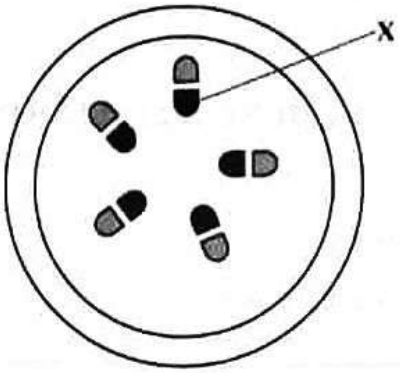
1 Which part of a cell is found in both plant and animal cells?

A cell membrane
B vacuole
C cell sap
D cell wall

2 The diagram shows the internal structure of the root of a dicotyledonous plant.



Part **X** is the

A cortex.
B xylem.
C phloem.
D epidermis.

3 A manual worker's diet must contain a higher proportion of

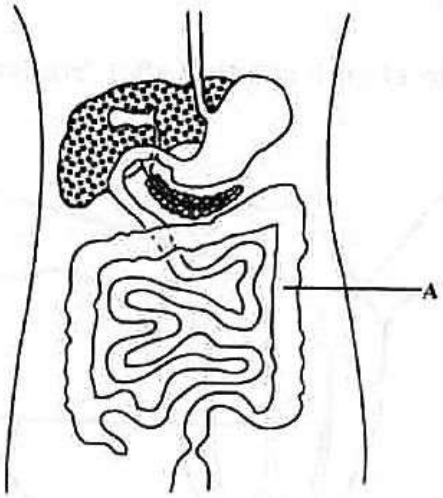
A fibre.
B iodine.
C vitamin D.
D carbohydrates.

4 In an ecosystem, a zebra feeds on grass, a lion feeds on the zebra and a vulture feeds on the lion.

The lion is a

A producer.
B primary consumer.
C secondary consumer.
D tertiary consumer.

5 The diagram shows part of the human digestive system.



What is labelled **A**?

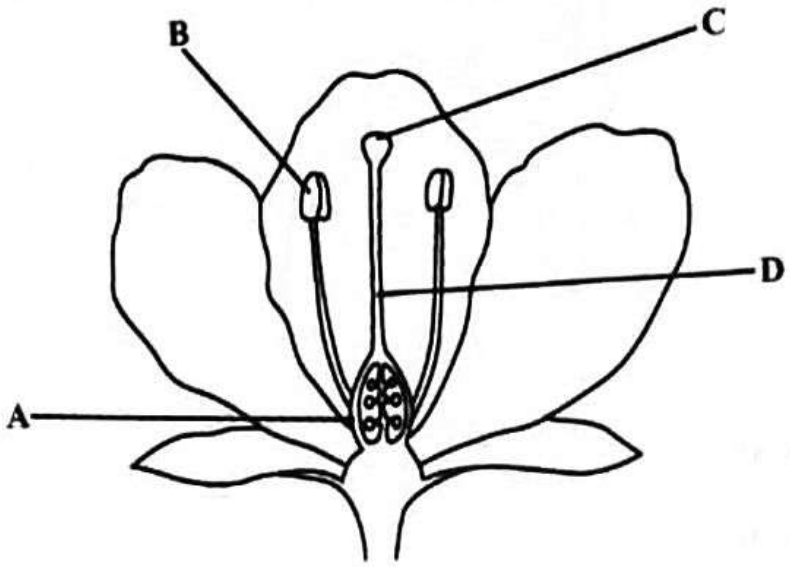
A the stomach
B the pancreas
C the large intestine
D the small intestine

6 The rate of transpiration is measured by a

A barometer.
B manometer.
C micrometer.
D potometer.

7 The diagram shows a flower.

Which part, **A**, **B**, **C** or **D**, develops into a fruit after fertilisation?



8. A farmer planted 30 bean seeds and 12 seeds did **not** germinate.

What was the percentage germination?

