



SEKOLAH MENENGAH KEBANGSAAN KERTEH

**PEPERIKSAAN AKHIR TAHUN
TINGKATAN EMPAT 2011**

SCIENCE

Paper 1

One Hour And Fifteen Minutes

DO NOT OPEN THIS TEST PAPER UNTIL YOU ARE TOLD TO DO SO

- 1. This question paper consists of 50 questions*
- 2. Answer **all** questions*
- 3. Answer each question by blackening the correct space on the objective sheet*
- 4. Blacken only **one** space for each question*
- 5. If you want to change your answer, erase the blackened mark that you have made.
Then blacken the space for the new answer*
- 6. The diagrams in the questions provided are not drawn to scale unless stated.*

You may use a non-programmable scientific calculator

This question paper consists of 25 printed pages

1. Which of the following scientific attitudes or noble values should be practiced when analyzing and interpreting data?
 - A. Curiosity
 - B. Being thankful to God
 - C. Critical and analytical thinking
 - D. Being confident and independent
 - A yet to be proven statements that relates the manipulated and responding variables
 - It is usually formed on scientific knowledge and assumptions

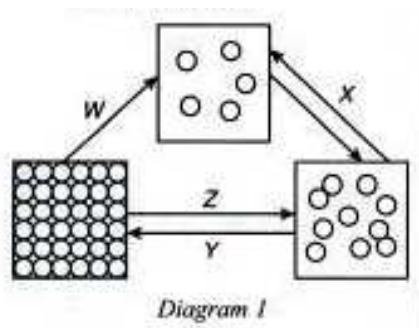
2. The statements above define one of the steps in scientific investigation. Which of the following corresponding with the statements?
 - A. Inference
 - B. Hypothesis
 - C. Conclusion
 - D. Objective

3. Which of the following is meant by body coordination?
 - A. Coordination of the body's response towards any stimuli.
 - B. Coordination of the body that is controlled by endocrine system.
 - C. Coordination of the body that is controlled by brain only.
 - D. Coordination of the body's towards position and balance.

4. The exchange of genetic materials between chromatids occurs during

- A. Mitosis
- B. Meiosis I
- C. Meiosis II
- D. Fertilization

5. Diagram 1 shows the three states of matter



The process of sublimation is represented by

- A. W
 - B. X
 - C. Y
 - D. Z
6. Which of the following characteristics indicate physical changes of a substance?

- I. No new substance is formed
- II. May change back into the original state
- III. Involves a lot of energy change

- A. I and II only
- B. I and III
- C. II and III only
- D. I, II and III

7. Which of the following shows the order of reactivity of metals beginning with the most reactive metal?
- A. Calcium, sodium, zinc, magnesium
 - B. Sodium, calcium, magnesium, copper
 - C. Magnesium, calcium, zinc, sodium
 - D. Sodium, magnesium, copper, lead
8. The process of electrolysis is used to
- I. coat the metal
 - II. purify the metal
 - III. extract the metal from its core
- A. III only
 - B. I and II only
 - C. I and III only
 - D. I, II and II
9. Which of the following shows the types of charges of alpha particles, beta particles and gamma ray?

	Alpha particles	Beta particles	Gamma radiation
A	Positive	Negative	Neutral
B	Negative	Positive	Neutral
C	Neutral	Positive	Negative
D	Neutral	Negative	Positive

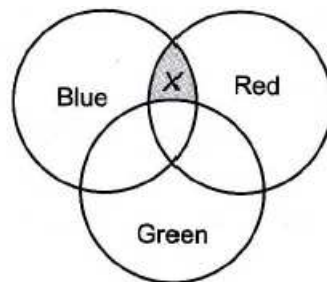
10. Table shows the uses of different radioisotope.

Radioisotope	Uses
P	Study the age of ancient artifacts
Q	Kill cancer cells
R	Study the absorption of fertilizers in young plant

The possible radioisotope for P, Q and R are :

	P	Q	R
A	Carbon-12	Cobalt-60	Phosphorus-32
B	Phosphorus-32	Carbon-14	Iodine-131
C	Carbon-14	Cobalt-60	Phosphorus-32
D	Cobalt-60	Carbon-14	Iodine-131

11. The diagram shows the overlapping of three pigment colour.



What is x?

