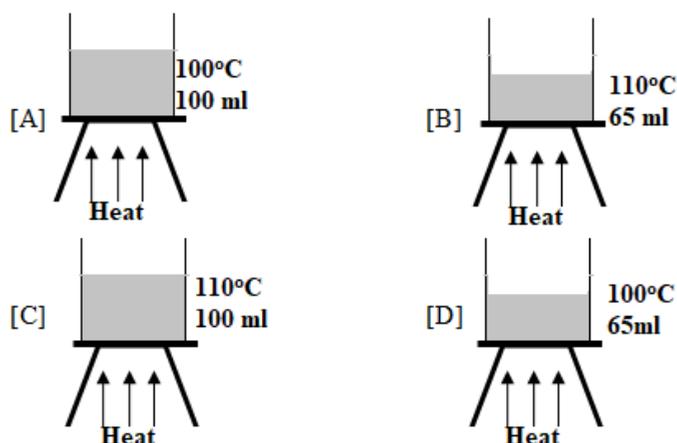
31 To reduce force **X** on a carom board, talcum powder is applied. The force **X** is the force

[A] Applied by hand on sponge ball

[B] That makes it tough to lift heavy objects

[C] That pulls down all objects towards earth

[D] That prevents us from slipping while walking

32 The given pictures show particles of the same matter. In which picture is the matter coldest?

[A]

[B]

[C]

[D]
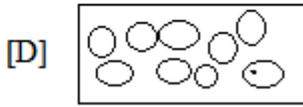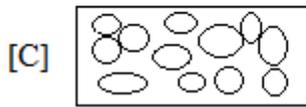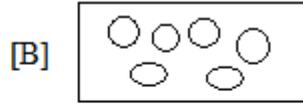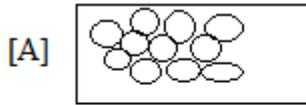
33 During what time of a day does the process shown here takes place in plants?

Oxygen

Carbon dioxide
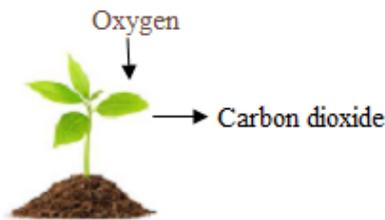
[A] 6 am

[B] 2 pm

[C] 11 pm

[D] All the time

34 Which of the following components of balanced diet cannot be digested by us?

[A] Fats   [B] Roughage

[C] Pulses   [D] Rice

35 Select the setup in which the plank will move at all but may break. Let the fulcrum not be fixed permanently on the plank.

[A]   ↑x   △   x↑

[B] ↓x   △   2x↑

[C] ↓x   △   x↓

[D] ↓2x   △   x↑
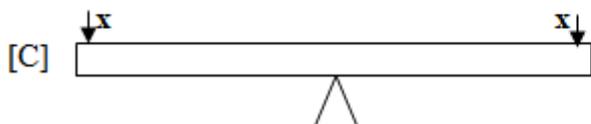
36 Which of the following animal belongs to the same group as the animal shown in the picture below?

[A] Cow

[B] Duck

[C] Salamander

[D] Snake

37 If we take three samples of a solid, liquid and gas, each of having a fixed volume of $1cm^2$, then which of them will have the most number of particles?

[A] Gas [B] Liquid

[C] Solid [D] All have the same

38 Our heart works non –stop. We are not able to control its working. This is because

[A] It does not have bones [B] It has voluntary muscles

[C] It has involuntary muscles [D] None of these

39 Pulleys work by

[A] Increasing the force [B] Decreasing the force

[C] Changing the direction of force [D] Maintaining the direction of force

40 Carefully observe the following figure. The figure shows

[A] Solar eclipse

[B] Lunar eclipse

[C] Sun's shadow

[D] Earth eclipse
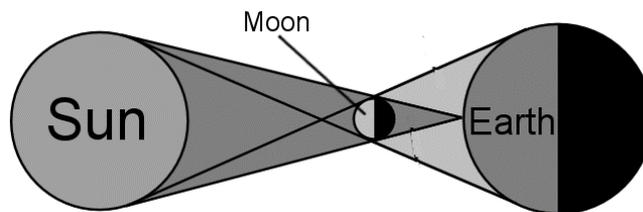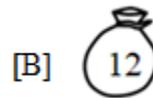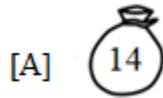

LOGICAL REASONING

41 Identify the relationship that exists in the following pair of words

Decrease : Increase

Which of the following pairs maintains the same logical relationship?

[A] Stretch : Enlarge [B] Beauty : Ugliness

[C] Sitting: Walking [D] Square: Triangle

42 Replace the question mark:

[A] 14   [B] 12

[C] 13   [D] 15
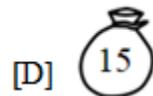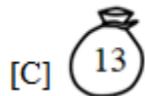
43 Observe the following series and replace the question mark

$$B_2CD, \ ? \ , BCD_4, \ B_5CD, \ BC_6D$$

[A] B_2C_2D [B] BC_3D

[C] B_2C_3D [D] BCD_7

44 Look at following series:

7, 10, 8, 11, 9, 12, ...