A 18%
B 40%
C 42%
D 60%

9 Which characteristic, in humans, shows continuous variation?

A sex
B height
C tongue rolling
D left or right handedness

10 Which part of the male reproductive system carries urine and semen out of the body through the penis?

A scrotum.
B urethra.
C sperm duct.
D epididymis.

11 Which organism causes genital herpes?

A fungi
B virus
C bacterium
D protozoan

12 Which blood vessel transports deoxygenated blood to the lungs?

A vena cava
B pulmonary artery
C pulmonary vein
D aorta

13 Aerobic respiration takes place in the

A nucleus.
B vacuole.
C chloroplast.
D mitochondria.

14 A food sample was mixed with Benedict's solution in a test tube. The test tube was placed into a hot water bath. The solution changed from blue to brick-red.

The food sample contained

A starch.
B glucose.
C protein.
D maltose.

15 Which method is used to separate an insoluble solid from a liquid?

A filtration
B magnetism
C distillation
D evaporation

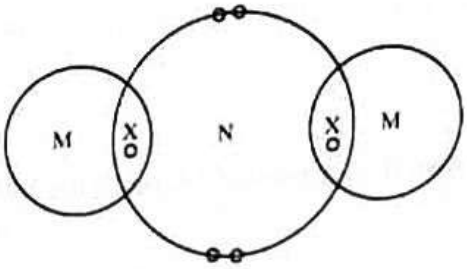
16 The the mass number and the proton number of an element X is shown below.

$^{81}_{35}X$

How many neutrons are there in an atom of element X?

A 35
B 46
C 81
D 116

17 The diagram shows bonding in a compound formed between elements M and N.



In which Group of the Periodic Table is element N found?

A I
B II
C VI
D VIII

18 How many moles are present in 6 grams of carbon?

[mass number of carbon = 12; atomic number of carbon = 6]

A 0.5
B 1.0
C 12.0
D 6.0×10^{23}

19 A metal reacts with steam to produce hydrogen and a

A metal oxide.
B metal salt.
C metal chloride.
D metal hydroxide.

20 A stage in the manufacture of sulphuric acid is shown by the equation:

$$2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g) \quad \Delta H = -94kJ/\ mol$$

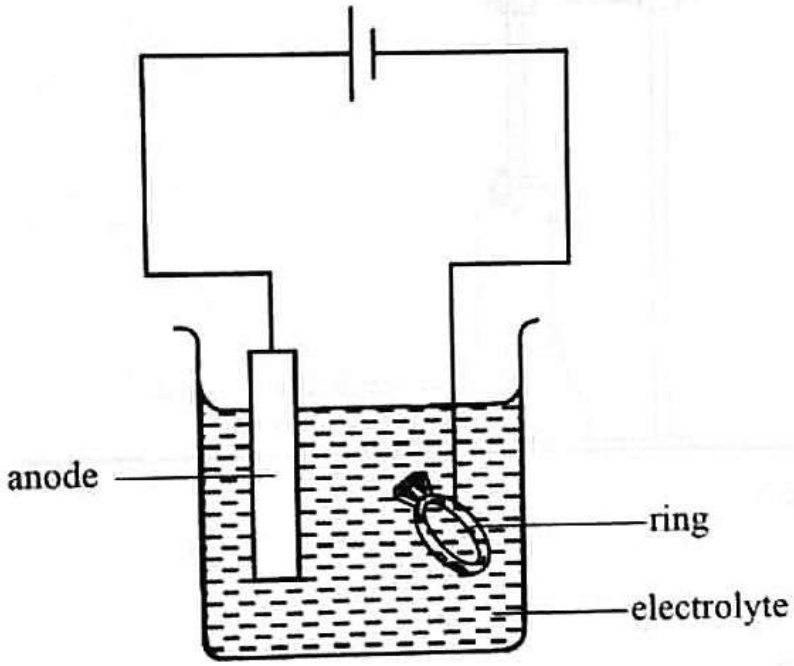
The sign $\rightleftharpoons$ shows that the reaction is

A an endothermic reaction.
B a reversible reaction.
C an exothermic reaction.
D an oxidation reaction.