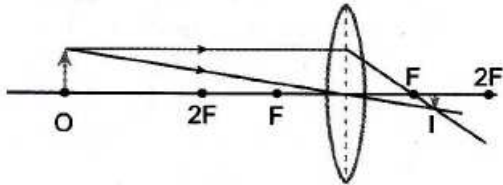
- A. Violet
- B. Green
- C. Orange
- D. Black

12. Which of the following statements refer to a real image?

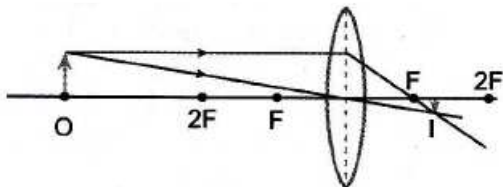
- A. Image that are produced by plane mirrors.
- B. Image that are produced by lights converging at the image point
- C. Image that are produced by lights diverging at the image point
- D. An image that seems to originate from the image, but in reality is not

13. Which of the following ray diagrams is not correct?

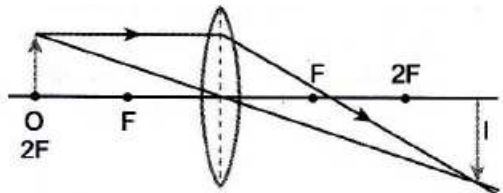
A.



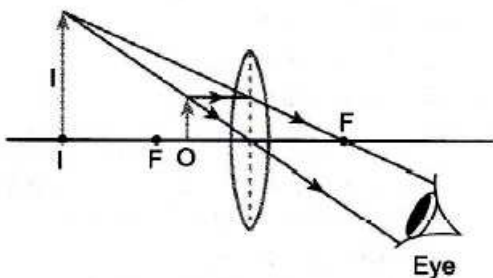
B.



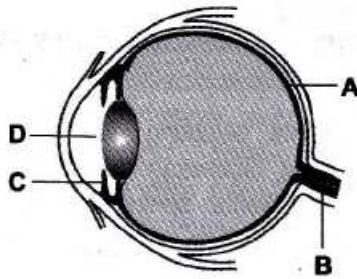
C.



D.



13. The diagram shows the structure of the human eye. Which of the labeled parts A, B, C and D show the retina.



14. Give the examples of alloy...

- i) Plastic
- ii) Steel
- iii) Glass
- iv) Brass

- A. i and iii
- B. ii and iv
- C. i and ii
- D. iii and iv

15. How ammonia is produced in industry?

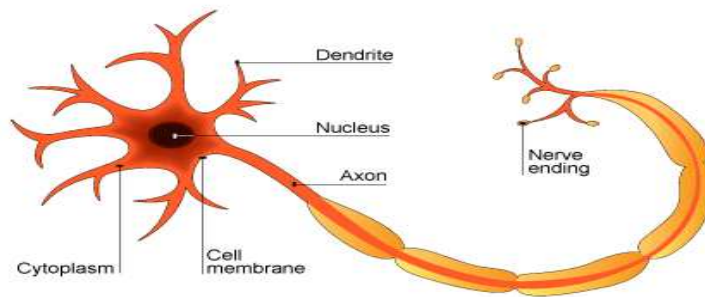
- A. Fermentation Process
- B. Haber Process
- C. Distillation Process
- D. Sublimation Process

16. Give the EXAMPLES of material that become the sources of pollution.

- i) Acid and Base
- ii) Phosphate and Nitrate
- iii) Radioactive Waste
- iv) Mercury

- A. i,ii and iii
- B. ii,iii and iv
- C. i,ii and iv
- D. i, ii, iii and iv

17.