What number should come next?
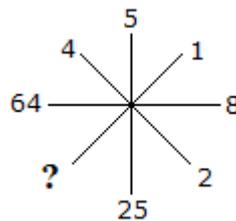
[A] 7   [B] 10

[C] 12   [D]13
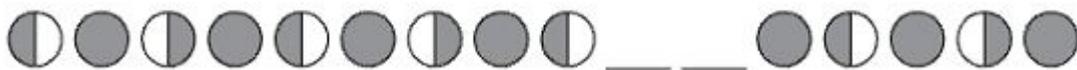
45 Which one will replace the question mark?
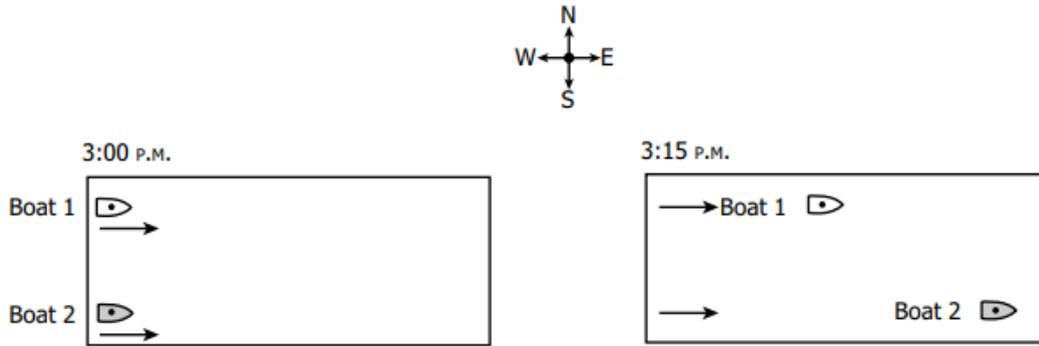
[A] 1
[B] 2
[C] 3
[D] 4

46 Observe the pattern.

Which of the following will fill the gap?

[A]   [B]

[C]   [D]

47 Two moving boats are photographed from above at 3:00 p.m. and 3:15 p.m. Which   statement correctly compares their motion?


[A] They are traveling in the eastern direction at equal speeds.

[B] They are traveling in opposite directions at equal speeds.

[C] They are traveling in the eastern direction, and boat 2 has a greater speed.

[D] They are traveling in western directions, and boat 2 has a slower speed.
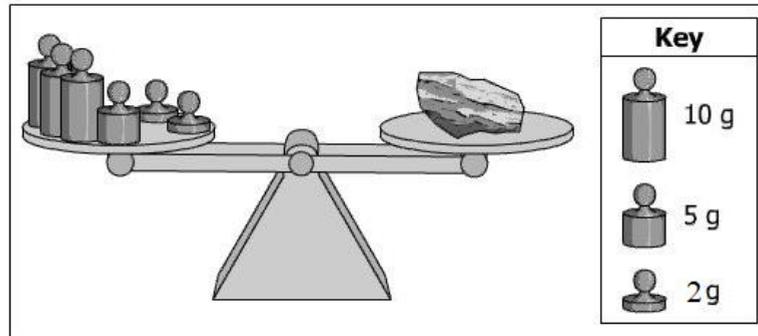
48 Choose the figure which is different from the rest.
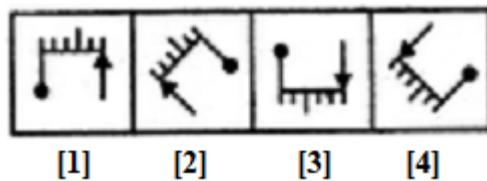
[A] 1   [B] 2

[C] 3   [D] 4

49 If the pattern continues what will the next figure?

[A]   [B]

[C]   [D]
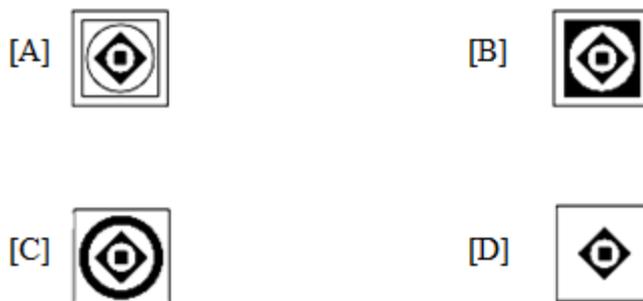
50 What is the weight of the rock shown in the picture?

[A] 39g   [B] 45g
[C] 339g   [D] 30g

SPACE FOR ROUGH WORK