21 Oxygen is separated from nitrogen by fractional distillation because

A nitrogen makes 78% of the air.
B oxygen is denser than nitrogen.
C nitrogen is an inert element.
D of their different boiling points.

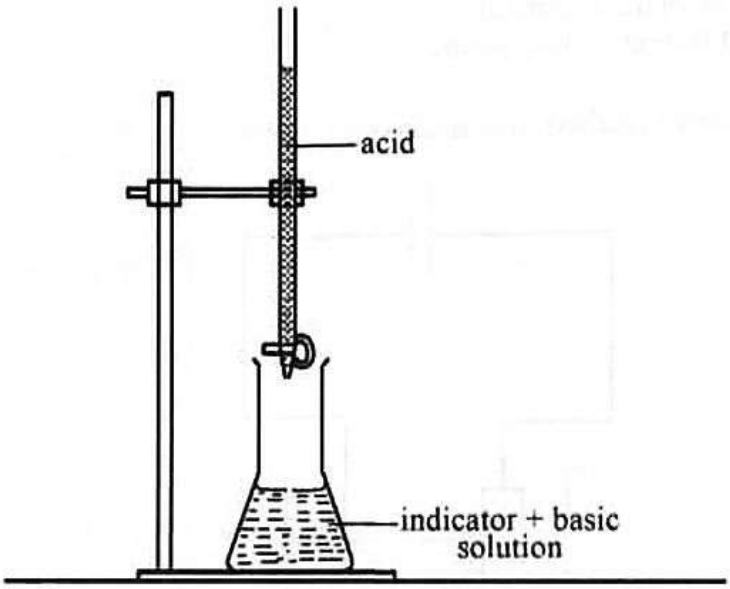
22 The diagram shows a method used to decorate a ring.



The method used is

A alloying.
B painting.
C galvanising.
D electroplating.

23 A salt can be prepared by adding an acid slowly using a burette to a conical flask wich contains an indicator and sodium hydroxide.



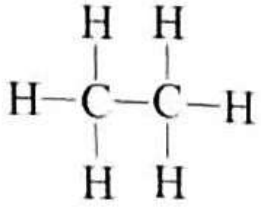
The method used is

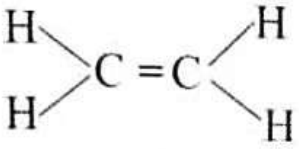
A titration.
B filtration.
C distillation.
D fractional distillation.

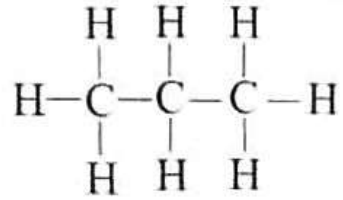
24 Which reaction, in the blast furnace, shows the formation of slag?

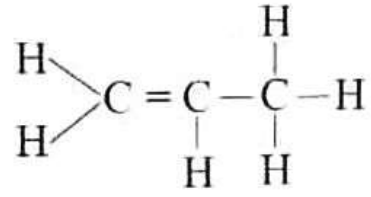
A $CaCO_3 \longrightarrow CaO + CO_2$
B $CO_2 + C \longrightarrow 2CO$
C $Fe_2O_3 + 3C \longrightarrow 2Fe + 3CO$
D $CaO + SiO_2 \longrightarrow CaSiO_3$

25. Which diagram, **A**, **B**, **C** or **D**, shows the structure of ethene?

A 

B 

C 

D 

26 Which statement, about halogens, is correct ?

A They are all gases.
B They are poor oxidising agents.
C Their reactivity increases down the Group.
D They have seven electrons in the outer shell.

27 Which process is used to produce the hydrogen gas needed for the Haber process?

A roasting
B reduction
C electrolysis
D fractional distillation

28 The SI unit of mass is the

A metre.
B gram.
C newton.
D kilogram.

