Name : …….. Class ……

SPM TRIAL
Examination
Paper 1
Science
KISAS
2007

**KOLEJ ISLAM SULTAN ALAM SHAH KLANG**

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**SPM TRIAL EXAMINATION 2007**
**SCIENCE**

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**1 HOUR AND FIFTEEN MINUTES**
**1 ¼ HOURS**

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**INFORMATION FOR CANDIDATES**

1. *Answer **all** questions.*
2. *The diagram in the questions provided are not drawn to scale unless state.*
3. *You may use a non-programmable scientific calculator.*

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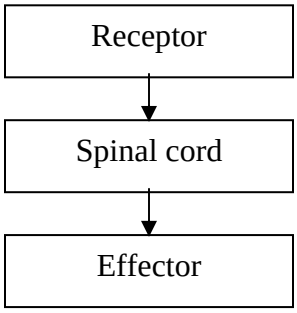
**This examination paper consists of 11 printed pages including the front page**

Prepared by : …….. Verified by: …….
(Pn Farhanah Bt Abdullah) (En Ch.ng Teng Hong)
Head Of Science Panel Head Of Sc & Math Dept

I**nstruction**: *Each question is followed by four options. A,B,C and D. Choose one correct answer for each question and blacken the corresponding space in your objective answer sheet.*

1.The figure shows the impulse pathway of an action.

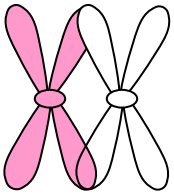



The action refers to
A. a knee jerk
B. chewing food
C. reading a book
D. walking on a rope

2. The function of the spinal cord is to
A. control reflex actions only
B. control involuntary actions
C. control voluntary actions and involuntary actions
D. control involuntary actions and reflex actions

3. What is the function of the motor neurone?
A. Transmits impulses from a receptor to an effector
B. Transmits impulses from a receptor to the central nervous system
C. Transmits impulses from the central nervous system to an effector
D. Processes impulses received from the sensory neurone and transmits them to the motor neurone

4. The figure shows a process that occurs during cell division.

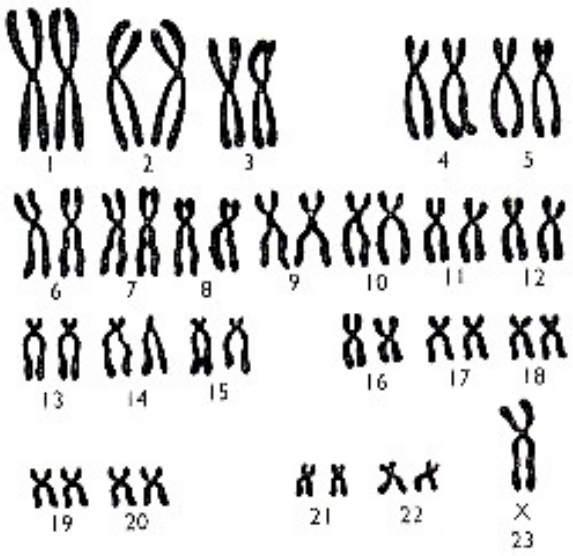


The process refers to
A. mitosis B. mutation C. cross-over D. fertilisation

5. Which of the following characteristics is determined by genes?
A. skin colour B. Body weight C. Height D. Gender

6. What is the purpose of crossing-over?
   A. To replace old and dead cells
   B. To increase the number of cells to bring about growth
   C. To produce new cells associated with reproduction
   D. To exchange genetic materials between two chromatids

