

PREVIOUS YEAR QUESTION PAPER



8th
CLASS

FEATURES

- Naso last 5 years question paper's.
- Answer keys for all the question papers.
- OMR Sheets at the end of all question papers to practice.
- Sample revision question paper for more practice.
- Recommended for all Science Olympiads / Competitions.

NASO OLYMPIAD COMPREHENSIVE GUIDE



NASO QUESTION PAPER 2018



NASO MOCK TEST SERIES



NASO PREVIOUS YEAR QUESTION PAPER



NASO WORKBOOK



SMART BAIN IQ PUZZLE

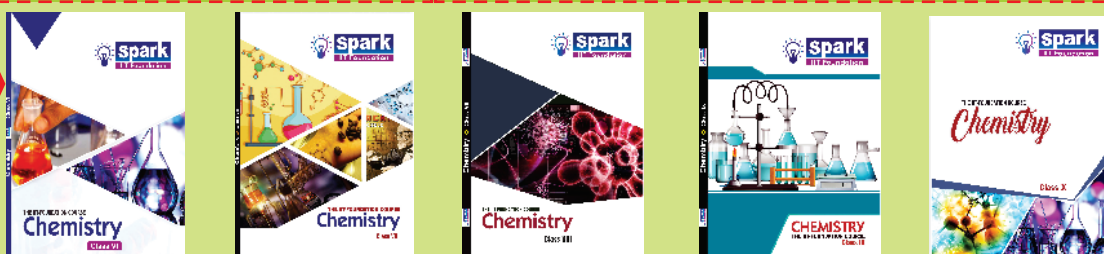


NASO EXCELLENCE GUIDE

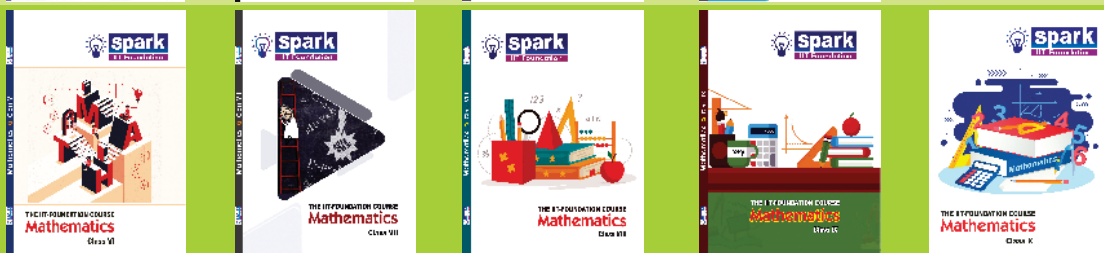


SPARK IIT FOUNDATION

CHEMISTRY



MATHEMATICS



PHYSICS



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Duration : 60 Minutes

GENERAL INSTRUCTIONS

Max Marks : 50

1. Please collect the Answer Sheets (OMR) from the invigilator.
2. Please Write your Student ID, Name, Class, and School Name on the OMR Sheet.
3. This question paper contains 50 Questions, duration is 60 minutes.
4. Answer all the questions in OMR sheet only. And please do sign on it.
5. Use only Black or Blue Ball Point Pen to answer the question in OMR sheet.
6. Indicate the correct answer by darkening on the 4 responses provided.
7. After successful completion of the test please submit the OMR answer sheet to the invigilator.

1. Fibre 'X' is used in the uniform of fireman for the protection of human body from heat hazards as it is a renowned fire retardant plastic. It is also used in airplanes, buses etc. in order to block the spread of fire. Identify 'X'.

A. Teflon. B. Nylon.
C. Melamine. D. Rayon.



2. The picture shows a fuel catching fire without any external source of ignition such as a flame or a spark. What does the temperature at which the fuel caught fire called?



A. thermal point B. pour point
C. ignition temperature D. none of the above

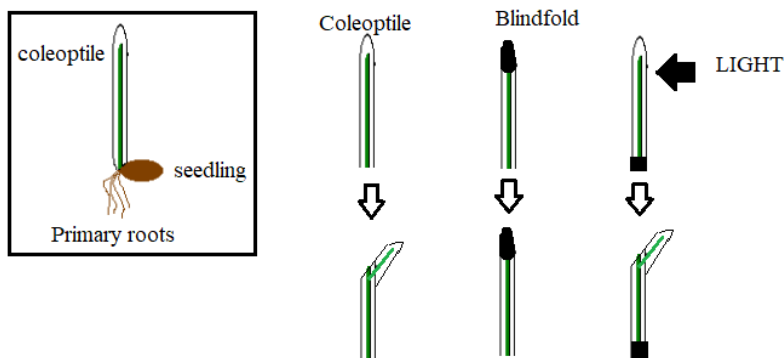
3. A diver was feeling pain in his as he was going deeper into the sea. At a point he felt severe pain in the ear and he quickly got back to the surface of the sea. His doctor revealed that he had hurt his eardrum. What caused this injury?
A. Increased water pressure. B. Increased atmospheric pressure.
C. Lack of oxygen. D. Lack of salt in the sea.
4. Suman was playing with her doll in the balcony when suddenly the toy slipped and fell off the balcony. Choose the correct option regarding the speed of the falling toy.
A. The speed of the toy increases with time.
B. The speed of the toy decreases with time.
C. The speed of the toy remains constant.
D. The speed of the toy increases for the first 5 seconds and decreases later.

5. 'Y' denotes a common trait of activity 1, 2 and 3. Identify 'Y'.

ACTIVITY 1	A body floating on water.
ACTIVITY 2	A kite held stationary in the sky.
ACTIVITY 3	A wooden block floating on the surface of the water.

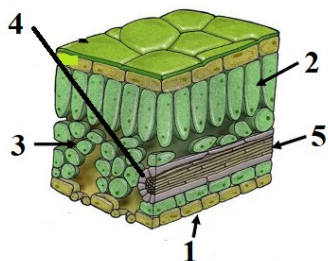
- A. The total force experienced is zero. B. The total force experienced is not zero.
C. The total force experienced is negative. D. The total force experienced is infinite.

6. Class 8 students experimented with phototropism of grass seedlings by placing a metal foil over different parts of the seedling's coleoptile causing the effect of "blindfold". Shown below is the result of their experiment. Which of the following statements best explains their results?



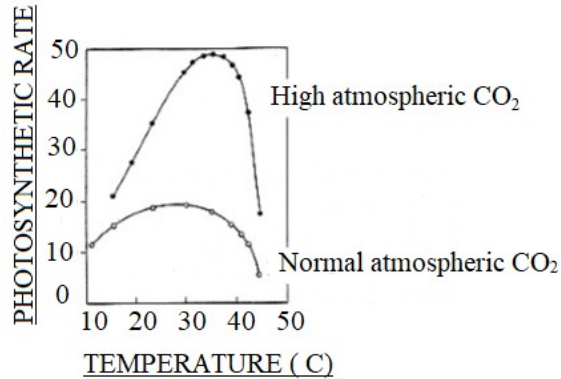
- A. The light signal is perceived a few millimeters below the tip, and these cells cause the coleoptile to grow toward the light.
B. Both the coleoptile and seedling root respond and perceive to light in the same manner.
C. A chemical messenger must move to the tip from the base of the coleoptile.
D. The light signal is perceived at the tip of the coleoptile, but the growth response occurs a few millimeters below the tip.
7. Given below is the diagram of cross-section of a leaf. Identify the incorrect label in the diagram.

Leaf Cross Section

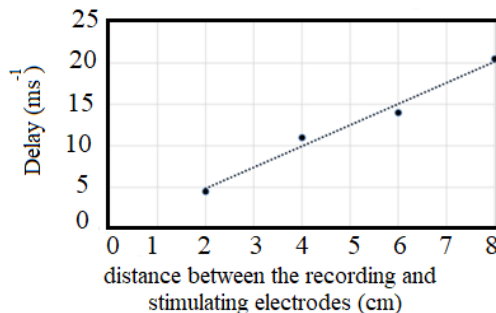


- A. 1- Lower epidermis. B. 2- palisade mesophyll cell
C. Spongy mesophyll. D. 5- Stoma

8. The "greenhouse effect" is caused by the increased levels of atmospheric CO_2 and thus global climatic warming is produced. The effect of these changes on photosynthesis is shown in the graph given below. Which of the following statements about these processes is not correct?

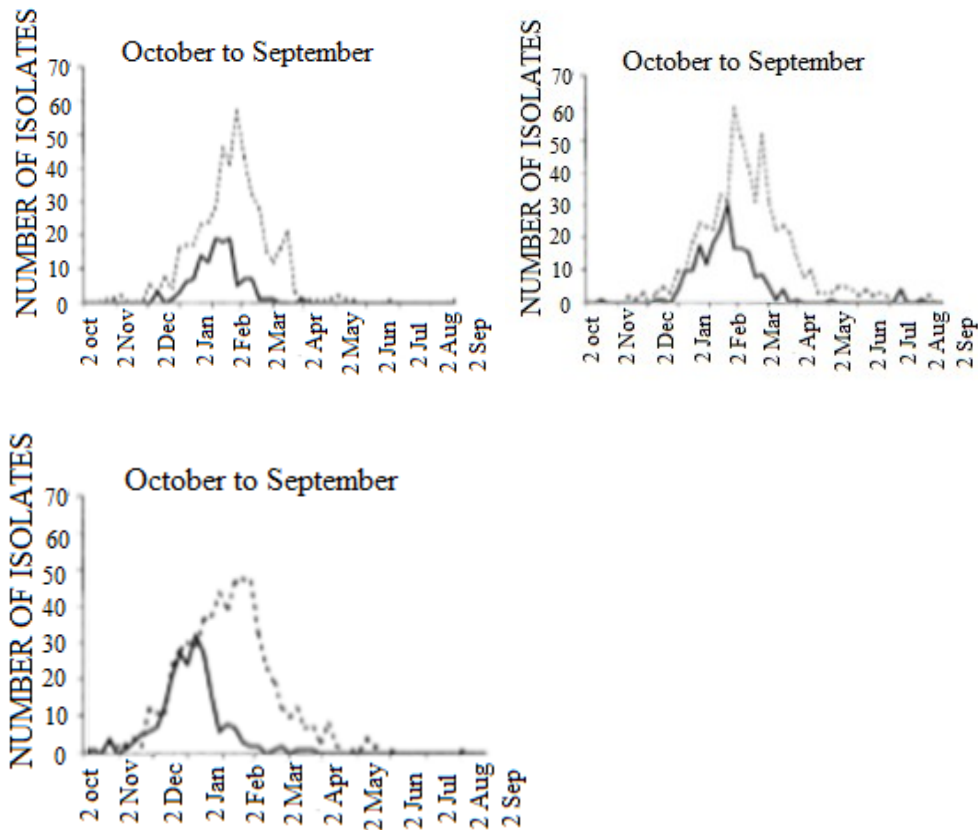


- A. For most plants, temperatures over 40°C reduce photosynthesis.
 B. At temperatures below 20°C , high CO_2 concentrations reduce photosynthesis to values below those seen for plants growing in normal CO_2 concentrations.
 C. Increasing the levels of atmospheric CO_2 will result into increasing rates of photosynthesis in most plants.
 D. At high CO_2 concentrations, the highest rates of photosynthesis are measured at temperatures between 30°C and 35°C
9. An experiment was performed to measure the speed of conduction of a nerve impulse along a giant axon. The distance between the recording and stimulating electrodes was varied and the delay between stimulus and response was recorded for each distance. The graph below shows the results in the form of a graph. What will be the mean speed of conduction in such a case?



- A. 1.0 cm s^{-1}
 B. 2.5 cm s^{-1}
 C. 8.5 m s^{-1}
 D. 4.0 m s^{-1}

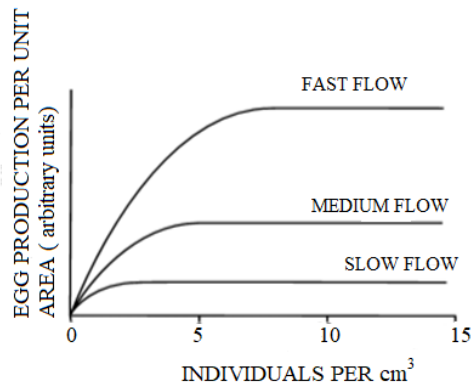
10. A few samples were taken from people (mainly children). The graphs denotes the number of isolates of influenza (solid black line) and respiratory syncytial virus (dotted line) as diagnosed from the samples.



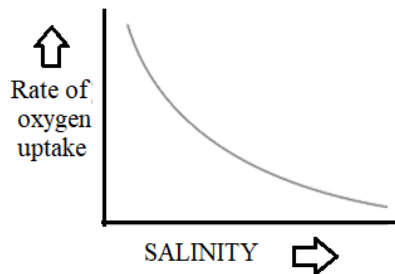
What can be concluded from these data?

- A. You cannot catch the flu in summer.
 - B. After about two months, medical treatment works in individual patients.
 - C. Influenza infection always peaks in February.
 - D. Virus epidemics follow predictable patterns.
11. Two equal samples of suspension of microscopic green algae were taken. Same total amount of light energy was given to each sample. Sample 1 was exposed to continuous light. Sample 2 was exposed to bursts of light for 5 - 10 seconds duration, followed by dark periods. Both samples underwent photosynthesis, but more occurred in sample 1. From this evidence, what can we conclude?
- A. Photosynthesis speeds up in the dark than in the light.
 - B. Photosynthetic process can also occur in darkness.
 - C. Photosynthesis requires darkness as well as light.
 - D. Photosynthesis is a very rapid process.

12. The graph depicts egg production of the barnacle (*Semibalanus balanoides*) at different population densities at three rates of water flow. Which of the following inferences is supported by these data?



- A. The more fertile the organisms become, the greater the population density.
B. Overcrowding reduces the rate of egg production by individuals, beyond a certain population density.
C. The relationship between the rate of water flow and egg production exists inversely.
D. The relationship between population density and egg production is linear at all population densities.
13. The graph shows how the changes occurred in oxygen uptake of an estuarine crustacean with the salinity of the water.



What can be concluded from this information?

- A. Oxygen diffuses faster in more concentrated salt solutions.
B. Oxygen diffuses faster in more dilute salt solutions.
C. More concentrated salt solutions have high rate of respiration.
D. The process of removal of excess water from the body requires energy.

14. In order to differentiate between Homo sapiens and their recent ancestors, dental arcades can be successfully used. Data of dental arcades of recently discovered Homo species and previously discovered species have been compared. The upper arcade of KNM-ER 62000 (outlined in black; discovered 2012) which is reconstructed is obstructed with:
- (1) the reconstructed lower arcades of KNM-ER 60000 (shown in grey; also discovered 2012) ; and,
 - (2) KNM-ER 1802 (shown in grey; discovered 1973).
- What can be logically concluded from these data?