29 The relationship between mass (m) , volume (V) and density (ρ) of a substance is expressed as

A $\rho = \frac{V}{m}$

B $\rho = \frac{m}{V}$

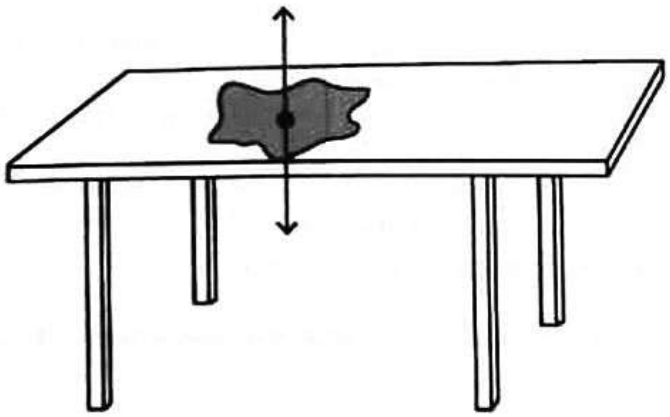
C $\rho = m - V$

D $\rho = V - m$

30 Which pair of physical quantities correctly defines weight and mass?

	weight	mass
A	scalar	vector
B	vector	vector
C	vector	scalar
D	scalar	scalar

31 The diagram shows a stone resting on a table.



Which principle of Newton's laws of motion is shown by the diagram?

A weight is equivalent to mass and velocity
B action and reaction are equal and opposite
C a body remains at rest or in motion unless acted upon by an external force
D acceleration of a mass is proportional to the force provided the mass is constant

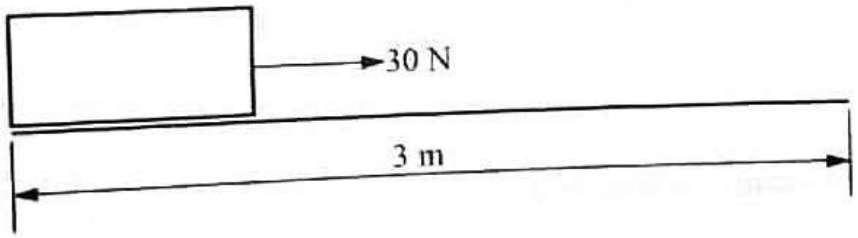
32 Shiny surfaces are

A poor absorbers of heat .
B poor reflectors of heat .
C good emitters of heat .
D good absorbers of heat .

33 Which row one, **A**, **B**, **C** or **D**, correctly describes the events for the compression stroke of a four stroke engine?

	piston direction	**inlet valve**	**exhaust valve**
A	up	closed	closed
B	down	open	open
C	up	open	open
D	down	closed	closed

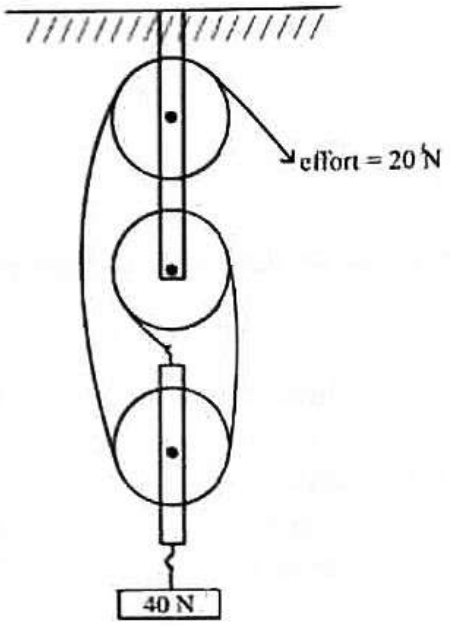
34 The diagram shows an object pulled along a 3 m horizontal surface.



What is the energy used?