The diagram above show a type of neurone.
The neurone carries an impulse from the

- A. Central nervous to the receptor
- B. Receptor to the central nervous system
- C. Effector to the central nervous system
- D. Central nervous system to the effector

18. The following information explain a subatomic particle

- orbiting around the nucleus
- can move from atom to atom
- very light and negatively charged

The subatomic particle is

- A. A proton
- B. A neutron
- C. An electron
- D. An isotope

19. Which of the following changes of energy takes place in a nuclear reactor?

- A. Nuclear energy \rightarrow electrical energy \rightarrow kinetic energy \rightarrow heat energy
- B. Nuclear energy \rightarrow heat energy \rightarrow electrical energy \rightarrow kinetic energy
- C. Nuclear energy \rightarrow heat energy \rightarrow kinetic energy \rightarrow electrical energy
- D. Nuclear energy \rightarrow electrical energy \rightarrow heat energy \rightarrow kinetic energy

20. The following information shows the mechanisms involved in the human eyes to focus on an object.

- Ciliary muscle are relaxed.
- The thickness of eye lens decreased

Which of the following statements are true regarding the information are stated above ?

- I. The distance is at a far distance.
 - II. The object is at a near distance.
 - III. The focal length increases.
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III

21. The following are the characteristic of alloy, **EXCEPT**

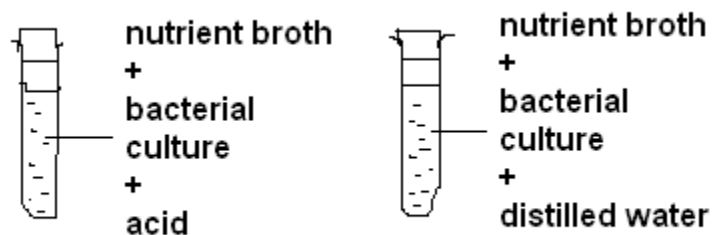
- A. Good Conductor
- B. Hard
- C. Long Lasting
- D. Stretchable

22. More salt will dissolve in a warmer solution’.

What is the hypothesis in an experiment to investigate the statement above?

- A. The amount of salt dissolved is affected by the temperature of the solution.
- B. The amount of salt dissolved is proportional to the temperature of the solution.
- C. Does the amount of salt dissolved increase with the temperature of the solution?
- D. The amount of salt dissolved increases with the temperature of the solution.

23. Figure 1 shows an experiment to study the effect of acids on the growth of bacteria.



After two days, the cloudiness of the mixtures which is caused by the growth of bacteria is observed. Which of the following is the manipulated variable?

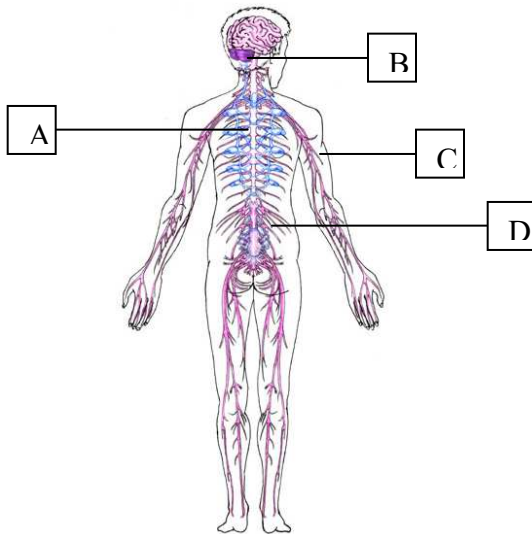
- A. Number of days
- B. Growth of bacteria
- C. Acidity of the mixtures
- D. Cloudiness of the mixtures

24. During science laboratory class, the teacher asks the students to do an experiment on solubility and plot a graph based on their data. To ensure that the graph that will be plot is smooth, Izzaty cheat on the data that she recorded.

Which of the following is not shown by Izzaty during the experimental phase?

- A. Observant
- B. Honesty
- C. Kindness
- D. Grateful

25. The diagram below show the human nervous system



Which of the parts labeled A,B,C, or D is a cranial nerve?