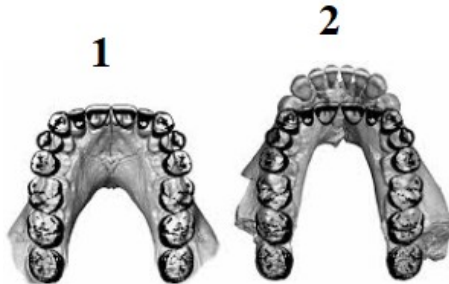


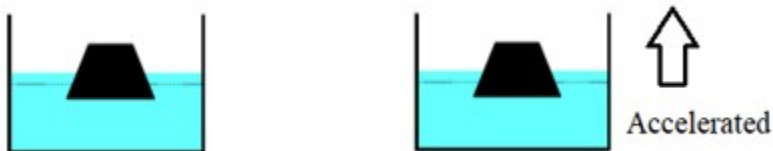
IMAGE SOURCE: RETRIEVED FROM
https://eps.rutgers.edu/images/Publications_PDFS/Leakey_2012.pdf

- A. Early Homo species were scavengers.
 - B. The morphological variation were present in early Homo species.
 - C. When compared to early Homo species, modern Homo sapiens have taken large evolutionary leaps.
 - D. Fossils that are discovered at the same time, are the same shape.
15. A crate of toys is placed but not fastened down to a sleigh. As the sleigh is pulled up a hill with an increasing speed, the crate remains at rest on the sleigh. Identify the force responsible for the crate's increased speed up the hill.
- A. the force of static friction on the crate by the sleigh
 - B. the normal force of the ground working on the sleigh
 - C. the normal force of the sleigh working on the crate.
 - D. the gravitational force acting on the sleigh
16. In a toy car, the chemical potential energy stored in its battery is converted into kinetic energy. This causes an increase in its speed first from 0 mph to 2 mph and then from 2 mph up to 4 mph. Compared to the energy required to go from 0 to 2 mph, what will be the energy required to go from 2 to 4 mph?
- (The energy transferred to thermal energy due to friction and air resistance is to be ignored.)
- A. half the amount.
 - B. the same amount.
 - C. twice the amount.
 - D. three times the amount.



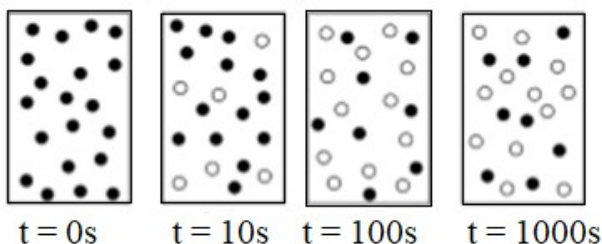
2
to

17. What will happen to the direction of the frictional force on the tires of a rear-drive car when its speed keeps on increasing on a horizontal road?
- A. The frictional force is backward on the front tires and forward on the rear tires.
 B. The frictional force forward on the front tires and backward on the rear tires.
 C. The frictional force forward on all tires.
 D. The frictional force backward on all tires.
18. A block floats partially submerged in a container of liquid. When the entire container is accelerated upward, what will happen to it?



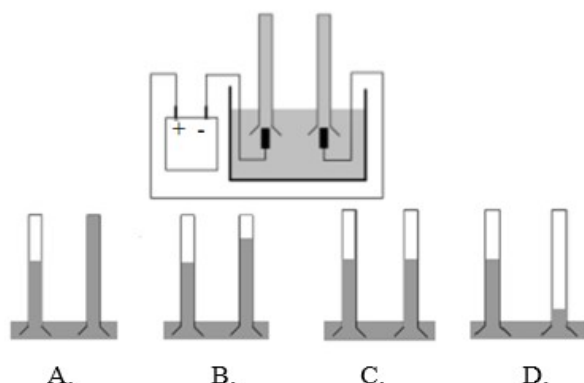
(Both the liquid and the block are assumed to be incompressible.)

- A. The block will descend down into the liquid.
 B. The block will ascend up higher in the liquid.
 C. The block will not ascend nor descend in the liquid.
 D. None of the above.
19. The progress of a reaction of $A \rightarrow B$ is shown in the given diagram. The molecules of A are represented by solid circles and molecules of B are represented by open circles. Identify the correct statement about the reaction at $t = 1000$ s?



- A. The reaction is at equilibrium because the concentrations of A and B are no longer changing.
 B. Not all of the A has been consumed and hence the reaction is not at equilibrium.
 C. The concentrations of A and B are not equal hence the reaction is not at equilibrium.
 D. The positions of the molecules are still changing hence the reaction is not at equilibrium.

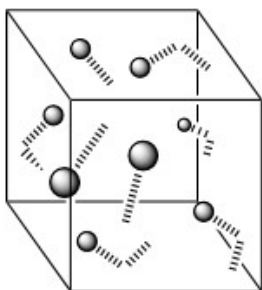
20. The diagram shows the electrolysis of water containing sulfuric acid as an electrolyte. The gases produced at the electrodes are collected in two identical tubes, both initially filled with the sulfuric acid solution. Which picture best represents the appearance of the tubes after electrolysis has been carried out for a certain time?



21. The boiling points of the alkali metals decrease from lithium to cesium. Identify the option which is most closely related to the decreasing boiling points?
- As we move down the group, the atomic radius increases.
 - As we move down the group, the atomic mass increases.
 - As we move down the group, the electronegativity decreases.
 - As we move down the group, the electron affinity decreases.
22. One of the major characteristics of metals is their malleability. Which aspect of metallic bonding best accounts for malleability?



- Valence electrons in metals is few.
 - Metals contain a lattice of positive ions.
 - Metals contain delocalized electrons.
 - Metals have low electronegativity.
23. What state of matter best corresponds to the diagram given below?



- A. Gas
C. Amorphous solid
- B. Liquid
D. Crystalline solid

24. In order to for measure and dispense 37 mL of an aqueous solution, which 50-mL container would be most suitable?



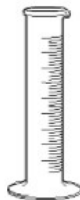
A.



B.



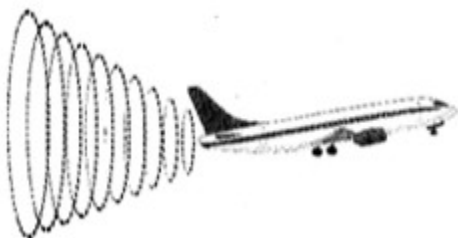
C.



D.

25. Complete the sentence:

An airplane is travelling faster than the speed of sound. An observer is standing on the ground. When will the observer hear a sonic boom?



- A. When the plane breaks the sound barrier.
B. As the plane is approaches the observer.
C. When the plane is reaches directly overhead.
D. After the plane has passed by.

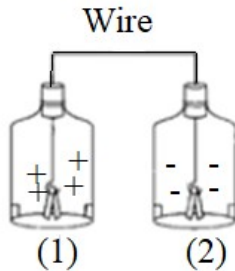
26. Keshav is a professional photographer who lives in Chandigarh. Once Keshav's friend visited his studio. Keshav took his friend to a dark room. This room was red in colour and made Keshav's friend think why the light used in the room was red and not any other colour. Choose the most suitable explanation that can be given by Keshav to his friend in this matter.

- A. Red colour makes a beautiful and soothing ambience.
B. The wavelength of the red colour is the highest. It also has the lowest frequency.

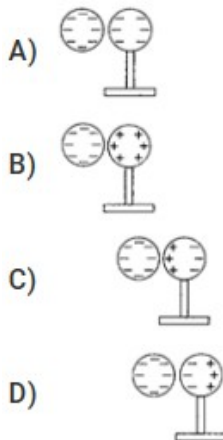
This means that red color does not hinder with the process of developing photographs.

- C. Red colour has the energy which makes the process of developing photographs easy.
D. All of these

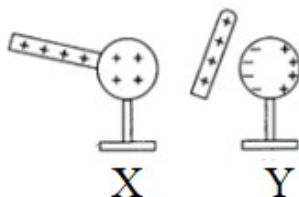
27. The diagram denotes two electroscopes, one positively charged (1) and the other negatively charged (2), which are connected together with a copper wire. What will happen in the following set up?



- A. Electrons will move from 1 to 2.
 B. Protons will move from 1 to 2.
 C. Electrons will move from 2 to 1.
 D. Protons will move from 2 to 1.
28. A neutral metal sphere is taken. As shown below, a negatively charged balloon is brought near it. Assume that the metal sphere is at insulating stand. Which of the following correctly shows the distribution of charges on the system?



29. Identify the correct diagram out of X and Y that shows charging by conduction and charging by induction? (Assume stands are insulating.)



A.

X	Y
Induction	Conduction

B.

X	Y
Conduction	Induction

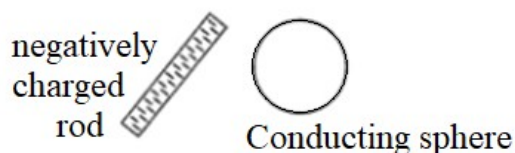
C.

X	Y
Induction	Induction

D.

X	Y
Conduction	Conduction

30. In the diagram below, a negatively charged rod is moved near conducting sphere. What will be the movements of the electrons and protons in the conducting sphere?



A.

Electrons	Protons
move to left	move to right

B.

Electrons	Protons
move to right	move to left

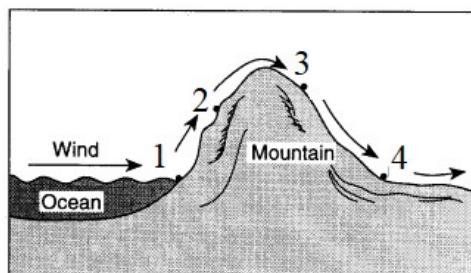
C.

Electrons	Protons
does not move	move to left

D.

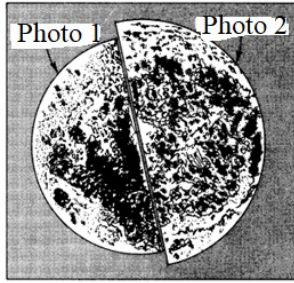
Electrons	Protons
move to right	does not move

31. The diagram represents cross section which shows the flow of prevailing winds over a mountain ridge. Identify the location which is most likely to receive precipitation.

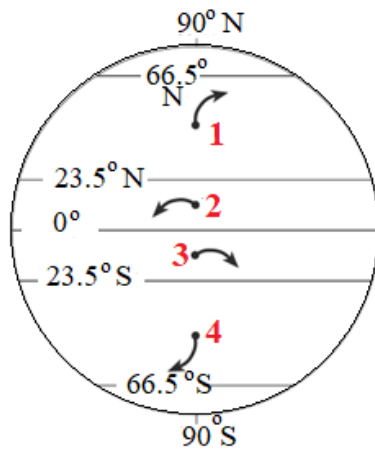


- A. 1 B. 2
C. 3 D. 4

32. The two photographs of the Moon, 1 and 2, taken at full moon phase several months apart are shown below. The same magnification was used for taking these photographs. Each photograph was cut in half and the halves placed next to each other and compared. What is the most suitable reason for the difference in the apparent size of the Moon in photographs 1 and 2?



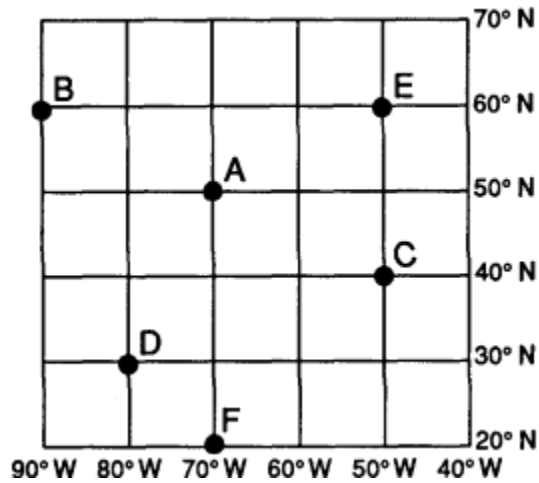
- 1) The phases of the Moon changed.
 - 2) The Moon expanded.
 - 3) There is change in the distance from the Earth to the Moon.
 - 4) The Moon rotated.
33. The changes in the direction of surface winds at four locations- 1, 2, 3, and 4 on Earth is shown using arrows in the diagram. Which location correctly shows a deflection of the wind that could possibly be due to the Coriolis effect?



- | | |
|------|------|
| A. 1 | B. 2 |
| C. 3 | D. 4 |

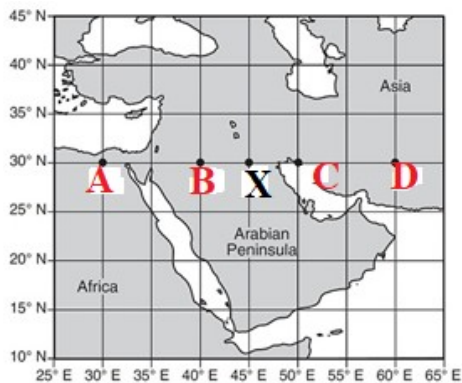
34. The map given below represents a part of the Earth's surface along with its latitude-longitude coordinates. The various locations in this area are represented using points A

through F. Which value for measurements at points B and E will differ?



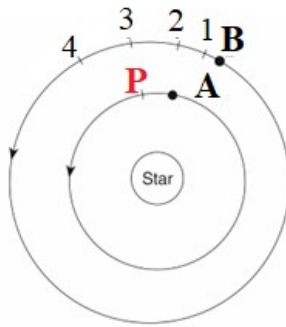
- | | |
|--------------------------|--------------------------------------|
| 1) latitude | 2) time |
| 3) duration of solar day | 4) altitude of the Sun at solar noon |

35. Points A, B, C, D, and X on the map are locations on a portion of the Middle East on Earth's surface. It is 10:00 a.m. solar time at location X. Which location will observe 11:00 a.m. solar time?



- | | |
|------|------|
| A. A | B. B |
| C. C | D. D |

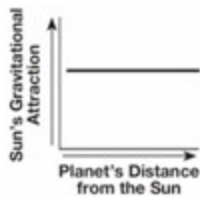
36. The diagram below represents the current locations of two planets, A and B, orbiting a star. Letter P indicates a position in the orbit of planet A. The various positions in the orbit of planet B are indicated using numbers 1 through 4.



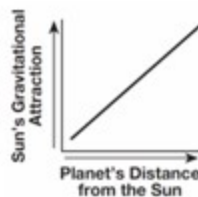
Planet A moves in orbit from its current location to position P. In which position will planet B most likely moves in orbit from its current location?

- A.1
- B.2
- C.3
- D.4

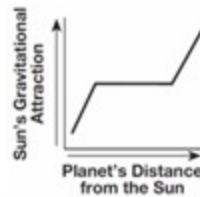
37. Identify the graph which best shows the general relationship between a planet's distance from the Sun and the Sun's gravitational attraction to the planet?