7. The diagram shows the pairs of chromosomes found in a body of a human who is suffering from a genetic disorder.



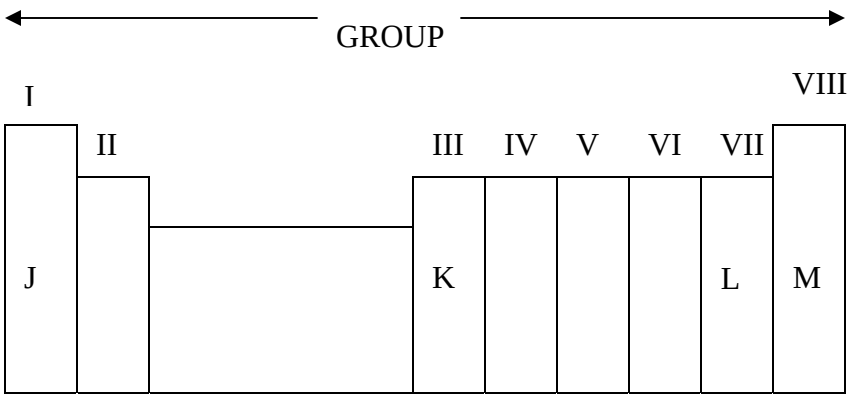

Which chromosome pair causes the disease ?
A. 3 B. 8 C. 21 D. 23

8. Which of the following are true about the differences between continuous variation and discontinuous variation?

| | Continuous variation | Discontinuous variation |
|---|---|---|
| I | It does not show obvious difference | It does show obvious difference |
| II | It is caused by surrounding factor | It is caused by genetic factor |
| III | The characteristics can be inherited | The characteristics cannot be inherited |

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

9. The diagram shows the position of elements J, K, L and M in the Periodic Table.




Which of the following elements is a noble gas ?

A J
B K
C L
D M

10. The table shows physical properties of elements X, Y and Z

| Element | Boiling point ($^0$C) | Electrical conductivity | |
|---|---|---|---|
| | | Solid state | Molten state |
| X | 1 500 | Poor | Good |
| Y | 1 950 | Good | Good |
| Z | 35 | Poor | Poor |

What are the elements K, L and M are likely to be ?

| | X | Y | Z |
|---|---|---|---|
| A | Sulphur | Lead bromide | Aluminium |
| B | Aluminium | Lead bromide | Sulphur |
| C | Lead bromide | Aluminium | Sulphur |
| D | Aluminium | Sulphur | Lead bromide |

11. Why sodium chloride have a high melting point?

A. The particles in the sodium chloride are arranged closely and in an orderly manner.
B. The sodium and chloride ions are held together by very strong electrostatic forces.
C. Sodium chloride is a good conductor of heat.
D. Sodium chloride is very hard and the particles are held by strong covalent bonds.

12. Atom M has 12 protons, 12 electrons and 13 neutrons. What is the proton number and nucleon number of atom M?

| | Proton number | Nucleon number |
|---|---|---|
| A | 12 | 13 |
| B | 12 | 12 |
| C | 12 | 25 |
| D | 24 | 13 |

13. Which of the following about an element represented by $^{27}_{13}H$ is true?

I. It has 13 protons
II. It has 14 neutrons
III. It has 27 electrons

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

14. Which of the following is a physical change?

A. Photosynthesis
B. Melting of ice
C. Reaction of metal and oxygen
D. Heating of zinc carbonate

15. Which of the following is a chemical change?

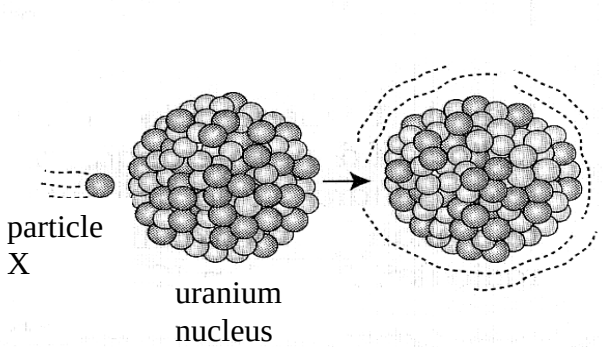
A. Boiling of water to form steam
B. Melting of wax when heated
C. Dissolving salt in water
D. Burning of petrol in car engines.

16. Electrolysis can be used for

I. electroplating metals
II. purification of metals
III. extraction of metals from their ores

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

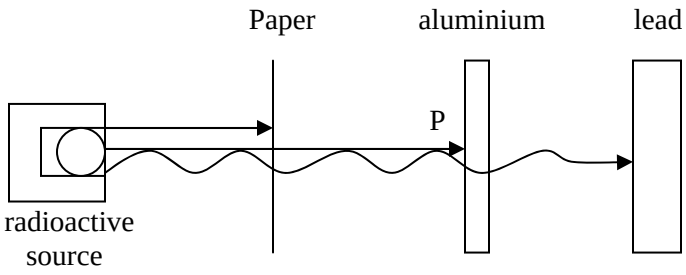
17. The diagram shows a nuclear fission of uranium to produce nuclear energy.



What is particle X that is used to bombard the uranium nucleus?

