2023 Physics 1 Test

Multiple Choice Answer Sheet

Name: Solutions **Year: 8**

Multiple Choice – 20 questions.
Circle your choice. If you change your mind, scrub your choice out and circle the one you want. If it is messy, clearly write your choice next to question.

1.	**A**	B	C	D
2.	**A**	B	C	D
3.	A	B	**C**	D
4.	A	B	C	**D**
5.	A	**B**	C	D
6.	A	B	**C**	D
7.	**A**	B	C	D
8.	**A**	B	C	D
9.	A	B	**C**	D
10.	A	B	C	**D**
11.	A	B	C	**D**
12.	A	B	C	**D**
13.	A	B	C	**D**
14.	A	B	C	**D**
15.	A	**B**	C	D
16.	A	**B**	C	D
17.	**A**	B	C	D
18.	**A**	B	C	D
19.	A	B	**C**	D
20.	A	B	C	**D**

Correct answers: _____ / 20 questions

SECTION 2: WRITTEN

Write your answers in the spaces on the answer sheet provided.

1. Classify each of these energy types as energy in **action** or **potential.** (5)

a) Chemical — Potential ✓

b) Elastic — Potential ✓

c) Gravitational — Potential ✓

d) Heat — Kinetic / Action ✓

e) Sound — Kinetic / Action ✓

KE	PE
Electric	Chemical
Motion	Nuclear
Sound	Gravitational
Thermal	stored-mechanical
Radiant	

2. Using the types of energy from question 1 complete the correct types of energy below (9)

Appliance	Input Energy	Source	Output Energy	Receiver
electric toaster	Electric (a) ✓	power point	(b) Heat ✓	(c) bread ✓
solar hot water system	light (d) ✓	(e) Sun ✓	heat	(f) water ✓
petrol engine	chemical	petrol ✓ (g) fossil fuel	(h) Heat ✓	piston engine (i) ✓

3. State one problem that is associated with using fossil fuels. ~~(1)~~ (2)

Pollution. ✓ Non-renewable. ✓

$$\%\ \text{Energy Efficiency} = \frac{\text{Output (J)}}{\text{Input (J)}} \times 100$$

4. A hot water system is 65% efficient. If it is supplied with 1000 Joules of energy, how much heat energy will it produce? Show all working out. (2)

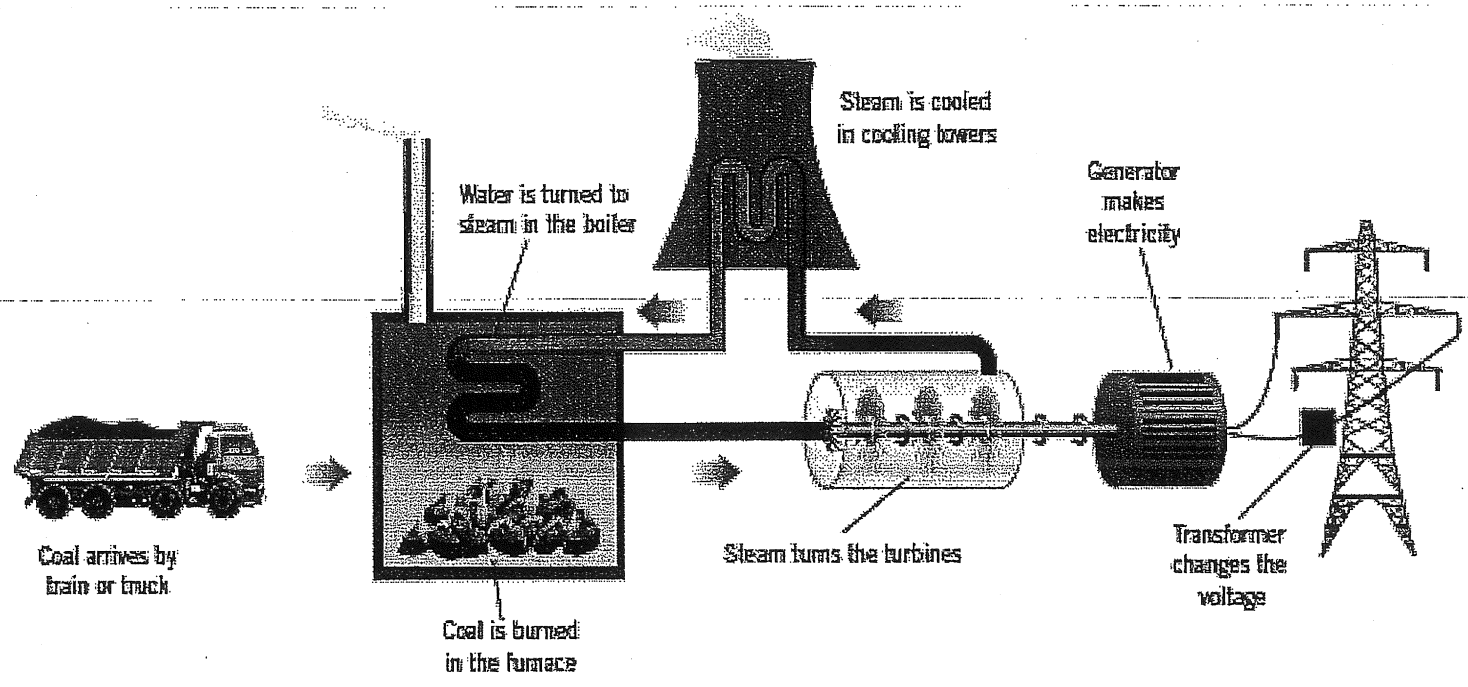
$$\frac{65\%}{100} = \frac{\text{Output}}{1000\text{J}}$$