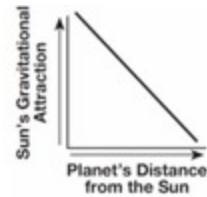
A.



B.

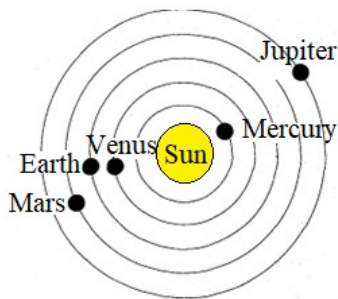


C.



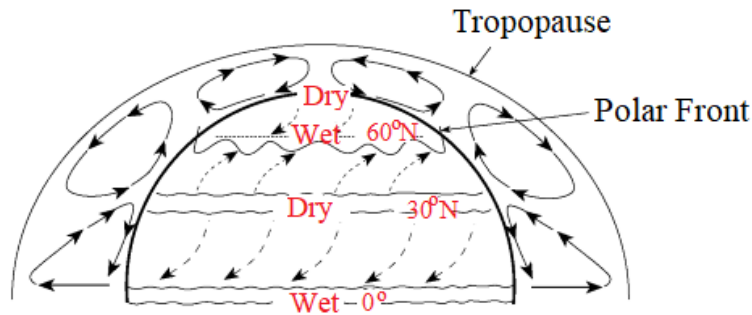
D.

38. The given diagram shows several planets at various positions in their orbits at a particular time. When the planets are in these positions, which planet would be visible from the Earth at night for the longest period of time?



- A. Mercury
- B. Venus
- C. Mars
- D. Jupiter

39. The diagram below represents the planetary wind and moisture belts in Earth's Northern Hemisphere. Why are the paths of the surface planetary winds are curved?



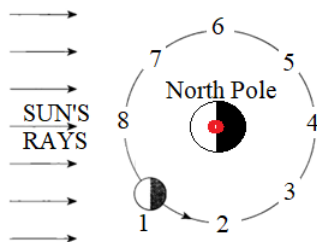
- A. Due to Earth's revolution B. Due to Earth's rotation
C. Due to Earth's circumference D. Due to Earth's size

40. The satellite image below shows a Northern Hemisphere hurricane. What will happen when the eye of this hurricane reaches 43° N latitude?



- A. This hurricane will most likely be pushed by planetary winds toward the northwest.
B. This hurricane will most likely be pushed by planetary winds toward the northeast
C. This hurricane will most likely be pushed by planetary winds toward the southwest
D. This hurricane will most likely be pushed by planetary winds toward the southeast

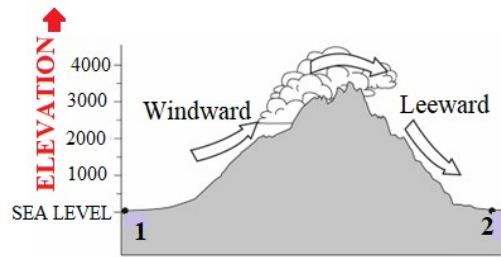
41. The diagram below shows the Moon at position 1 in its orbit around Earth. Other positions on the Moon's orbit are represented by numbers 2 through 8. A solar eclipse could occur when the Moon is located at which numbered position?



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

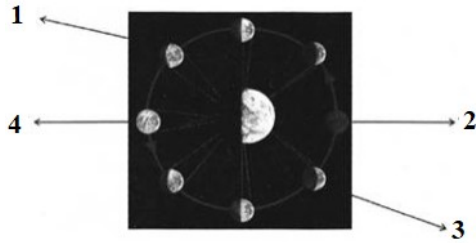
The windward and leeward sides of a mountain range are shown in the diagram below. Arrows show the movement of air over a mountain. Points 1 and 2 represent locations at

sea level on Earth's surface.



42. Compared to that of point 1, how the temperature of the air is different as the air arrives at point 2?
- A. Air temperature at 2: warmer and increased
 - B. Air temperature at 2: colder and decreased
 - C. Air temperature at 2: warmer and decreased
 - D. Air temperature at 2: cooler, lower and increased
43. Compared to that of the air at point 1, how the relative humidity of the air is different as the air arrives at point 2?
- A. Relative humidity at 2: increased
 - B. Relative humidity at 2: decreased
 - C. Relative humidity at 2: higher
 - D. Cannot determine.
44. Why does air cool down as it rises up this mountain?
- A. Air expands as it moves up the mountain.
 - B. The molecules move farther apart as the air rises.
 - C. Lower pressure at higher altitudes allows molecules to move farther apart.
 - D. All of the above.
45. On the windward side of the mountain, what is the relative humidity at the base (bottom) of the cloud?
- A. 50%.
 - B. 35 %.
 - C. 75%
 - D. 100%
46. Which of the following weather instrument/s that could be used to determine the dewpoint of the air at point 1?
- A. psychrometer.
 - B. wet and dry bulb thermometer.
 - C. hygrometer
 - D. All of the above.

47. Which parts of the figure below, represent the new moon phase?

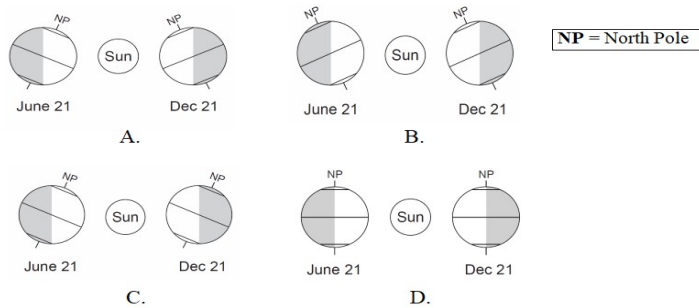


- A) 1
B) 2
C) 3
D) 4

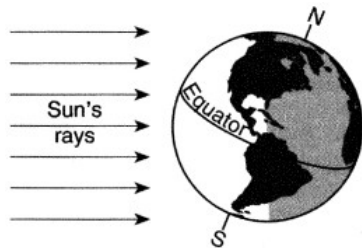
48. As is known, there are billions of stars in this far off universe. The distance of these stars from us cannot be measured in smaller units, such as, kilometer or meter. It can be measured in light years. What is the distance of nearest star from the earth?

- A) 1.5 light years
B) 2.3 light years
C) 3.4 light years
D) 4.3 light years

49. Identify diagram that best represents the regions of Earth in sunlight as on June 21 and December 21?



50. The diagram below represents Earth in space on the first day of a season. On the day represented in the diagram, which season is beginning in New York State?



- A) winter
B) spring
C) summer
D) fall

Duration : 60 Minutes

GENERAL INSTRUCTIONS

1. Please collect the Answer Sheets (OMR) from the invigilator.
2. Please Write your Student ID, Name, Class, and School Name on the OMR Sheet.
3. This question paper contains 50 Questions, duration is 60 minutes.
4. Answer all the questions in OMR sheet only. And please do sign on it.
5. Use only Black or Blue Ball Point Pen to answer the question in OMR sheet.
6. Indicate the correct answer by darkening on the 4 responses provided.
7. After successful completion of the test please submit the OMR answer sheet to the invigilator.

SECTION-I

1. Coal remains as one of our most precious sources of energy today. Coal contains elements like carbon, hydrogen, oxygen and sulphur. The element in coal that gives it the energy content is carbon. Four types of coal were analyzed for their composition. The results are given below. Which of the type of coal below gives the highest energy content?

	Type of Coal	Carbon (g)	Hydrogen (g)	Oxygen (g)	Sulf
A.	Flame Coal	4	0.3	0.5	0.05
B.	Anthracite	4.8	0.17	0.12	0.
C.	Lignite	6	6	34	
D.	Forge Coal	9	4	3	0.1

2. Match Column A with Column B.

A (DESCRIPTIONS)	B (TERMS)
(i)	1. radiation
(ii)	2. convection
(iii) higher altitudes	3.
(iv) Heating of a metal rod by keeping one end in a flame	4. conduction

- a. i-1,ii-2,iii-3,iv-4 b. i-3, ii-4,iii-1, iv-2 c. i-4,ii-1,iii-3,iv-2 d. i-3,ii-1,iii-2,iv-4

3. A Tadpole develops into an adult frog by the process of_____?

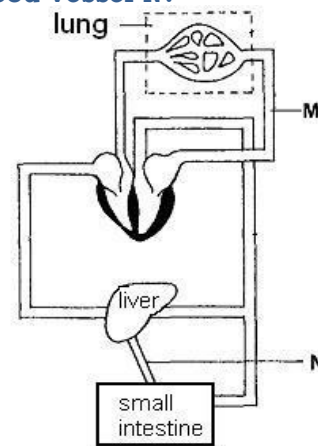
- a. Fertilization b. Metamorphosis c. Embedding d. Budding

4. Species found only in a particular area is known as_____?

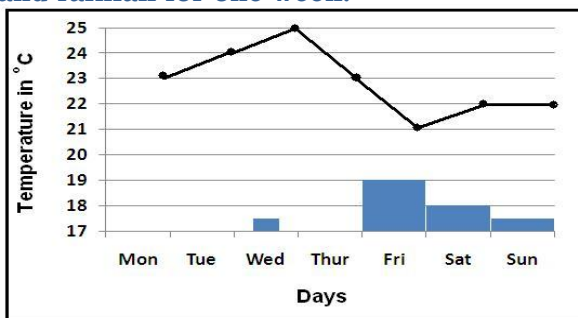
- a. Migratory b. Endangered c. Endemic d. Flora

5. The diagram below shows the circulatory system in a human body. After a lunch meal, what happens to blood vessel M when compared with that of blood vessel N?

- Blood vessel **M** carries more oxygen.
- Blood vessel **M** carries less carbon dioxide.
- Blood vessel **M** carries more digested food.
- Blood vessel **M** carries more Water.



6. Look at the temperature and rainfall graph that Jason drew to record the temperature and rainfall for one week.

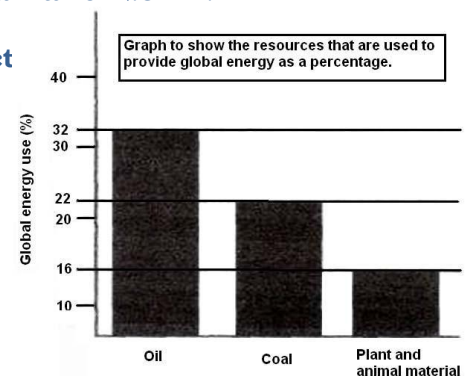


Which one of the following alternatives contains the correct information conveyed by the graph?

- The lowest rainfall experienced was 2.5mm while the highest temperature recorded was 25° C.
- The lowest recorded temperature was 21° C and on the same day the rainfall was 19mm.
- The temperature on Saturday and Sunday was 22° C with a combined rainfall of 15mm.
- The average temperature for the week was 22.8° C with an average rainfall of 2.8mm.

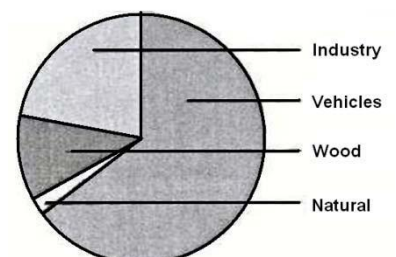
7. Study the graph below and then find the alternative that is Incorrect

- In a few years to come oil could become a scarce of energy.
- The use of coal is a greater source of energy than plant and animal matter but less than that of oil.
- The total percentage of global energy that is supplied by these three sources is 70%.
- The use of plant and animal matter as a source of energy is half of that of the use of coal.

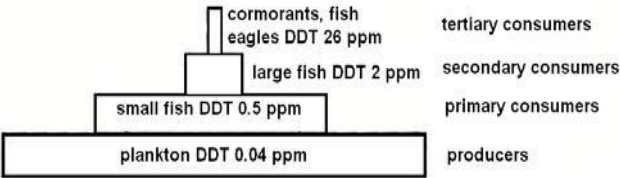


8. The city of Cape Town is often covered by a brown haze consisting mainly of small particles of pollutants. The pie chart below shows some sources of air pollution over Cape Town. There are statements describing the information presented by the chart. Read through the alternatives and find the statement that is incorrect.

- Industry contributes to 40% of the pollution.
- The pollution caused by vehicles is about 63%.
- Wood and natural combined makes up 13.9% of the pollutants.
- Wood pollution is half of that caused by industry.

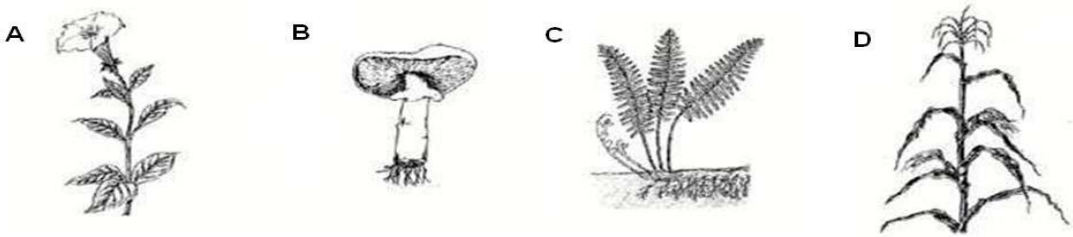


9. Study the diagram below showing the concentration of DDT in the environment. Which statement is incorrect?



- a. The producers contain the least concentration of DDT.
- b. Primary consumers have lower concentrations of DDT than tertiary consumers.
- c. As one moves through the food chain the concentration of DDT decreases.
- d. The organisms most affected by the DDT is the fish eagle and cormorants

10. Study the drawings of four different types of plants shown below. Of these plants, which ones reproduce by spores?



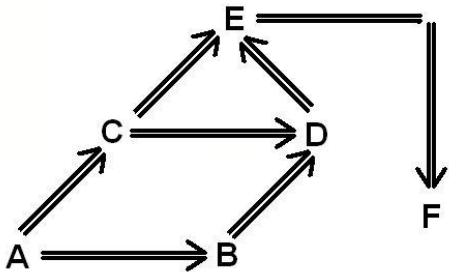
- a. 1 and 2
- b. 3 and 4
- c. 1 and 4
- d. 2 and 3

11. Study the diagram showing the water cycle and find the alternative that best describes the processes represented by numbers 1, 2, 3 and 4



	1	2	3	4
a	evaporation	transpiration	condensation	precipitation
b	transpiration	condensation	evaporation	precipitation
c	precipitation	evaporation	transpiration	condensation
d	condensation	precipitation	evaporation	transpiration

12. In the diagram below is a food web in which the flow of energy is represented by the arrows with each letter representing a different species?

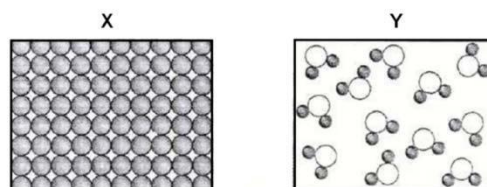


In which of the following is the species correctly matched with its role in the food web?