26. Mary cannot pass her driving test because she cannot differentiate the red and green colours of the traffic light. Her disease is caused by

- A. Insufficient nutrients
- B. Gene mutation
- C. Chromosomes mutation
- D. Abnormal cell division

27. What type of battery is used in a car?
- A. Lead-acid accumulator
 - B. Alkaline battery
 - C. Nickel-cadmium battery
 - D. Silver-oxide mercury battery
28. What is the advantage of a dry cell compared to an acid-lead accumulator?
- A. The voltage is higher
 - B. It has longer lifespan
 - C. The current is more stable
 - D. The electrolyte does not spill
29. The symbol for titanium is shown in Diagram 2



How many neutrons are found in its nucleus?

- A. 22
- B. 26
- C. 48
- D. 70

30. Which of the following processes are used to produce nuclear energy?

- I Fusion
- II Fission
- III Chemical reaction

- A I and II only
- B I and III only
- C II and III only
- D I, II and III

31. Radiation can cause serious health problems in humans. A low level radiation can cause

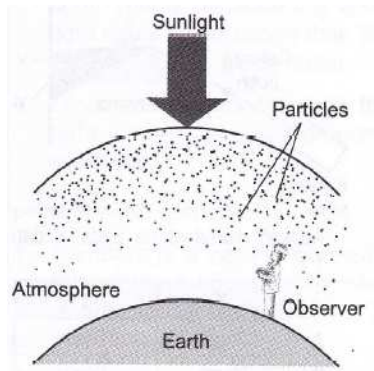
- I Cell death
- II Genetic mutation
- III Death
- IV Cancer

- A I, II, and III
- B I, II and IV
- C II, III and IV
- D I, II, III and IV

32. Why gamma is not deflected by electric field?

- A. It has no mass
- B. It has no charge
- C. It has a high penetrating power
- D. It travel with the speed of light

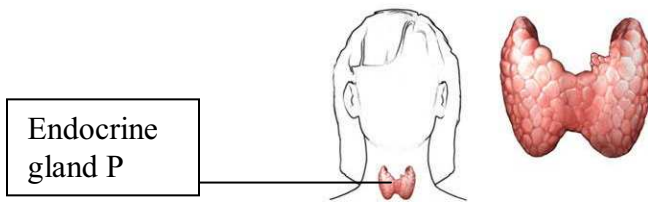
33. The diagram shows a student looking at the sky at noon .



Which of the following colour is most probably seen by the students?

- A. Orange
- B. Red
- C. Blue
- D. White

34. Diagram shows endocrine gland P



What will happen if endocrine gland P secretes too little hormone?

- I It can cause goiter
- II The metabolic rate increases
- III The physical growth of children will be stunted

- A. II only
- B. III only
- C. I and III only
- D. I, II and III

34. Which of the following is an effect on body coordination as a result of consuming alcoholic drinks?

- A. Cause heart attack
- B. Interferes the function of a liver
- C. Delays the reaction of a particular stimulus
- D. Increases our body resistance against disease.

35. Curly hair is controlled by a dominant allele, S and straight hair is controlled by a recessive gene, s. A curly haired men and a stright haired women have children who are either curly or straight haired. What are the genotypes of the parents?

	Father	Mother
A.	SS	Ss
B.	SS	ss
C.	Ss	Ss
D.	Ss	ss

36. An individual P produced gamates which contain either 22+X chromosomes or 22+Y chronosomes. What is the genotype of the individual P?

- A. 22+Y
- B. 22+X
- C. 44+XY
- D. 44+XX

37. Which of the following statement is true about Cobalt, Nickel, Copper and Zinc?

- A. They belong to the same group.
- B. They belong to the same period.
- C. They are known as alkaline metals.
- D. They have non-metallic properties.

38. Why are metal malleable and easily rolled into thin sheets?

- A. Their atoms are loosely packed.
- B. Their atoms are held together by weak bonds.
- C. Their atoms arrangement allows the atom to slide over one another easily.
- D. Their atoms are held together by ionic bond.