A Proton
B Neutron
C Electron
D Helium atom

18. The figure below shows the penetrating powers of some radioactive rays.




What is ray P?

A. Alpha ray
B. Beta ray
C. Gamma ray
D. X-ray

19. Which of the following is not a characteristic of the image of an object formed by a plane mirror?
    A. Laterally inverted
    B. Same size as the object
    C. Object distance from the mirror is equal to the image distance from the mirror
    D. Real

20. When green light is shone onto a yellow object, the object will appear
    A. black B. White C. green D. yellow

21. Which of the following instruments make use of the principle of reflection of light?
    I. Periscope
    II. Kaleidoscope
    III. Telescope
    A. I and II B. I and III C. II and III D. I,II and III

22. Which of the following is not a purpose of alloying?
    A. to increase the hardness of metals
    B. to prevent corrosion
    C. to change a metal to a non conductor
    D. to improve the appearance of the metal

23. What is superconductor?
    A. A substance which is a good conductor of heat.
    B. A substance which has an efficient current flow
    C. A substance with zero resistance at a high temperature
    D. A substance with an electrical resistance that is directly proportional to temperature

24. Which of the following statements about viruses is true?

A. Viruses will produce spores in adverse condition
B. Viruses can only reproduce in living cells
C. Viruses are classified as living organisms.
D. A virus possesses nucleus, cytoplasm and cell membrane.

25. Chemical substances produced by fungi that are used to destroy bacteria or to inhibit the reproduction of bacteria in our body are called

A. antibodies
B. antibiotics
C. antiserum
D. antiseptic

26. Which of the following is correct?

| | Disease | Pathogen | Vector |
|---|---|---|---|
| A. | Malaria | Virus | Mosquito |
| B. | Malaria | Protozoa | Housefly |
| C. | Malaria | Protozoa | Mosquito |
| D. | Dengue | Protozoa | Mosquito |

27. Vaccination produces immunity in the body towards a particular disease by

A. stimulating the production of antibodies in the body
B. strengthening the white blood cells to fight against bacteria
C. inhibiting the reproduction of pathogens in the body
D. increasing the production of more red cells in the body

28. A person who has recovered from chicken pox has obtained

A. artificial active immunity
B. natural active immunity
C. artificial passive immunity
D. natural passive immunity

29. Which of the following are consequences of unhealthy eating habits?

I. Obesity II. Diabetes III. Anorexia

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

30. The table shows the calorific values of three types of food.

| Food | Calorific value (KJ per 100 g) |
|---|---|
| Egg | 600 |
| Bread | 1010 |
| Tomato | 90 |

Nazmi eats 300g of egg, 200g of bread and 250g of tomato. What is the total calorific value consumed?

A. 4045 kJ B. 4450 kJ C. 4540 kJ D. 4840kJ

31. When a population of animal ‘X’ was introduced into the community, the number of lions increased while the number of deer decreased. Animal ‘X’ could be a

I. herbivore
II. predator of lions
III. a predator of deer
IV. monkey

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

32. Which one of the following activities of man does not contribute towards pollution?

A. Use of fertilizers on farms
B. The clearing of forests
C. The building of a hydro-electric dam
D. The increase in the number of fuel powered vehicles on the road

33. What are hydrocarbons?

A. Compounds that contain carbon
B. Compounds that contain hydrogen.
C. Compounds that contain hydrogen and carbon only
D. Compounds that contain hydrogen, carbon and oxygen

34. Name the gas released when yeast is added to glucose solution.

A. Carbon dioxide
B. Nitrogen
C. Oxygen
D. Ethanol

35. The purpose of sterilization of the oil palm fruit during the extraction of palm oil is to

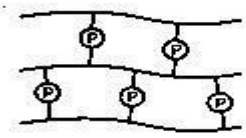
I. kill microorganisms
II. soften the fruit
III. destroy the enzymes that turn oil to acid

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

36. Soap can act as a cleaning agent because

A. it is slippery and is an alkaline solution.
B. It produces a lot of bubbles to clean the dirt.
C. Its tail is soluble in water while its head is soluble in oil.
D. Its tail is soluble in oil while its head is soluble in water.