	Predator	Producer	Decomposer	Primary consumer
a.	A	F	F	B
b.	E	A	F	D
c.	C	F	A	E
d.	E	A	F	C

13. Study the particle diagrams showing two different substance marked X and Y. Find the alternative that best describes your observation.

- a. X is an element and Y is a solid.
- b. X is an element and Y is a liquid.
- c. X is a compound and Y is an element.
- d. X is a compound and Y is a gas.

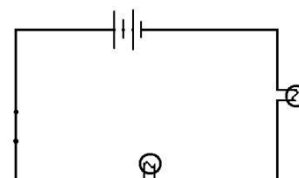


14. This year science all over the world celebrated the 200th birthday of a great person namely...

- a. Sir Albert Einstein
- b. Charles Darwin
- c. Sir Isaac Newton
- d. Alfred Wallace

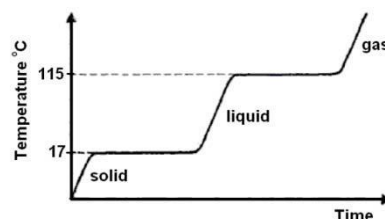
15. Study the circuit diagram below showing two bulbs in series. Predict what would happen if the same two bulbs were connected in parallel.

- a. Resistance decreases and current increases.
- b. Resistance increases and current decreases.
- c. Both the resistance and current decreases.
- d. Both the resistance and current increases.



16. The graph alongside shows how temperature rises with the time when a solid is heated until it melts and then the liquid is heated until it boils. Which of the following is correct regarding the temperature at which the solid changes to a gas?

- a. 17°C
- b. 0°C
- c. 115°C
- d. 132°C



17. During the lunch breaks you and your friends notice that too much litter is being thrown by other learners onto the grounds. You decide to take the following steps (not in the correct order) to solve the problem:

- a. Collect data by carrying out a survey among learners. Collect rubbish and weigh it at the end of each day.
- b. Formulate the hypothesis that learners are dropping litter on the school grounds because there are too few rubbish bins.
- c. Meet with the school governing body to discuss buying of rubbish bins to place in certain areas.
- d. Plan an investigation to determine where bins are needed.

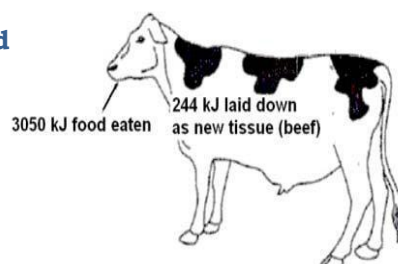
Choose the letter to show the correct order that you would follow in investigating the litter problem.

A	1	2	3	4
B	2	3	1	4
C	2	4	3	1
D	2	4	1	3

18. The diagram below shows the amount of energy in the cereal food eaten by a cow in a certain time. It also shows the amount of energy used to make new tissue.

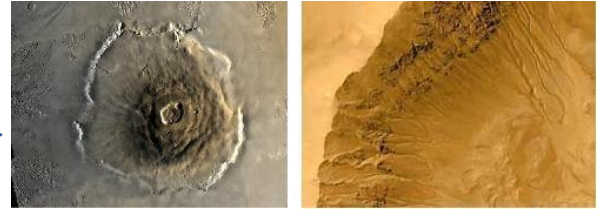
What percentage of the energy taken in by the cow is found in new tissue?

- a. 92%
- b. 8%
- c. 10%
- d. 100%



19. Modern technology has allowed scientists to view many features found on the planet Mars, including volcanoes, channels, valleys, and gullies. These features are

- a. Proof that life once existed on Mars.
- b. Proof that Mars was formed by the Big Bang.
- c. Evidence that Mars was once one of Earth's moons.
- d. Evidence of geologic activity on Mars.



20. Gravity is a phenomenon where physical objects are attracted to each other. It gives weight to an object and pulls it towards the ground. Any object that falls due to force of gravity only is said to be on free fall. Which of the following is the proportion of the moon's gravity to Earth?

- a. $\frac{1}{3}$
- b. $\frac{1}{4}$
- c. $\frac{1}{5}$
- d. $\frac{1}{6}$

21. Crops that can be transplanted?

- a. Chillies
- b. Tomatoes
- c. Paddy
- d. All of these

22. Bacteria are classified according to their?

- a. Shape
- b. Size
- c. Colour
- d. All of these

23. A common Food Preservative is _____?

- a. Benzoic acid
- b. Sulphuric acid
- c. Nitric Acid
- d. Hydrochloric acid

24. The Smallest Micro organism is _____?

- a. Bacteria
- b. Algae
- c. Virus
- d. Protozoa

25. Which of this is called "Artificial Silk"

- a. Nylon
- b. Rayon
- c. Polyester
- d. All of these

SECTION-II

26. The scientists have discovered that Milky Way is having two components, the disc and spherical. What may be the central object of Milky Way?

- a. A Black Hole
- b. Vacuum
- c. A Neutron Star
- d. A Large Magellanic Cloud

27. The “Planetoids” are located between which among the following?

- a. Mars and Jupiter
- b. Mercury and Venus
- c. Saturn & Jupiter
- d. Earth & Mars

28. The only planet that shows phases is _____?

- a. Earth
- b. Jupiter
- c. Venus
- d. Saturn

29. Which among the following two gases contribute to begin the formation of stars?

- a. Hydrogen & Nitrogen
- b. Helium & Hydrogen
- c. Nitrogen and Helium
- d. Hydrogen and Oxygen

30. Which among the following is the major cause of nutation in Earth's axis?

- a. Earth's Oblate spheroid shape
- b. The difference between Land and Sea hemispheres
- c. Oceanic Currents
- d. Tidal Forces

31. Distances to stars are usually expressed in units called?

- a. Miles
- b. Light-years
- c. Kilometres
- d. Astronomical units

32. Which colour stars have the highest surface temperature?

- a. Red
- b. Yellow
- c. Orange
- d. Blue

33. The measure of a star's brightness is called its_____?

- a. Colour index
- b. Magnitude
- c. Visual binary
- d. Parallax

34. Which type of star is the sun?

- a. Black hole
- b. Black dwarf
- c. Main sequence
- d. Red giant

35. Early astronomers were confused because the following planets sometimes reversed their direction:

- a. Mars
 - b. Jupiter
 - c. Saturn
 - d. All of the above
-

36. What is the outermost part of the sun's atmosphere?

- a. Chromospheres
- b. Photosphere
- c. Corona
- d. Crust

37. Approximately how long does it take for the moon to go through all of its phases?

- a. 24 hours
- b. 12 hours
- c. 30 days
- d. 365 days

38. Circle the letter of the planet(s) that have ring systems.

- a. Saturn only
- b. Saturn and Jupiter only
- c. All four Jovian planets
- d. All nine planets

39. What is the type of invisible radiation from space that can be detected from Earth's surface?

- a. Gamma rays
- b. X-rays
- c. Infrared radiation
- d. Radio waves

40. When is the moon nearest to Earth during its orbit?

- a. At apogee
- b. At perihelion
- c. During an eclipse
- d. During perigee

41. Which of the following is NOT an example of the conservation of angular momentum?

A planet moves slowest in its orbit

- a. When it is farthest from the Sun.
- b. When it is closest to the Sun.
- c. When it is in opposition.
- d. The greater it's mass.

42. Sunspots were discovered by_____?

- | | |
|-------------|----------------|
| a. Newton. | c. Kepler. |
| b. Galileo. | d. Copernicus. |

43. The higher the frequency of light?

- a. The longer (larger) its wavelength.
- b. The shorter (smaller) its wavelength.
- c. The greater its velocity in a vacuum.
- d. The redder it will be.

44. The smaller the wavelength of light

- a. The larger its frequency.
 - b. The smaller its frequency.
 - c. The greater its velocity in a vacuum.
 - d. The redder it will be.
-

45. Which of the following planets never reaches opposition (as seen from the Earth)?

- a. Venus
- b. Jupiter
- c. Saturn
- d. Mars

46. Galileo's observation that Venus shows all of the phases was important because it discredited?

- a. Newton's law of gravitation.
- b. The Copernican theory.
- c. Kepler's Harmonic Law.
- d. The Ptolemaic theory

47. Which of the following is a proof of the Earth's revolution around the Sun?

- a. Rising and setting of the Sun.
- b. The Foucault pendulum experiment.
- c. Parallax of stars.
- d. Seasons.

48. Who is credited with the idea that the Earth moves in orbit around the Sun, rather than having the Earth be stationary at the center of things?

- a. Copernicus
- b. Ptolemy
- c. Newton
- d. Kepler

49. The Hubble Deep Field is an image of the sky taken with a very long exposure using the Hubble Space Telescope. Almost all of the 5000 objects seen in that picture are?

- a. Stars that are in our own Galaxy.
- b. Dirt on the lens of the telescope.
- c. Galaxies
- d. Distant planets

50. Newton's law of gravitation states that the attractive force between any two masses is of the masses and in (2)_____ proportion to the square of_____?

- a. (1) Quotient; (2) Direct.
- b. (1) Product; (2) Inverse.
- c. (1) Product; (2) Direct.
- d. (1) Quotient; (2) Inverse.

*******ALL THE BEST*******

INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

CORRECT METHOD



Grade

Gender

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Male ☐

Female ☐

RollNo.

[illegible]

Father's Name

[illegible]

School Name

[illegible]

E-mail Id

[illegible]

City

[illegible]

School Code

1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9
0	0	0	0	0	0	0	0

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	☐	☐	☐	☐	11	☐	☐	☐	☐	21	☐	☐	☐	☐	31	☐	☐	☐	☐	41	☐	☐	☐	☐
2	☐	☐	☐	☐	12	☐	☐	☐	☐	22	☐	☐	☐	☐	32	☐	☐	☐	☐	42	☐	☐	☐	☐
3	☐	☐	☐	☐	13	☐	☐	☐	☐	23	☐	☐	☐	☐	33	☐	☐	☐	☐	43	☐	☐	☐	☐
4	☐	☐	☐	☐	14	☐	☐	☐	☐	24	☐	☐	☐	☐	34	☐	☐	☐	☐	44	☐	☐	☐	☐
5	☐	☐	☐	☐	15	☐	☐	☐	☐	25	☐	☐	☐	☐	35	☐	☐	☐	☐	45	☐	☐	☐	☐
6	☐	☐	☐	☐	16	☐	☐	☐	☐	26	☐	☐	☐	☐	36	☐	☐	☐	☐	46	☐	☐	☐	☐
7	☐	☐	☐	☐	17	☐	☐	☐	☐	27	☐	☐	☐	☐	37	☐	☐	☐	☐	47	☐	☐	☐	☐
8	☐	☐	☐	☐	18	☐	☐	☐	☐	28	☐	☐	☐	☐	38	☐	☐	☐	☐	48	☐	☐	☐	☐
9	☐	☐	☐	☐	19	☐	☐	☐	☐	29	☐	☐	☐	☐	39	☐	☐	☐	☐	49	☐	☐	☐	☐
10	☐	☐	☐	☐	20	☐	☐	☐	☐	30	☐	☐	☐	☐	40	☐	☐	☐	☐	50	☐	☐	☐	☐

Mobile No.[illegible]

Candidate's Signature

Invigilator's Signature

NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

8
CLASS

General Instructions

Duration: 60 Minutes | Max Marks: 50

1. Please collect the Answer Sheets (OMR) from the invigilator.
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7. After successful completion of the test please submit the OMR answer sheet to the invigilator.

SECTION-I

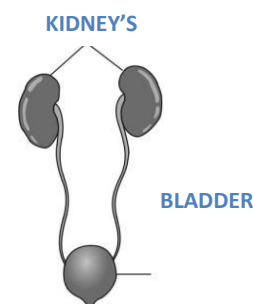
1. In a science class, students are using hot plates to heat liquids during a laboratory investigation. Which practice would not be safe when conducting this procedure?

- a. Wearing goggles
- b. Wearing loose-fitting clothing
- c. Tying back long hair
- d. Using insulated gloves

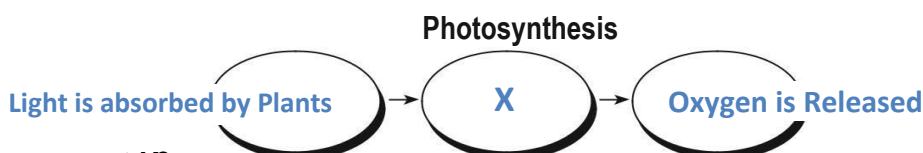
2. The diagram below shows part of the human excretory system.

The structures shown are primarily involved in_____?

- a. Transporting blood
- b. Removing wastes
- c. Producing sex cells
- d. Breaking down food



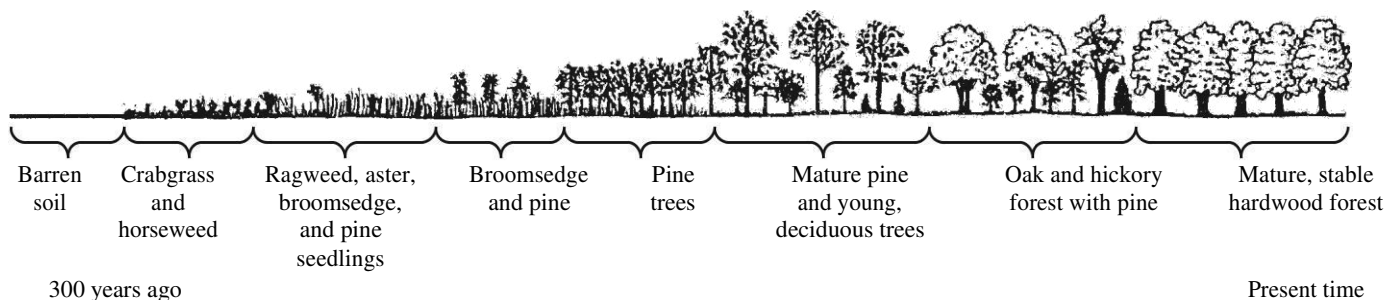
3. The flowchart below represents the process of photosynthesis. One step in the process is labeled X.



Which activity occurs at X?

- a. Plants are eaten by animals for food.
- b. Plants release water into the soil.
- c. Carbon dioxide and water are used to make sugar.
- d. Animals breathe out carbon dioxide.

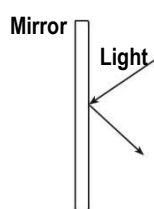
The diagram below shows how a plant community changed over 300 years.



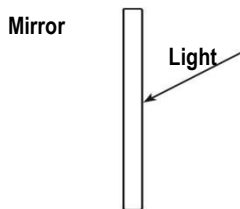
Which process caused the gradual changes shown in this plant community?