$$\text{Output (J)} = \frac{65}{100} \times 1000 = 650\text{J}$$

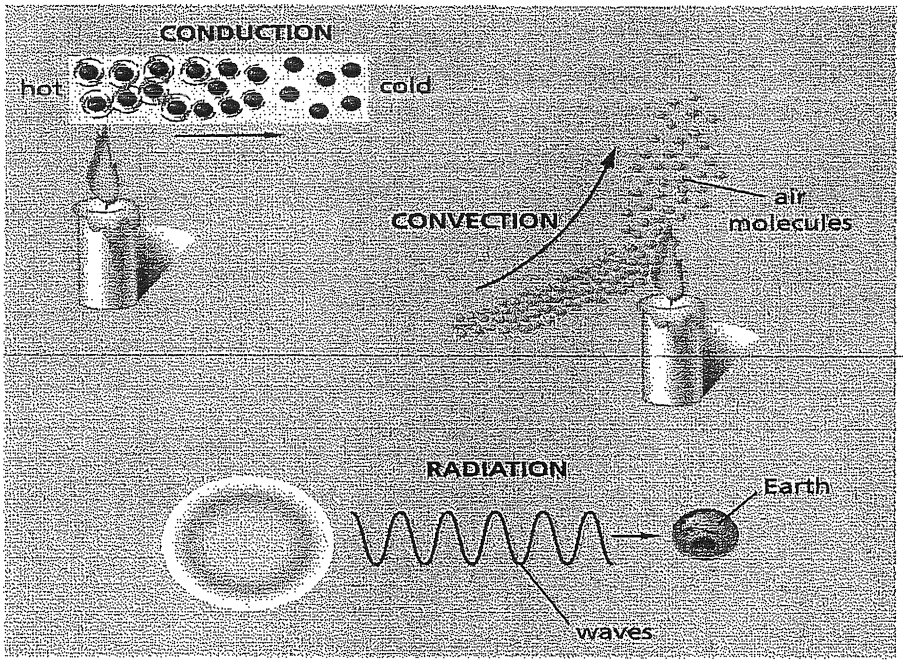
5. Draw an energy flow diagram to represent the coal fired power station shown in the diagram below (4)

CHEMICAL Energy (COAL) → HEAT (furnace) → KINETIC (turbine) → Electric (generator)

A coal-fired power station



6. The diagram below shows conduction, convection and radiation. Use these diagrams to explain how heat travels by each method.(3)
Answer on the next page



Method of Energy Transfer	Explanation of how heat travels this way.
Conduction	Heat energy is transmitted through collisions (vibration) between neighbouring atoms or molecules. ✓
Convection	Occurs when particles with a lot of heat energy in a liquid or gas move and take the place of particles with less heat energy. Heat energy is transferred from hot places to cooler places by convection. Liquids and gases expand when they are heated. ✓
Radiation	Happens when heat moves as energy waves, called infrared waves, directly from its source to something else ✓

These methods of heat transfer travel through solids, liquids and gases.
Label the following as a **good** or **poor** conductor of heat. (6 marks)

State	Solid	Liquid	Gas
Conduction	Very good ✓	Good	Not happening ✓
Convection	Not happening ✓	Good	Good ✓
Radiation	Not happening ✓	Poor	Poor ✓ (best in vacuum)

END OF TEST (OUT OF 50 MARKS)