

Answer all the questions below:

 Click mouse to reveal answer

1) Unscramble the following words:

atiodinra

coectionv

ablenerew

effiencyci

2) Make three sentences using the following nine words or phrases:

heat transfer
conduction
energy resources

hot objects
convection
renewable

cooler surroundings
radiation
electricity generation

3) Match the word or phrase with the right meaning:

Conduction



A network of cables transporting electricity across the country

Efficiency



Transfer of heat energy in solids from atom to atom

National grid



The useful energy output divided by the total input energy

Answers:

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radiation

convection

renewable

efficiency

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3) Match the word or phrase with the right meaning:

Conduction



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Efficiency



The useful energy output divided by the total input energy

National grid



A network of cables transporting electricity across the country

complete the sentence

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Place the right word or words to complete the sentence:



Click mouse to reveal answer

cooler

rate

good

nuclear

heat

wind

generate

easily

device

- Heat is transferred to _____ surroundings by conduction, radiation and convection.
- Dark objects are _____ absorbers and emitters of thermal radiation.
- Metals are good conductors of _____ energy. This is why they feel 'cold' to the touch.
- The efficiency of a _____ tells us how good it is at transferring energy into useful forms.
- Electrical energy is very useful because it is _____ transformed to other energy forms by devices like toasters, bulbs and televisions.
- Power is the _____ at which a device like a toaster or television transforms energy.
- Using renewable energies to _____ electricity doesn't contribute to global warming.
- An average _____ power station only uses approximately 1 kg of fuel every day.
- By 2020, the UK will generate about 10% of its electricity by using _____ power.

Physics 1A (PHY 1A)

complete the sentence

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Place the right word or words to complete the sentence:

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cooler

rate

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- a) Heat is transferred to cooler surroundings by conduction, radiation and convection.
- b) Dark objects are good absorbers and emitters of thermal radiation.
- c) Metals are good conductors of heat energy. This is why they feel 'cold' to the touch.
- d) The efficiency of a device tells us how good it is at transferring energy into useful forms.
- e) Electrical energy is very useful because it is easily transformed to other energy forms by devices like toasters, bulbs and televisions.
- f) Power is the rate at which a device like a toaster or television transforms energy.
- g) Using renewable energies to generate electricity doesn't contribute to global warming.
- h) An average nuclear power station only uses approximately 1 kg of fuel every day.
- i) By 2020, the UK will generate about 10% of its electricity by using wind power.

Physics 1A (PHY 1A)

multiple choice

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1: Which of the following statements is not correct ?

- A Cold objects emit radiation
 - B Convection only happens in solids
 - C Hot objects can absorb radiation
 - D Temperature is measured in °C
-

2: A mobile phone transforms electrical energy into which three forms of energy ?

- A Kinetic, light and chemical
 - B Heat, light and sound
 - C Light, heat and nuclear
 - D Sound, kinetic and chemical
-

3: Which method of generating electricity uses falling water ?

- A Wind turbine
 - B Solar cells
 - C Hydroelectric dam
 - D Coal fire power station
-

4: Inside a power station, what is the correct sequence ?

- A Coal > Heat > Steam > Turbine
 - B Coal > Steam > Turbine > Heat
 - C Turbine > Coal > Heat > Steam
 - D Steam > Turbine > Heat > Coal
-

Physics 1A (PHY 1A)

multiple choice

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1: Which of the following statements is not correct ?

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B Convection only happens in solids

C

D

2: A mobile phone transforms electrical energy into which three forms of energy ?

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B Heat, light and sound

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3: Which method of generating electricity uses falling water ?

A

B

C Hydroelectric dam

D

4: Inside a power station, what is the correct sequence ?

A Coal > Heat > Steam > Turbine

B

C

D



Click mouse to reveal answer

5: Which of the following statements about heat transfer is not true ?

- A A thermos can only keep things hot
 - B Blankets reduce heat transfer
 - C Foil reflects radiated heat
 - D Dark objects are good absorbers of heat
-

6: What is the meaning of an energy efficient device ?

- A It cost less to run
 - B It uses less electrical energy
 - C It costs less to buy
 - D It lasts longer
-

7: A bulb has a power of 60 watts. How many joules does it use in 10 seconds ?