- a. Urban growth
- b. Global warming
- c. Environmental pollution
- d. Ecological succession

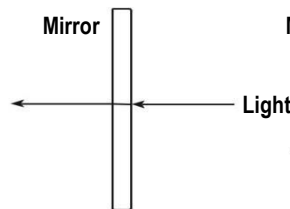
5. Which diagram best represents light being reflected after striking the flat surface of a mirror?



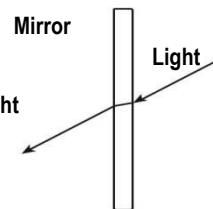
(a)



(b)



(c)



(d)

6. All of the liquid from a test tube is poured into a beaker, as shown in the diagram below.

Compared to the liquid that was in the test tube, the liquid in the beaker has

- A different volume, but the same shape
- A different volume and a different shape
- The same volume, but a different shape
- The same volume and the same shape



7. Use the diagram below representing different stages in succession to answer the following question

Select the order that represents how succession progresses in an ecosystem.

- Diagram 1, 2, 3, 4
- Diagram 2, 4, 1, 3
- Diagram 4, 2, 1, 3
- Diagram 3, 4, 2, 1

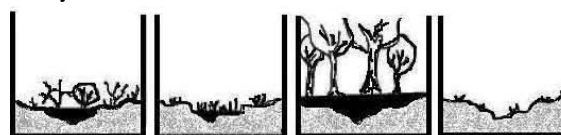
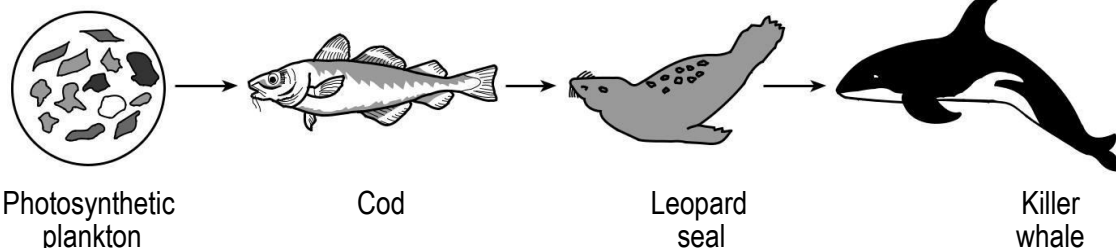


Diagram 1 Diagram 2 Diagram 3 Diagram 4

8. The diagram below shows a food chain.



What do the arrows in the diagram represent?

- Flow of energy
- Life cycle stages
- One community replacing another
- Renewable resource depletion

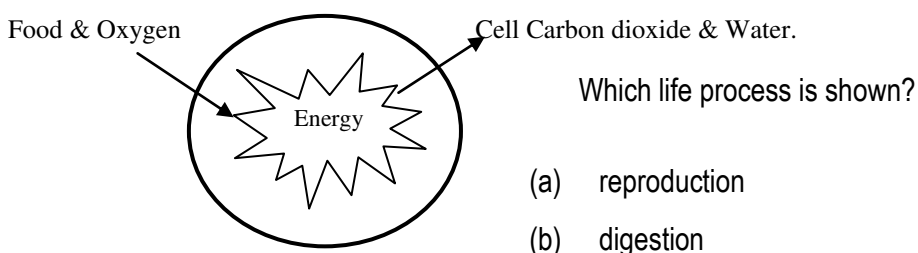
9. Which sequence represents the order of development for many plants?

- seed develops inside fruit → seed is dispersed → seed germinates → plant grows
- seed is dispersed → seed develops inside fruit → seed germinates → plant grows
- seed germinates → plant grows → seed is dispersed → seed develops inside fruit
- seed is dispersed → plant grows → seed germinates → seed develops inside fruit

10. A cat jumps when startled by a loud noise. This is an example of an organism_____?

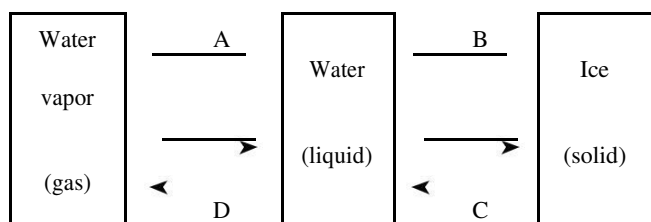
- sensing and responding to its external environment
- sensing and responding to its internal environment
- changing and controlling its external environment
- changing and controlling its internal environment

11. The diagram below shows a life process taking place within a cell.



- (a) reproduction (c) respiration
(b) digestion (d) locomotion

Base your answers to questions 12 and 13 on the diagram below and on your knowledge of science. The diagram represents four processes, labeled A, B, C, and D, that occur when water changes phase.



12. Which process is represented by B?

- a. Condensing b. Evaporating c. Freezing d. Melting

13. Which two processes increase the motion of the molecules?

- a. A and B b. B and C c. C & D d. D & A

14. Pesticides and fertilizers can help farmers to produce more crops. However, overuse of these chemicals can result in?

- a. Ecological succession c. Material recycling
b. Environmental pollution d. Selective breeding

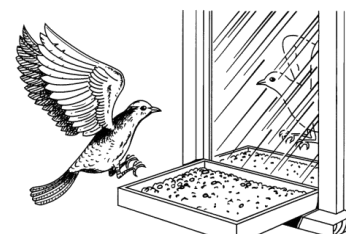
15. A student pushes against a tree with a force of 10 newtons (N). The tree does *not* move. What is the amount of force exerted by the tree on the student?

- a. 0N b. 5N c. 10N d. 20N

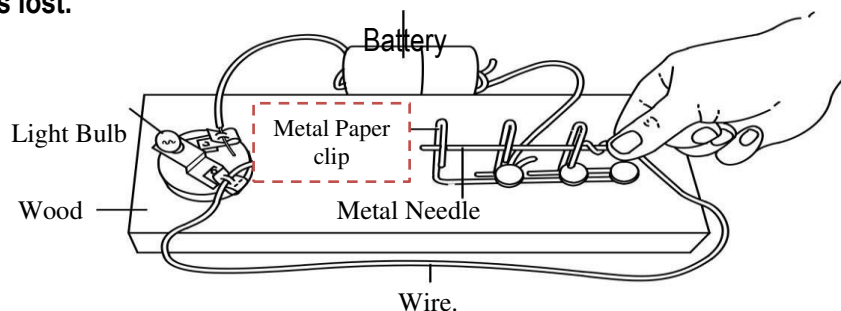
16. The picture below shows a bird landing at a bird feeder outside a window.

The image of this bird in the window is the result of light being

- a. Absorbed c. Transmitted
b. Reflected d. Refracted



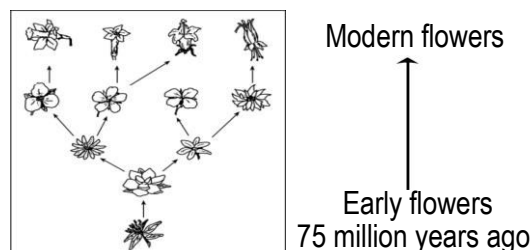
17. The diagram below shows a game where players try to move a metal needle through three metal paper clips without letting the needle touch the clips. A bulb lights when the needle touches a paper clip, signalling that the player has lost.



Why does the bulb light when the needle touches a paper clip?

- a. Convection cells are produced.
- b. A circuit is completed.
- c. Vibrations set up wavelike disturbances.
- d. A phase change occurs.

Base your answers to questions 18 and 19 on the diagram below and on your knowledge of science. The diagram shows how modern types of flowers developed from early types of flowers over the last 75 million years.



18. What is the most likely reason why these early flowers gradually changed to many different types of flowers over time?

- a. The flowers' traits were genetically engineered.
- b. The environments of the flowers stayed the same.
- c. The genetic material of the flowers stayed the same.
- d. The flowers adapted to environmental conditions.

19 Which process is represented in this diagram?

- a. Evolution
- b. Photosynthesis
- c. Selective breeding
- d. Ecological succession

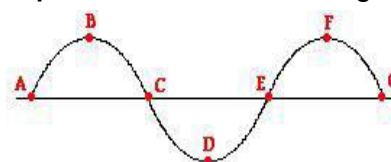
20. The diagram below shows a balance used to measure a burning candle in a sealed glass ball before and after the burning is complete. As the candle burns, the size of the candle decreases, but the reading on the balance does not change. Which of the following is demonstrated by this experiment?

- a. Total mass of the system remains constant when the candle is burned.
- b. Energy is converted to mass when the candle is burned.
- c. Smoke particles have more mass than the molecules of candle wax.
- d. Kinetic energy is converted to potential energy when the candle is burned.



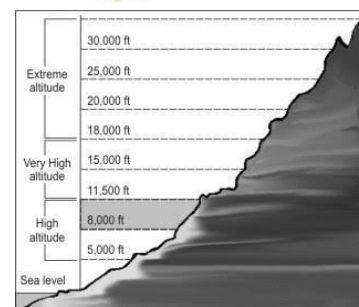
21. Use the diagram below to answer the following question. Which interval represents one full wavelength?

- a. Point A to Point C
- b. Point B to Point D
- c. Point A to Point G
- d. Point C to Point G



22. As you moved from the sea level to high altitudes (image), there would be a ____.

- a. Decrease in precipitation and decrease in air pressure
- b. Increase in precipitation and increase in air pressure
- c. Decrease in temperature and decrease in air pressure
- d. Decrease in temperature and increase in air pressure



23: Which of the following pairs of compounds contain the same number of atoms, but different kinds of atoms?

- a. CO_2 and CaCl_2 b. MgCO_3 and 2CaCO_3 c. CO_2 and CO d. C_4H_{10} and C_5H_{12} .

24: A solid red ball and a solid blue ball are weighed on earth. The red ball weighs more than the blue ball.

This can be true only if _____?

- a. The red ball has a greater volume than the blue ball. c. The red ball has a greater density than the blue ball.
b. The red ball has greater gravitational pull acting on it. d. Either A or B is true.

25. Which wave requires a medium for transmission?

- a. Light b. Radio c. Infrared d. Sound

26. Lime is sometimes applied to soil in order to _____?

- a. Increase the alkalinity of the soil c. Increase the activity of the soil
b. Restore nitrates to the soil d. Make the soil more porous

27. Vitamins, minerals and proteins in suitable amounts are given to body by _____?

- a. Whole Grain food. b. Fatty fish c. Plant Oil d. Nuts

28. The data table below shows that as the pressure of a gas sample was changed, the volume of the gas changed. The pressure was measured in atmospheres (atm) and the volume was measured in millilitres (mL).

Pressure and Volume of a Gas Sample

According to the data table, as the pressure of the gas increases, the volume of the gas

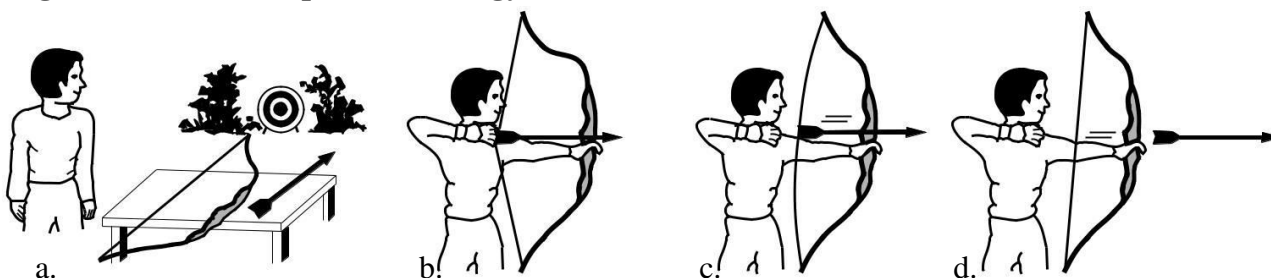
- a. Decreases
b. Increases
c. Remains the same
d. Up & down

Pressure (atm)	Volume (mL)
1.0	120.0
2.0	60.0
4.0	30.0
8.0	15.0

29. Most of Earth's major earthquakes are caused by _____?

- a. Seasonal heating and cooling of Earth's surface c. Earth's gravitational attraction to the Moon
b. Weathering of rock at Earth's surface d. Faulting of rock in Earth's crust

30. A person uses a bow to shoot an arrow at a target. In which diagram does the bow and arrow have the greatest amount of potential energy?



SECTION-II

31. According to the fossil record, which sequence correctly, represents the evolution of life on Earth?

- Fish → amphibians → mammals → soft-bodied organisms
- Fish → soft-bodied organisms → mammals → amphibians
- Soft-bodied organisms → amphibians → fish → mammals
- Soft-bodied organisms → fish → amphibians → mammals

32. If the average distance between Earth and the Sun were doubled, what changes would occur in the Sun's gravitational pull on Earth and Earth's period of revolution?

- Gravitational pull would decrease and period of revolution would increase.
- Gravitational pull would decrease and period of revolution would decrease.
- Gravitational pull would increase and period of revolution would increase.
- Gravitational pull would increase and period of revolution would decrease.

33. The coldest climates on Earth are located at or near the poles primarily because Earth's polar regions?

- Receive mostly low-angle insolation
- Receive less total yearly hours of daylight
- Absorb the greatest amount of insolation
- Are usually farthest from the Sun.

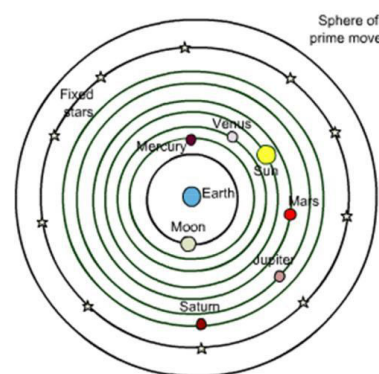


34. Which constellation is outlined in the diagram below?

- Leo
- Ursa Major
- Orion
- Ursa Minor

35. Which astronomer's theory is represented by the diagram shown?

- Aristotle
- Kepler
- Galileo
- Newton



36. Which planet has a rocky surface?

- Jupiter
- Saturn
- Neptune
- Venus

37. A new outer planet is discovered. Which properties will it most likely exhibit, as compared to the Earth?

On which planet would you have the fewest birthdays?

- Mars
- Neptune
- Jupiter
- Venus

38. What are eruptions of gas on the Sun's surface called?

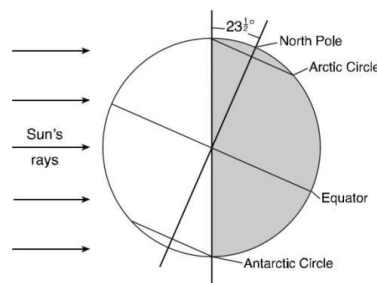
- Auroras
- Eclipses
- Solar Flares
- Sun spots

Size	Temperature	Density
(A)	smaller	colder
(B)	smaller	warmer
(C)	larger	colder
(D)	larger	warmer

39. The diagram below shows Earth as viewed from space.

Which season is beginning in the Northern Hemisphere?