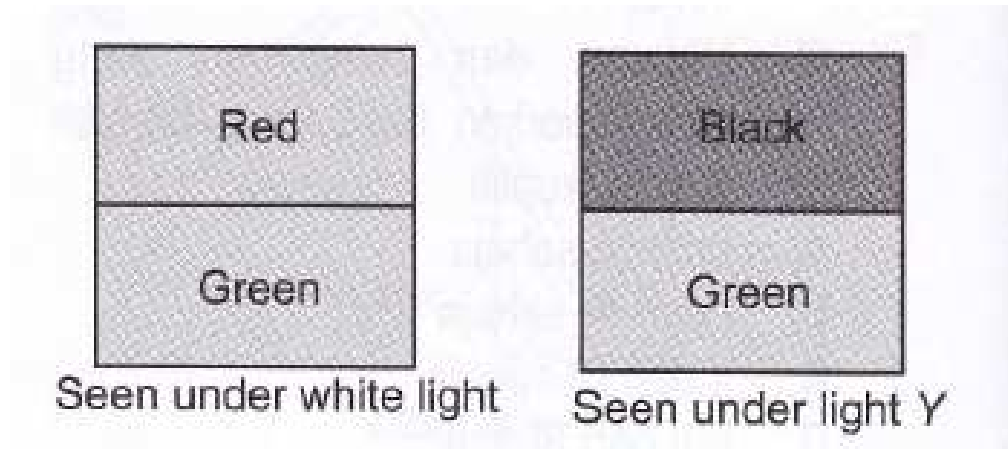
39. What is the advantage of a dry cell compared to an acid-lead accumulator?

- A. The voltage is higher
- B. It has longer lifespan
- C. The current is more stable
- D. The electrolyte does not spill

40. Why gamma is not deflected by electric field?

- A. It has no mass
- B. It has no charge
- C. It has a high penetrating power
- D. It travel with the speed of light

41. Diagram shows the colours of a paper seen under different colour of light.



What is the colour of light Y?

- A. Blue
- B. Red
- C. Green
- D. Yellow

42. In your opinion, what is the effect of the improper industrial waste disposal on environment?

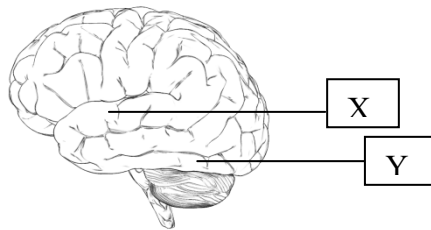
- A. Burning of fossil fuels can affect respiratory system, greenhouse effects and acid rain.
- B. Toxic substance will not cause the change of pH value of water and soil.
- C. Brain damage and cancer were caused by oil palm waste disposal.
- D. Mercury can explode and pollute the air.

46. Choose the **CORRECT** statement

- i) The effect of pollution will effect the economic.
- ii) Phosphate compound will cause the rapid development of algae.
- iii) Haber process will cause damage to the environment.
- iv) Urea fertilizer does not contain any nitrogen percentage compared to ammonia fertilizer.

- A. i, ii, and iii
- B. i, ii and iv
- C. i, iii and iv
- D. ii, iii and iv

47. Diagram shows the structure of the brain



What sense are controlled by sections X and Y?

- | X | Y |
|------------|---------|
| A. Smell | Hearing |
| B. Sight | Smell |
| C. Hearing | Sight |
| D. Hearing | Smell |

48. Which processes will allow you to obtain pure salts from a mixture of salts and sands?

- A. Filtration
- B. Dissolving and boiling
- C. Dissolving, filtering, boiling and crystallization
- D. Filtration followed by fractional distillation

49. Which of the following is correct?

	Continuous variation	Discontinuous variation
A.	Quantitative character	Qualitative character
B.	Heritable	Not heritable
C.	Not easily influenced by environment	Easily influenced by environment
D.	There are intermediate type	There are many intermediate type

50. Which of the following should not be included in a universal code of ethics and moral values for scientists to follow ?

- A. Human cloning should be disallowed.
- B. Humans should not be used in genetic research.
- C. Scientist must follow stringent rules to produce genetically modified organisms.
- D. There must be control in the production of human clones.