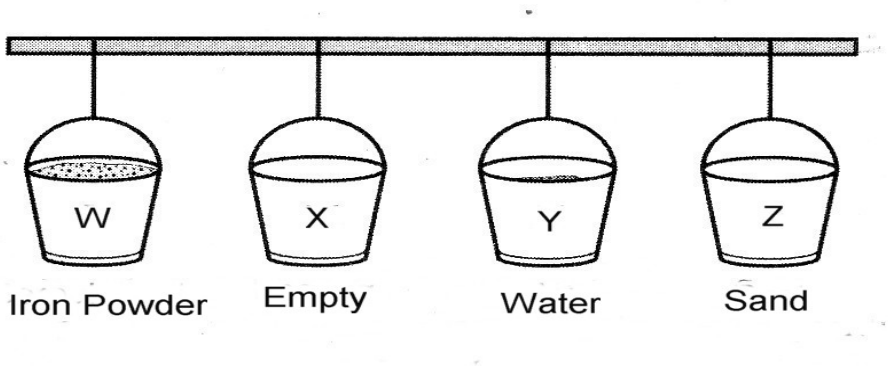
37. The diagram below shows the structure of vulcanised rubber.




What is the element labelled P?

A. Hydrogen
B. Nitrogen
C. Sulphur
D. Phosphorus

38. The diagram shows four similar pails hanging on a horizontal iron rod.




If all the pails swing at the same time from the same height, which pail will oscillate longest ?

A W
B X
C Y
D Z

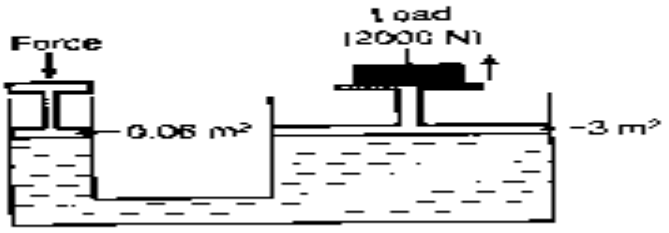
39. A trolley moves from rest and attains a velocity of 5 cm $s^{-1}$ in 5 seconds. What is the acceleration of the trolley?

A. 0.5 cm $s^{-2}$ B. 1.0 cm $s^{-2}$ C. 1.5 cm $s^{-2}$ D. 2.0 cm $s^{-2}$

40. An object with a mass of 10 kg is moving at a velocity of 30 m $s^{-1}$. What is the momentum of the object?

A. 0.3 kg m/s B. 3 kg m/s C. 30 kg m/s D. 300 kg m/s

41. The figure shows a hydraulic system used to lift a load.




What is the force required to lift the load with a weight of 2000 N?

A. 20 N B. 40 N C. 60 N D. 80 N

42. Which of the following cannot be explained using Archimedes' principle?

A. Ships can float on water
B. Water has less friction than land
C. Submarines can be made float and sink
D. An object when put in water will become lighter

43. Which of the following is not a purpose of food processing?

A. To make digestion of food easier.
B. To preserve the freshness of food.
C. To quicken the process of food production.
D. To kill microorganisms so that it can be kept for a longer time.

44. The adding of antioxidants to food helps to

A. improve the oxygen content in food.
B. reduce the oxygen content in food.
C. increase the rate of oxidation in food.
D. inhibit or slow down the process of oxidation of fats in food.

45. A non biodegradable plastic

A. can melt easily when it is heated.
B. is made of an organic substance.
C. cannot dissolve in organic solvents
D. takes a long time to decompose

46. The use of synthetic polymers causes environmental pollution because

I. most synthetic polymers are non biodegradable
II. synthetic polymers produce toxic gases when they are burnt
III. most synthetic polymers are not easily decomposed by light

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

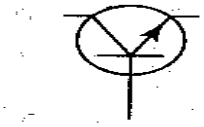
47. Burning of plastic emits

A. carbon monoxide B. ammonia C. sulphur dioxide D. nitrous oxide

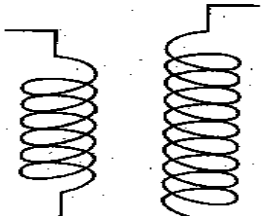
48. A radio wave with frequency of 500 Hz has a wavelength of 2.3 m. What is its velocity?

A. 500 $ms^{-1}$ B. 1050 $ms^{-1}$ C. 1150 $ms^{-1}$ D. 1200 $ms^{-1}$

49. Which electric components have the function as amplifiers?

1 

1I 

1II 

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

50. Satellites are used in all for

I. navigation
II. broadcasting
III. military
IV. communications

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

**END OF QUESTIONS PAPER**