- Spring
- Summer
- Fall
- Winter



40. The table below shows the latitude and the average yearly temperature for four different cities.

City	Singapore	Calcutta	Washington, D.C.	Moscow
Latitude	1° N	23° N	39° N	56° N
Average Yearly Temperature	81°F	79°F	57°F	39°F

It can be inferred from this table that the cities at higher latitudes have _____?

- Lower average yearly temperatures because these cities receive insolation at a higher angle during year.
- Lower average yearly temperatures because these cities receive insolation at a lower angle during year.
- Higher average yearly temperatures because these cities receive insolation at a higher angle during year.
- Higher average yearly temperatures because these cities receive insolation at a lower angle during year.

41. Astronomers viewing light from distant galaxies observe a shift of spectral lines toward the red end of the visible spectrum. This shift provides evidence that _____?

- Orbital velocities of stars are decreasing
- The sun is cooling
- Earth's atmosphere is warming
- The universe is expanding

42. Approximately how many degrees per day does the Earth revolve in its orbit around the Sun?

- 1°
- 13°
- 15°
- 23.5°

43. Our solar system is referred to as heliocentric, that means the _____?

- Earth rotates around the Sun.
- Sun rotates around the Earth
- Earth orbits around the Sun.
- Sun rotates around the Earth

44. Cosmological red shift is the result of the _____?

- Expansion of the universe.
- Galaxies speeding away from us.
- Super massive black holes.
- Tully-Fisher relation.

45. What is the Solar Nebula?

- Another name for the Sun's outer atmosphere.
- The disk of gas from which the Sun and planets formed.
- Gas ejected from the Sun which fills the inner Solar System.
- A cloud of gas around the outer edges of the Solar System.

46. What is the Chandrasekhar limit?

- The smallest mass a star can have and still burn hydrogen.
- The size of a black hole.
- The distance from the centre of a galaxy at which Population I stars turn to Population II stars.
- The maximum possible mass of a white dwarf.

47. Consider the following statements. Identify the right ones.

- A satellite is a celestial body that revolves around another celestial body.
- The moon is the only natural satellite of the earth.

- I only
- Both
- II only
- None

48. Which of the following is NOT one of Kepler's Three Laws?

- Planets sweep out equal areas in equal times.
- The square of the period of a planet's orbit equals the cube of its semi-major axis.
- The shapes of planetary orbits are ellipses.
- Objects of different masses fall at the same rate.

49. The phase of the moon today is _____?

- Waxing crescent.
- Waxing gibbous.
- Waning gibbous.
- Waning crescent.

50. What is the average distance (approximate) between the Sun and the Earth?

- 70x 10⁵ km
- 110x10⁵ km
- 100x10⁵ km
- 150x10⁵ km

INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS



CORRECT METHOD



Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male ☐

Female ☐

RollNo.

[illegible]

Father's Name

[illegible]

School Name

[illegible]

E-mail Id

[illegible]

City

[illegible]

School Code

1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9
0	0	0	0	0	0	0	0

MARK YOUR ANSWERS HERE

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	☐	☐	☐	☐	11	☐	☐	☐	☐	21	☐	☐	☐	☐	31	☐	☐	☐	☐	41	☐	☐	☐	☐
2	☐	☐	☐	☐	12	☐	☐	☐	☐	22	☐	☐	☐	☐	32	☐	☐	☐	☐	42	☐	☐	☐	☐
3	☐	☐	☐	☐	13	☐	☐	☐	☐	23	☐	☐	☐	☐	33	☐	☐	☐	☐	43	☐	☐	☐	☐
4	☐	☐	☐	☐	14	☐	☐	☐	☐	24	☐	☐	☐	☐	34	☐	☐	☐	☐	44	☐	☐	☐	☐
5	☐	☐	☐	☐	15	☐	☐	☐	☐	25	☐	☐	☐	☐	35	☐	☐	☐	☐	45	☐	☐	☐	☐
6	☐	☐	☐	☐	16	☐	☐	☐	☐	26	☐	☐	☐	☐	36	☐	☐	☐	☐	46	☐	☐	☐	☐
7	☐	☐	☐	☐	17	☐	☐	☐	☐	27	☐	☐	☐	☐	37	☐	☐	☐	☐	47	☐	☐	☐	☐
8	☐	☐	☐	☐	18	☐	☐	☐	☐	28	☐	☐	☐	☐	38	☐	☐	☐	☐	48	☐	☐	☐	☐
9	☐	☐	☐	☐	19	☐	☐	☐	☐	29	☐	☐	☐	☐	39	☐	☐	☐	☐	49	☐	☐	☐	☐
10	☐	☐	☐	☐	20	☐	☐	☐	☐	30	☐	☐	☐	☐	40	☐	☐	☐	☐	50	☐	☐	☐	☐

Mobile No.[illegible]

Candidate's Signature

Invigilator's Signature

Name :

Class : Section : Roll No :

Contact No.....

Grade
8

INSTRUCTIONS

- ◆ Please collect the Answer Sheets (OMR) from the invigilator.
- ◆ Please Write your Student ID, Name, Class, and School Name on the OMR Sheet.
- ◆ This question paper contains 50 Questions, duration is 60 minutes.
- ◆ Answer all the questions in OMR sheet only and please do sign on it.
- ◆ Use only Black or Blue Ball Point Pen to answer the questions in the OMR sheet.
- ◆ Indicate the correct answer by darkening one of the 4 responses provided.
- ◆ After successful completion of the test, please submit the OMR answer sheet to the invigilator.

Set- **B**

Total Questions : 50
Time : 1 hr.

- Our elders always suggest not to speak while eating. There is a scientific reason behind this. Identify the reason why it is Impossible for a person to swallow food while talking.
 - These two activities cannot be controlled by the brain at the same time.
 - Air must come through the pharynx in order to speak and form sounds.
 - The epiglottis needs to be closed off the larynx (trachea) while swallowing.
 - Both B and C are correct.
- Some micro-organisms cause diseases and are called pathogenic. The given table enlists the diseases in humans in Column X and the main causative agents in Column Y. in an incorrect sequence.

Identify the correct sequence of the disease causing agents and match them correctly with diseases (a), (b), (c) and (d).

- III; II; IV; I
- III; IV; I; II
- I; IV; II; III
- IV; III; I; II

Column X	Column Y
(a) Food poisoning (Botulism)	I. Fungus
(b) AIDS	II. Protozoan
(c) Mycosis	III. Bacterium
(d) Malaria	IV. Virus

- The number of organisms involved in feeding relationships is shown in given diagram of ecological pyramids representation.

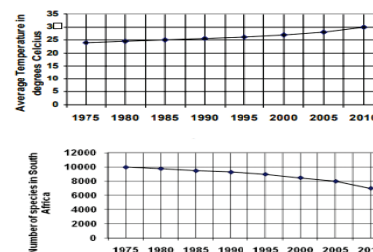
Choose the best options given below which is most likely to represent the organisms in each of the figures.

	Figure 1	Figure 2
A.	grass → locust → snake → frog	grass → locust → frog
B.	tree → ant → spider → lizard	tree → bird → parasites
C.	grass → locust → frog → snake	tree → bird → parasites
D.	snake → frog → locust → grass	tree → ant → spider



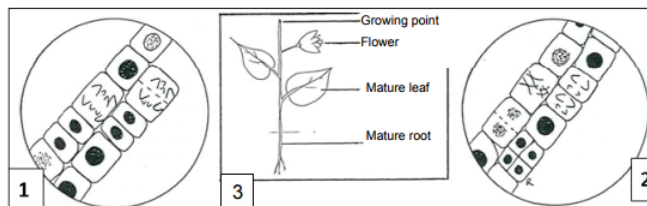
- Some say that it is not a good idea to marry off in close relations. The science behind this can be understood according to Darwin's theory. What does the theory suggest?
 - That the more closely related two different organisms are the more similar in their habitats.
 - That the more closely related two different organisms are the less similar in their DNA sequence.
 - That the more closely related two different organisms are the more recently they shared a common ancestor.
 - That the more closely related two different organisms are the more similar they are in size.
- Examine the two graphs which show the average temperature increase during the period 1975 to 2010, and related species decline. These graphs were provided by the Department of Environmental Affair. For the period 1995 to 2005, what can be deduced from these graphs?

- Extinction of 2000 species was due to an average temperature increase of 10 °C.
- Extinction of 5000 species was due to an average temperature increase of 20 °C
- Extinction of 2000 species was due to an average temperature increase of 1°C
- Extinction of 1000 species was due to an average temperature increase of 2°C.



6. Stem cells are self-renewing, undifferentiated cells that divide by mitosis to produce specific body cell types. There are two broad types of stem cells, namely, adult and embryonic. Which of the following is correct?
- Adult stem cells can always correct an injury.
 - Embryonic stem cells and adult nerve cells cannot be differentiated.
 - Damaged nerve cells of the spinal cord can be replaced by embryonic stem cells.
 - All the above are correct.

7. The two slides numbered 1 and 2, prepared from different parts of the same plant, numbered 3 is shown in the diagram. Tissues that were undergoing cell division were used to prepare the slides. Each slide represents cells in various stages of cell division. Which slide shows meiosis and which part of the plant is used for its preparation?



- Slide 3, Growing point
 - Slide 1, Growing point
 - Slide 2, Flower
 - Slide 2, Flower
8. In a lab, two groups of tomatoes were grown under certain conditions. One tomato using added-compost to the soil and another tomato without the compost. The leaves were yellowish (less green) for the plants grown without compost as compared to those growing in compost-enriched soil. What could be the best explanation for this difference?
- The compost ruined the soil
 - The compost contained rich minerals such as magnesium and iron that helps in synthesis of chlorophyll.
 - The heat of the compost caused more rapid growth and chlorophyll synthesis.
 - The plants released chlorophyll from the compost.
9. The change in the oxidation state of Mn in MnO_4^- and O in water is shown in the following redox reaction,

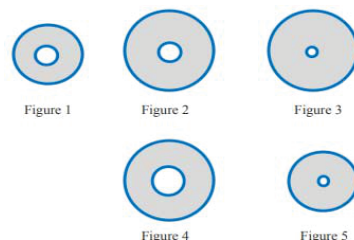


Choose the correct option for oxidation:

- Mn^{+7} to Mn^{+2} and O^{-2} to O^- .
 - Mn^{+7} to Mn^{+4} and O_2^- to O^0 .
 - Mn^{+7} to Mn^{+2} and O^{-2} to O_2^{-2} .
 - Mn^{+7} to Mn^{+4} and O^{-2} to O^- .
10. Which of these pairs of ions will have the same total number of electrons?
- Mg^{2+} and Na^+
 - Cl^- and F^-
 - O_2^- and O^-
 - Fe^{3+} and Ga^{3+}
- (i), (ii)
 - (i) only
 - (i), (ii), (iii)
 - (i), (ii), (iii), (iv)
11. Based on general trends in the periodic table, predict which element in each of the following pairs has the most metallic character.
- Ag or Sr
 - Sn or Pb
 - Br or As

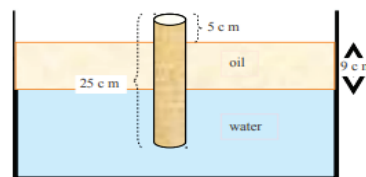
- (i) Sr (ii) Pb (iii) Al
- (i) Ag (ii) Sn (iii) Br
- (i) Ag (ii) Pb (iii) Br
- None of the above.

14. Consider all the diagrams of the same metallic disc shown here that has a hole at its centre. The disc is uniformly heated. Which one of the figures correctly shows how the disc will appear after heating is done?
- A. Figure 2
B. Figure 3
C. Figure 4
D. Figure 5
- 



15. Consider a tank of water 1.00 m deep. Say, a point source of light is placed at the bottom of this tank such that it emits light rays upward in all directions. The rays that are refracted into the air forms a circular pattern of light. And the rays that are outside of this circle are reflected back. Index of refraction of water is known to be 1.33. what is the approximate radius of the circle at the surface of the water?
- A. 1.33 m B. 1.00 m C. 1.14 m D. 0.75 m

16. A 9cm deep oil layer lies above a certain depth of water. A uniform cylinder of wood of length 25 cm is immersed vertically upright in the cylinder containing two liquids as shown below. Let us say, if portion of the wooden cylinder that lies above the oil surface is 5 cm, what is the density of the wood? (Given the density of the oil and water is 0.9 cm^{-3} and 1.0 gcm^{-3} respectively)
- 
- The diagram shows a vertical cylinder of wood of total length 25 cm. It is partially submerged in a container with two liquids. The top liquid is oil, which is 9 cm deep. The bottom liquid is water. The portion of the wooden cylinder that is above the oil surface is 5 cm. The portion of the cylinder submerged in the oil is 25 cm - 5 cm = 20 cm. The portion of the cylinder submerged in the water is 20 cm - 9 cm = 11 cm.



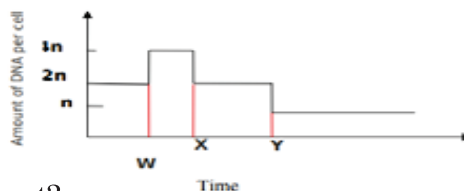
- A. 0.76 g cm^{-3} B. 0.66 g cm^{-3}
C. 0.80 g cm^{-3} D. 0.70 g cm^{-3}
17. There is sort of a comparison going on between people residing at sea level and the people in mountains. Which of the given options below is can be a valid point of comparison?
- A. The vital capacity of Mountain dwellers is more.
B. Mountain dwellers have compressed thoracic cavity
C. Mountain dwellers inhale less oxygen.
D. Concentration of red blood cells of Mountain dwellers is less than the people living at sea level.

Given diagram represents different stages of amount of DNA present per cell during several nuclear divisions



18. What type of nuclear division is represented in the given diagram?

- A. Mitosis
- B. Meiosis
- C. Cytokinesis
- D. None of the above.



19. What stages does the lines W, X, Y represent?

- A. Interphase, telophase I, telophase II.
- B. Interphase, prophase, telophase II
- C. Prophase, Interphase, telophase I.
- D. Interphase, anaphase, telophase I

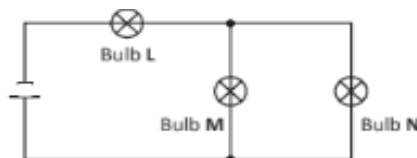
20. For any animal to survive in water, it must devise a means of obtaining oxygen for respiration. For example, fishes obtain oxygen dissolved in water through their gills. For aquatic insects, which of the following way of receiving oxygen is/are correct?

- i. Atmosphere
- ii. Oxygen dissolved in water
- iii. Air-containing cavities of submerged aquatic plants
- A. iii
- B. i, ii
- C. i, ii, iii
- D. ii, iii

21. All identical bulbs (L, M and N) are used in the circuit shown below.

Regarding this circuit, which of the given statements is true?