- A 60 joules
 - B 6 joules
 - C 600 joules
 - D 6000 joules
-

8: Polystyrene is a poor conductor of heat because it ?

- A Is synthetic
 - B Is light
 - C Traps air
 - D Is warm to the touch
-

Physics 1A (PHY 1A)

multiple choice

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5: Which of the following statements about heat transfer is not true ?

A **A thermos can only keep things hot**

B

C

D

6: What is the meaning of an energy efficient device ?

A

B **It uses less electrical energy**

C

D

7: A bulb has a power of 60 watts. How many joules does it use in 10 seconds ?

A

B

C **600 joules**

D

8: Polystyrene is a poor conductor of heat because it ?

A

B

C **Traps air**

D



Click mouse to reveal answer

9: A television is 23% efficient. What is the input energy if the output was 230 joules ?

- A 100 joules
 - B 2300 joules
 - C 1000 joules
 - D 960 joules
-

10: What statement about all electrical devices is incorrect ?

- A All machines waste some energy
 - B All machines produce heat energy
 - C Some machines are 100% efficient
 - D Efficient machines waste less energy
-

11: Heat transfer from a hot cup of coffee to its surroundings can be reduced by ?

- A Drinking it quickly
 - B Insulating the cup
 - C Not stirring the coffee
 - D Not adding sugar
-

12: In a house, cavity wall and loft insulation works by ?

- A Trapping air molecules
 - B Reflecting heat back
 - C Stopping drafts
 - D Stopping the cold coming in
-

9: A television is 23% efficient. What is the input energy if the output was 230 joules ?

A

B

C 1000 joules

D

10: What statement about all electrical devices is incorrect ?

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Physics 1A (PHY 1A)

true or false

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Decide whether the following statements are true or false:



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Statements:	True	False
1: Heat energy transfers to cooler surroundings by conduction, radiation and convection ?	True	False
2: Infra red radiation is emitted by only very hot objects ?	True	False
3: Dark objects are good absorbers and emitters of thermal radiation ?	True	False
4: Warm gases and liquids rise due to changes in their densities ?	True	False
5: Metals are good conductors of heat energy. This is why they feel 'cold' to the touch ?	True	False
6: A vacuum 'thermos' flask is designed to reduce heat transfer by convection only ?	True	False
7: An object's volume to surface area ratio will affect how quickly heat is transferred from it ?	True	False
8: Insulators like fur and wool work because they trap air, so heat loss by convection is less ?	True	False
9: The efficiency of a device tells us how good it is at transferring energy into useful forms ?	True	False
10: Normal filament bulbs are about 90% efficient ?	True	False

Physics 1A (PHY 1A)

true or false

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Physics 1A (PHY 1A)

true or false

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Decide whether the following statements are true or false:



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Statements:	True	False
1: The formula to work out the energy transferred to a device is power x time ?	True	False
2: Electrical energy is not useful because it is not easily transformed to other energy forms ?	True	False
3: An appliance that has a power rating of 500 watts will use 100 joules of energy per second ?	True	False
4: Power is the rate at which a device like a toaster or television transforms energy ?	True	False
5: Oil reserves will last approximately 300 years at current usage rates ?	True	False
6: The energy trapped in oil is used to produce steam, which then drives a turbine generator ?	True	False
7: Electricity is transported at high voltage across the national grid because it is safer ?	True	False
8: Using renewable energies to generate electricity doesn't contribute to global warming ?	True	False
9: An average nuclear power station only uses approximately 1 kg of fuel every day ?	True	False
10: By 2020, the UK will generate about 10% of its electricity by using wind power ?	True	False

Physics 1A (PHY 1A)

true or false

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Answers:

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5: Oil reserves will last approximately 300 years at current usage rates ?		False
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7: Electricity is transported at high voltage across the national grid because it is safer ?		False
8: Using renewable energies to generate electricity doesn't contribute to global warming ?	True	
9: An average nuclear power station only uses approximately 1 kg of fuel every day ?	True	
10: By 2020, the UK will generate about 10% of its electricity by using wind power ?	True	