A 0.1 J
B 10.0 J
C 33.0 J
D 90.0 J

35 The diagram shows a simple machine.



What is the mechanical advantage of the machine?

A 0.5
B 2.0
C 20.0
D 60.0

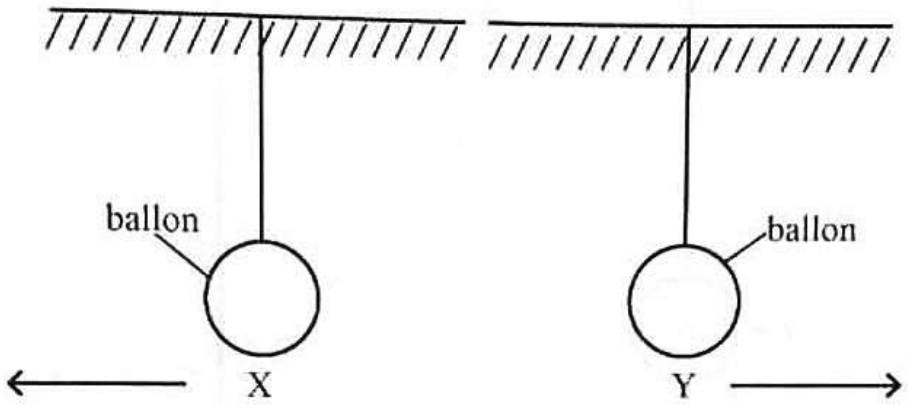
36 Decoding of information is done by a

A cable.
B sender.
C receiver.
D transmission media.

37 Fluid pressure is measured by a

A voltmeter.
B manometer.
C micrometer.
D a photometer.

38 The diagram shows two balloons, X and Y, being brought closer to each other. The balloons repel each other.



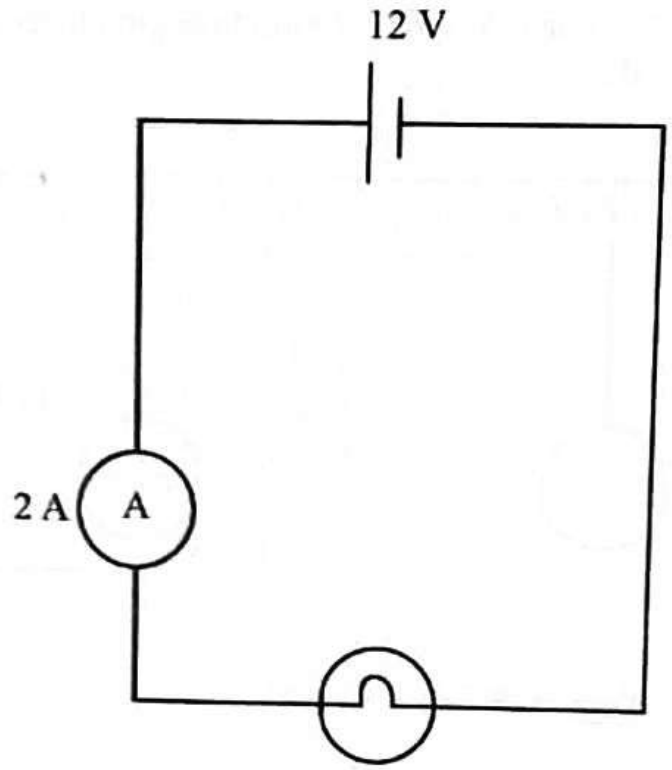
Which are the possible charges on the balloons?

A both are neutral
B both are positively charged
C X is positively charged and Y is negatively charged
D X is negatively charged and Y is positively charged

39 Which factor affects the rotation of a coil in an electric motor?

A direction of coil
B direction of motion of coil
C strength of the magnetic field
D number of coils

40 The diagram shows an electric circuit.



What is the resistance of the circuit?

A 2.0 Ω
B 6.0 Ω
C 12.0 Ω
D 24.0 Ω