- A) Brightness of three bulbs is the same.
- B) Bulb L is brighter than Bulb M or Bulb N.
- C) Bulb N is less bright than Bulb L and Bulb M.
- D) Bulb L or Bulb M are less bright than Bulb N.



22. The arrangement shown here depicts three bars of magnets which are attracted to each other (but not freely).

Which two points will repel each other ?

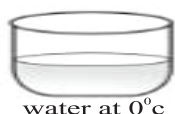
- (A) II and IV
- (B) III and VI
- (C) II and V
- (D) II and III



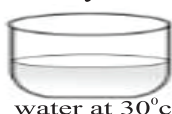
23. Consider two rods, Rod X and Rod Y. Rod X was immersed in boiling water but does not become hot. Rod Y, on the other hand, was kept on the table and it becomes cool when touched. What materials are the two rods most likely to be made of?

- (A) Rod X is iron and rod Y is plastic.
- (B) Rod X is plastic and rod Y is glass.
- (C) Rod X is paper and rod Y is plastic.
- (D) Rod X is stainless steel and rod Y is metal.

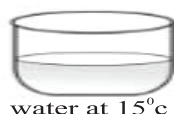
24. There are four beaker filled with hot water and some sugar is dissolved in them. It will dissolve most easily in which beaker ?



a)



b)

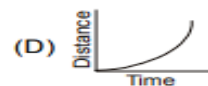
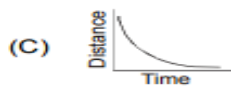
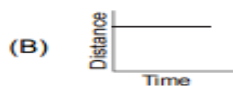
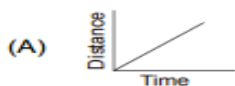


c)



d)

25. Consider a body moving with uniform velocity. For this motion , which of the following graphs represents distance against the time?



26. A magnet is in the form of a bar. The axis of the bar magnet is along X-axis initially. A coil is kept at some distance from the magnet in the Y – Z plane with its centre along X-axis. In which of the following motions of the bar magnet will electric current in the coil NOT be induced?

A) Translational vibrations perpendicular to X-axis.



B) The bar magnet axis makes an acute angle with the South Pole fixed on X-axis, the magnet is rotated about X-axis.



C) With the south pole fixed on the X-axis, the bar magnet axis is made to swing back and forth about the X-axis.

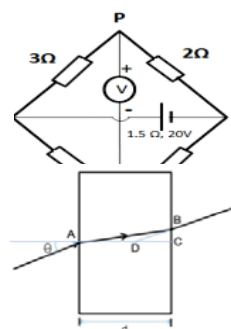


D) With its center on the X-axis, the bar magnet spins about perpendicular bisector at its axis of rotation.



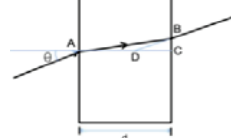
27. In the circuit shown below, the internal resistance of the battery is 1.5Ω and its emf is 20 V. A multimeter is connected between P and Q in its voltage mode. Take internal resistance of the multimeter to be infinite. Find out the multimeter reading.

A) -2.5 V B) -8 V C) 6 V D) $+2.5 \text{ V}$



28. A ray of light passes through a thick glass sheet as shown in the diagram. It makes some angle of incidence as it enters. What will be the refractive index of glass?

A) Exactly d/DC . B) Approximately d/DC .
C) Approximately d/AD . D) Approximately AD/AC .



29. Consider a block of mass 100 kg which is placed on a level surface. If one person pushes it with a force F , he is unable to move it. He asks for help from two of his friends. Each one applies the same force F and the block starts moving with a uniform acceleration of 0.5 m/s^2 . One of them happens to leave the block after sometime. The block moves with a uniform speed this time. Find out the magnitude of force F and the coefficient of kinetic friction μ .

A) 40 N, 0.5 B) 100 N, 10 C) 50 N, 0.1 D) 200 N, 0.03

30. If a body exerts a force on a surface, the surface exerts an equal and opposite reaction force on the body. It is known that the reaction force is always along normal to the surface and is known as the normal force N . What happens to the force when the body slides on a surface?

A) The surface exerts a force of sliding on the body in the same direction of slipping.
B) The surface exerts a force of friction on the body in the direction opposite to the direction of slipping.
C) The surface exerts a force of friction on the body in the same direction of slipping.
D) Cannot say anything.

31. There are two stars, Stars A and B which are observed over a period of 1 year. From the position on the left in the diagram below indicates how both stars appear to move with respect to the background stars. First to the right position, and then back on the left position over one year's time. Which star, A or B, is most distant from the Earth?

A. Star A C. Both stars are at equal distance from the Earth.
B. Star B. D. Not enough information given.



32. Star A's radius is 2 times larger than star B's radius. Also, Star A's surface temperature is 2 times smaller than Star B's surface temperature. What can we say about Star A?
- A. 4 times more luminous than star B. C. 16 times more luminous than star B.
B. 16 times less luminous than star B. D. 1/4 times as luminous as star B.
33. A supernova with a redshift of 0.03 was observed in a galaxy with type Ia. The distance between the supernova and the Earth was determined to be 1.3×10^8 pc. Using this observation determine the Hubble time.
- A. 1.41×10^{10} years. B. 1.41×10^{10} seconds
C. 1.33×10^9 years. D. 47.1 years
34. How does primary heat transfer occur within M-type stars?
- A. Radiation B. Conduction C. Convection D. Contraction
35. 24 hours and 40 minutes is the time span of a synodic day on Mars. Given that one Martian year is 687 earth days. Identify, which of the following timespan is closest to Mars' sidereal day?
- A. 23h 56m B. 24h 15m C. 24h 37m D. 24h 40m
36. Suppose that on the summer solstice a star passes through the zenith at the equator, at local noon. Identify the correct ascension and declination of the star?
- A. 0h 0degrees. B. 0h 90 degrees. C. 6h 0 degrees. D. 12h 0 degrees.
37. Consider a planet orbiting a star with 0.24'' of a projected semi-major axis. Find out the necessary aperture size of a telescope that can resolve this orbit using 1000 nm light?
- A. 0.13 m B. 0.52 m C. 1.05 m D. 3.10 m
38. Mohan is chilling on the surface of the Moon. He wants to launch an object into an elliptic orbit. He wants the perilune and apolune of 1 and 7 lunar radii, respectively. Known is the mass of moon = 7.44×10^{22} kg and radius = 1.74×10^3 km, with what speed will Mohan have to launch the object?
- A. 1.69 km/s B. 2.06 km/s C. 2.23 km/s D. 3.38 km/s
- A. The surface exerts a force of sliding on the body in the same direction of slipping.
B. The surface exerts a force of friction on the body in the direction opposite to the direction of slipping.
C. The surface exerts a force of friction on the body in the same direction of slipping.
D. Cannot say anything.
39. Suppose when a probe is 100 AU away from the Sun, it has a velocity of 20 km/s. The probe on what type of orbit is? (Mass of the Sun = 1.99×10^{30} kg.)
- A. Hyperbolic B. Parabolic C. Elliptic D. All of the above
40. The orbit of a geostationary satellite around the Earth is such that it appears to be at the Zenith at all times. It is so when viewer is at a fixed point somewhere on Earth's equator. On the celestial sphere, which of the following correctly describes the satellite's position?
- A. Traversing it once every sidereal day, the satellite moves to the East along the celestial equator.
B. The satellite remains stationary on the celestial equator.
C. Traversing it once every sidereal day, the satellite moves to the West.
D. None of the above.

INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

CORRECT METHOD



Gender

Male ☐

Female ☐

[illegible][illegible]**School Code**

--	--	--	--	--	--	--

1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9
0	0	0	0	0	0	0

Mobile No.[illegible][illegible]

MARK YOUR ANSWERS HERE

A B C D

1					11					21					31					41				
2					12					22					32					42				
3					13					23					33					43				
4					14					24					34					44				
5					15					25					35					45				
6					16					26					36					46				
7					17			<																

Invigilator's Signature

➤ **Total Questions : 50**

➤ **Time 1 Hour**

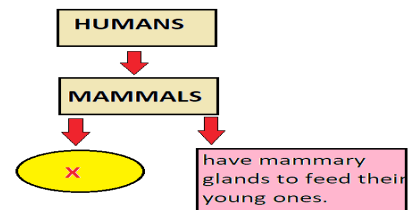
8
CLASS



INSTRUCTIONS

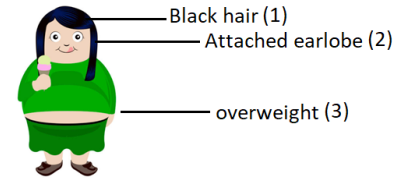
- Please Write your Student ID, Name, Class, and School Name on the OMR Sheet.
- This question paper contains 50 Questions, duration is 60 minutes.
- Answer all the questions in OMR sheet only and please do sign on it.
- Use only Black or Blue Ball Point Pen to answer the questions in the OMR sheet.
- Indicate the correct answer by darkening one of the 4 responses provided.
- After successful completion of the test, please submit the OMR answer sheet to the invigilator.
- ★ Marked Questions are HOT's or Critical Type Questions.

1. Study the given flowchart and identify X.
- Reproduce by giving birth to young alive
 - External fertilization
 - One cell.
 - Asexual reproduction.



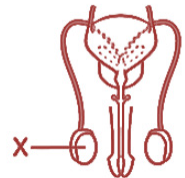
2. The picture shows a girl and some of her characteristics. Choose the correct option.

- 1 and 2
- 3 only
- 1 and 3
- 2 only



3. The given diagram represents a body organ. Identify the primary function of structure "X".

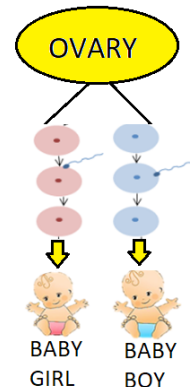
- Produces male reproductive cells.
- Produces female reproductive cells.
- Organ where fertilization occurs.
- It allows fertilized eggs to fully develop into babies ready to be born.



4. It allows fertilized eggs to fully develop into babies ready to be born?
Select the correct statement/s from the table.

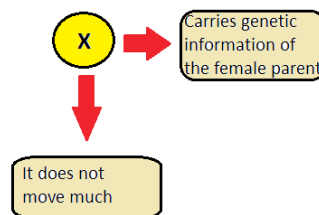
1	Each egg cell is fertilized by a different sperm.
2	Twins can be of opposite sex.
3	Embryos carry genetic information of male parent only.
4	Two embryos are formed.

- (3) and (4).
- (2) and (4).
- (1)(2) and (4).
- (1) and (4).



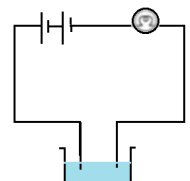
5. Study the given chart and identify X?

- Fertilized egg.
- Egg cell.
- Sperm
- Uterus.



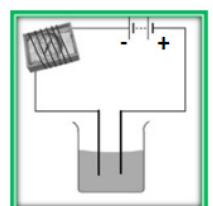
6. Ram conducted an experiment with the set up as shown in the diagram. The motive of the experiment was to light the bulb but despite a number of attempts, he failed to do so. What could be the reason for his failures?

- The cells are old hence failed to produce electric current.
- The bulb is fused.
- The connections are loose.
- The liquid here is a very bad conductor of electricity..



7. A student conducted an experiment in which a deflection in the magnetic needle was observed. Which liquid is not in the beaker for sure?

- Salty water.
- Lemon juice.
- Rain water.
- Distilled water.



8. What will happen if you fill a paper cup with water and start to heat it up?
- The paper cup will start burning, with no change in the temperature of the cup.
 - The water in the paper cup keeps on boiling without burning the cup.
 - Both the paper cup and the water are not affected at all.
 - None of the above.

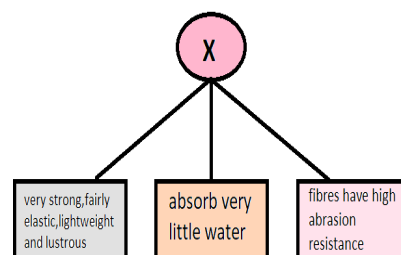


9. A fire broke out into the kitchen while Shyam was cooking food. There was no fire extinguisher in the house. For instant help, Shyam used a dry chemical from the kitchen to put out the fire. What could it be?
- Baking soda.
 - Chilli powder.
 - Salt.
 - Kerosene oil.

Read the following and answer question number 10 and 11:

10. Here X denotes a particular fibre. Identify X.

- Polyester.
- Cotton.
- Plastic.
- Nylon.

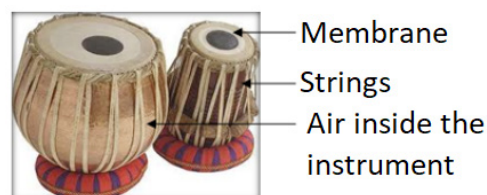


11. Where can we obtain X from?

- Air
- Coal
- Water
- All of the above.

12. Rama is a very good Tabla player. How does tabla produce music?

- Vibrating membrane.
- Vibrating strings.
- Vibrating air columns.
- None of the above.



13. There is a lighthouse from which a light was put on and a horn was blown (both at the same time). Ram is standing at the shore at a distance of about 3 kms from the light house. Identify the correct statement?

- Ram will see the light first.
- Ram will hear the horn first.
- Ram will see the light and hear the horn both at the same time.
- None of the above.

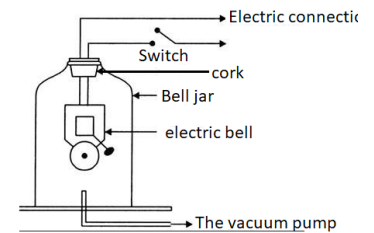


14. In a family of four, the voices of mother, father and their two kids is different. What could be the possible reason for this?

- Their different shapes of the lungs.
- Different size of the vocal chords.
- Radius of the wind pipes is different.
- Size of the larynx is different.

15. In the bell-jar experiment, with what factor does the loudness of the sound of the bell gradually increases?

- a) Increase in the atmospheric pressure.
- b) Decrease in quantity of air.
- c) Increase in quantity of air.
- d) Decrease in the atmospheric pressure.



16. The following table shows the various features of sound produced by a bird and a lion. Which of the features is not been written correctly?

- a) Pitch of sound.
- b) Sound produced.
- c) Amplitude.
- d) All incorrect..

FEATURE	BIRD	LION
Pitch of sound	High pitch	Low pitch
Sound produced	Feeble	Loud
Amplitude of sound	High amplitude	Low amplitude

17. There seems to be a disproportionate affect of pollution on toads and frogs as compared to many other animals including other amphibians. Why is this so?

- a) Their eating habits are not healthy.
- b) They are extremely dirty creatures.
- c) They have thin skin which does not protect them adequately from environmental dangers.
- d) None of the above.

18. A huge ship sank into the river causing drastic amount of oil spill in water. As a result, a lot of marine animals died. Their dead bodies could be seen floating in the water. Identify the most suitable reason for such adverse effect on marine life.

- a) They drank the water that was contaminated by the soil.
- b) The fish swallowed the oil and were poisoned.
- c) They breathed in the oil fumes near the water surfaces and were suffocated.
- d) All the above.

19. The intensity of earthquakes at two different places was recorded as 2 and 4 on rector scales. Which of the given statements is correct regarding the tremors at places A and B?

- a) Tremor at place B is twice of that at place A.
- b) Tremor at place B is four times that at place A.
- c) Tremor at place A is 400 of that at place B.
- d) Tremor at place B is 200 times that at place A.

20. A glass rod was rubbed with a silk cloth and an ebonite rod was rubbed with fur. Both the rods were brought close to each other. What can be observed?

- a) The rods will repel each other.
- b) The rods will attract each other.
- c) The rods will heat up.
- d) None of the above.



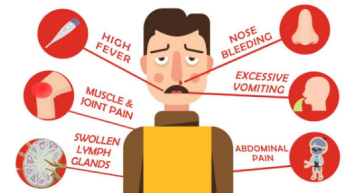
21. The teacher showed a picture to the class and explained it as a disease called "Rust of wheat". What causes this disease in plants?

- a) Bacteria.
- b) Fungi.
- c) Protozoan.
- d) Virus.



22. The given picture shows the symptoms of a particular disease. This disease is carried by female Aedes mosquito. Identify the disease.

- Dengue.
- Goitre.
- Diabetes mellitus.
- Rabies.



23. Ruby picked almost every element from the periodic table and studied them at room temperature and normal pressures. Identify the most suitable statement regarding her observations.

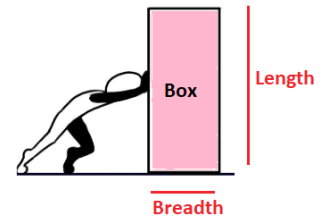
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- a) Most of the elements of the periodic table are solids.
- b) Most of the elements of the periodic table are liquids.
- c) Most of the elements of the periodic table are gases.
- d) Most of the elements of the periodic table are metals.

24. Ram is pushing a heavy box along its length on a flat surface. He then turns the box around along its breadth and starts to push the box.

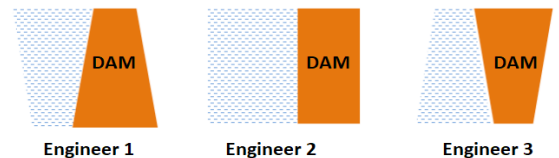
He will now need to push the floor with

- a) Same force.
- b) Greater force.
- c) Lesser force.
- d) Can't say.



25. Three engineers were asked to design a dam. The cross-section the three designs is shown in the diagrams below: Whose plan got approved?

- a) Engineer 1.
- b) Engineer 2.
- c) Engineer 3.
- d) None.



26. During summer holidays, Ram visited to a zoo in Delhi while Hari visited a wild sanctuary. Ram says both zoo and a wild sanctuary are the same things.
Which statement justify that Ram is making incorrect statement?

- a) Zoos provide natural habitat to wild animals while in sanctuaries artificial habitat is provided.
- b) Zoos provide artificial habitat to wild animals and sanctuaries provide natural habitat to wild animals.
- c) In Zoos, capturing of wild animals is not prohibited while in sanctuaries is prohibited.
- d) Zoo gives better environment to wild animals than sanctuaries.
- 

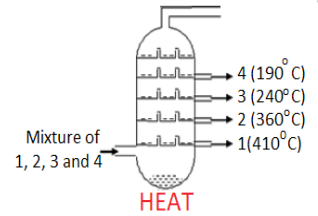


27. At a certain temperature, fuel X caught fire without any external source of ignition like flame or spark. What do we call the temperature at which fuel X caught fire?

- a) Thermal point.
b) Ignition temperature.
c) Boiling temperature.
d) None of the above.

28. Study the diagram given below and identify Mixture 1, 2, 3 and 4:

- 1-fuel oil, 2- diesel, 3- kerosene, 4-petrol.
- 1- Petrol, 2- diesel, 3- kerosene, 4- fuel oil.
- 1-fuel oil, 2- diesel, 3- petrol, 4- diesel.
- 1- Diesel, 2- Kerosene, 3- fuel oil, 4- petrol.



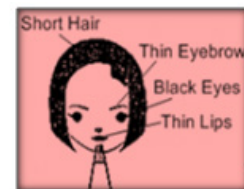
29. The given picture is of chromium metal. It is electroplated in car bumpers, bicycle handle, bath taps etc. Which of property of chromium metal makes it suitable for this?

- Shiny surface.
- Non-corrosiveness.
- Scratch resistance.
- All of the above.



30. The given picture shows a few characteristics of a couple. Which of the following characteristics will be commonly inherited by their child?

- Type of lips
- Length of hair
- Colour of eyes.
- All of the above.

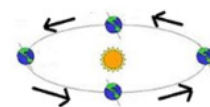


31. Everyone's Adam's apples grow during puberty, but a girl's Adam's apples don't grow as much as a boy's does. That's why boys have more visible Adam's apples. What is actually an Adam's apple?

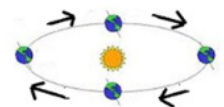
- Hardened gland.
- Enlarged throat.
- Hardened bone.
- Enlarged bone.

32. Ravi and Sahil drew diagrams showing Earth's revolution around the Sun. Identify the correct option?

- Only Diagram A is correct.
- Diagram B is correct, Diagram A is not correct.
- Both diagrams are correct.
- Both diagrams are incorrect.



A



B

33. The table shows the quiz questions and following answers given by one of the students of class 8. How many questions did the student answered incorrectly?

Questions		Answers
1	Which is called as the morning or the evening star?	Venus
2	Which is the hottest planet?	Mercury
3	Which is the coldest planet?	Neptune

- 1
- 2
- 3
- None

34. The diagram below shows different shapes and sizes of our moon. Why does the moon keep changing shapes?

- Due to change in seasons on Earth.
- Because there is no gravity on moon.
- Due to its movement around the Earth.
- The shape does not actually change; it appears to change from Earth.



35. Observe the diagram carefully and identify most suitable options for 1, 2, 3 and 4.

- a) 1-Saturn, 2- Jupiter, 3- Moon, 4- Uranus.
- b) 1-Earth, 2- Uranus, 3- Saturn, 4- Jupiter.
- c) 1-Saturn, 2- Mercury, 3- Uranus, 4- Jupiter.
- d) 1- Mercury, 2- Venus, 3- Jupiter, 4- Neptune.



36. The first person to orbit the Earth was a Russian cosmonaut who took flight in April 1961. What was his name?

- a) Neil Armstrong.
- b) Edward white.
- c) Michael Collins.
- d) Yuri Gagarin.

37. From the international space station, how many times do astronauts see sunrise and sunset 16 times a day. This is because ISS orbits Earth every minutes.

- a) 20
- b) 40
- c) 100
- d) 90.



38. Alan shepherd was the fifth man to step on moon where he managed to strike the golf balls on the lunar surface with a golf club held in one hand. What do you think happened to the ball?

- a) The ball covered much more distance than it would have covered on Earth.
- b) The ball moved exactly like it would have on earth.
- c) The ball covered much less distance than it would have covered on Earth.
- d) The ball did not move.



39. Identify the youngest astronaut who managed to travel in space at the age of 25?

- a) Neil Armstrong.
- b) Edward white.
- c) Gherman Titov.
- d) Michael Collins.

40. Let us say that the week-system of Earth is made prominent on Moon as well. Today its Sunday on moon. After how much time will that be Monday on moon?

- a) 24 hours.
- b) 16 hours.
- c) 27 Erath days.
- d) 51 Earth days.

41. Earth continuously spins around its axis like a top. Why don't we feel this continuous spin?

- a) Because everything else on earth spins along with it at the same constant speed.
- b) Because of Earth's gravitational force.
- c) Because earth spins too fast to be felt by humans.
- d) Because Earth's revolution cancels out the effects of Earth's rotation.



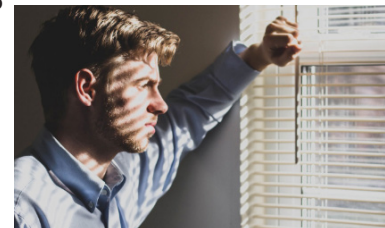
42. What changes will you feel when you step on Moon?

- a) Change in skin color.
- b) Change in hair color.
- c) Change in mass.
- d) Change in weight.



43. Shashi is staring at the moon through his window. At this night, the moon and the sun are exactly on the opposite side of each other. Which phase of the moon is seen by Shashi?

- a) Half-moon.
- b) New moon.
- c) Full moon.
- d) Quarter-moon.

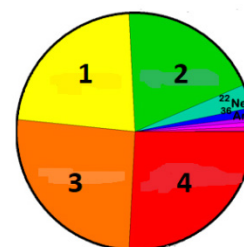


44. The following pie chart denotes the Lunar atmospheric composition:

Read the pie chart and answer for Q-44, 45 and 46.

Compositions- 3 and 4 are almost same. What % does gas 3 cover?

- a) 25.8%
- b) 50.3%
- c) 13.99%
- d) 86%.



45. What could be gas 4?

- a) Hydrogen.
- b. Xenon
- c. Argon.
- d. Carbon.

46. Oxygen on the Moon is abundant. The lunar crust is 40% oxygen by mass. Which out of 1, 2, 3, 4 denotes oxygen in Moon's atmosphere?

- a) 3 and 4.
- b. 1
- c. 2
- d. None of the above.

47. Given is the picture of our solar system. Identify the hottest planet.

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



48. Identify the planet which rotates around its own axis in anticlockwise direction.

- a) 1
- b. 2
- c. 5
- d. All except 2.

49. Identify the planet having the longest day out of all 8.

- a) 2
- b. 4
- c. 6
- d. 8.

50. Which planet has almost the same number of hours in a day as on Earth?

- a) Mercury.
- b. Venus
- c. Mars.
- d. Uranus

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6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

CORRECT METHOD



Gender

Male ☐

Female ☐

[illegible]

City

1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9
0	0	0	0	0	0	0	0

Mobile No.

A B C D

1					11					21					31					41				
2					12					22					32					42				
3					13					23					33					43				
4					14					24					34					44				
5					15					25					35					45				
6					16					26					36					46				
7					17																			

[illegible]**Invigilator's Signature**



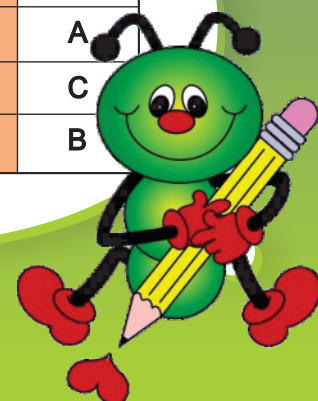
2015 QUESTION PAPER - ANSWER KEY

QUESTION NO.	1	2	3	4	5	6	7	8	9	10
ANSWERS	C	C	A	A	A	A	D	D	D	D
QUESTION NO.	11	12	13	14	15	16	17	18	19	20
ANSWERS	B	B	D	B	A	D	A	C	A	B
QUESTION NO.	21	22	23	24	25	26	27	28	29	30
ANSWERS	A	C	A	D	A	B	C	C	B	D
QUESTION NO.	31	32	33	34	35	36	37	38	39	40
ANSWERS	B	C	A	B	D	A	D	C	B	B
QUESTION NO.	41	42	43	44	45	46	47	48	49	50
ANSWERS	D	A	B	D	D	D	B	D	C	A



2016 QUESTION PAPER - ANSWER KEY

1.	D	11.	A	21.	B	31.	B	41.	B
2.	D	12.	D	22.	B	32.	D	42.	B
3.	B	13.	B	23.	A	33.	B	43.	B
4.	C	14.	B	24.	C	34.	C	44.	A
5.	B	15.	A	25.	B	35.	D	45.	B
6.	B	16.	C	26.	A	36.	C	46.	B
7.	D	17.	D	27.	A	37.	C	47.	D
8.	A	18.	B	28.	C	38.	C	48.	A
9.	C	19.	D	29.	B	39.	C	49.	C
10.	D	20.	D	30.	D	40.	D	50.	B





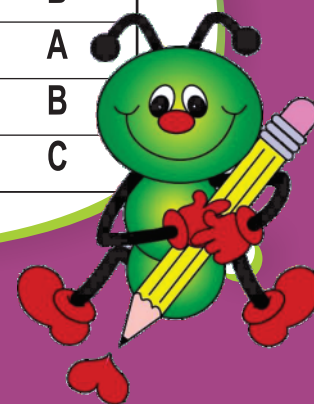
2017 QUESTION PAPER - ANSWER KEY

1	B	11	C	21	D	31	D	41	D
2	B	12	C	22	C	32	A	42	A
3	C	13	C	23	A	33	A	43	C
4	D	14	B	24	B	34	C	44	A
5	A	15	C	25	D	35	A	45	B
6	C	16	B	26	A	36	D	46	D
7	C	17	B	27	D	37	B	47	B
8	A	18	D	28	A	38	C	48	D
9	A	19	A	29	D	39	D	49	D
10	A	20	A	30	B	40	B	50	D



2018 QUESTION PAPER - ANSWER KEY

1	D	11	A	21	B	31	B	41	A
2	D	12	A	22	A	32	D	42	C
3	C	13	A	23	D	33	A	43	B
4	A	14	C	24	D	34	C	44	D
5	C	15	C	25	A	35	C	45	D
6	D	16	A	26	B	36	C	46	B
7	C	17	A	27	A	37	B	47	B
8	C	18	B	28	B	38	C	48	A
9	B	19	A	29	C	39	A	49	B
10	B	20	C	30	B	40	A	50	C





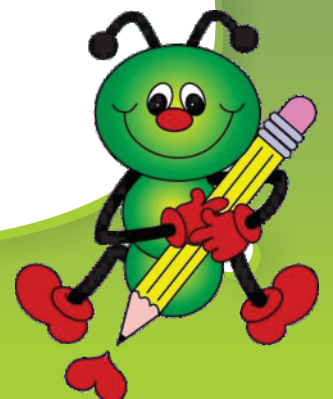
2019 QUESTION PAPER - ANSWER KEY

1	A	11	D	21	B	31	B	41	A
2	B	12	A	22	A	32	A	42	D
3	A	13	A	23	A	33	A	43	C
4	C	14	B	24	A	34	D	44	A
5	B	15	C	25	A	35	B	45	A
6	D	16	C	26	B	36	D	46	D
7	D	17	C	27	B	37	D	47	B
8	B	18	D	28	A	38	A	48	D
9	A	19	D	29	D	39	C	49	C
10	D	20	B	30	C	40	C	50	C



REVISION QUESTION PAPER - ANSWER KEY

Not Given the Answers



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**Empowering Classroom
Learning Through | Experiential Learning**



*your children
own making images, like car, aeroplane
instruction booklet with material*



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