Energy Resources – 2020 IGCSE 0625

1. March/2020/Paper_12/No.10

Which row describes an advantage and a disadvantage of wind turbines?

	advantage	disadvantage
A	no fuel needed	harmful gases released
B	variable supply	fuel needed
C	no harmful gases released	variable supply
D	constant supply	noisy

2. March/2020/Paper_22/No.11

Which row describes an advantage and a disadvantage of wind turbines?

	advantage	disadvantage
A	no fuel needed	harmful gases released
B	variable supply	fuel needed
C	no harmful gases released	variable supply
D	constant supply	noisy

3. March/2020/Paper_32/No.5

Fig. 5.1 shows a wind turbine.

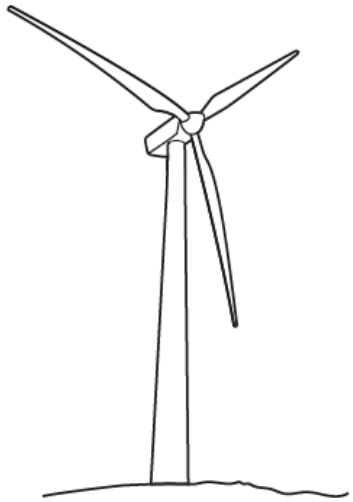


Fig. 5.1

(a) Describe how the wind turbine produces electrical energy.

.....

.....

.....

..... [3]

(b) Wind turbines are used in many countries to replace coal-fired power stations.

(i) State **one** disadvantage of using wind turbines compared to coal-fired power stations.

.....

..... [1]

(ii) State **two** advantages of using wind turbines instead of coal-fired power stations.

1. .....

2. .....

[2]

[Total: 6]

4. March/2020/Paper_42/No.3

Fig. 3.1 shows a model of a wind turbine used to demonstrate the use of wind energy to generate electricity. The wind is blowing towards the model, as shown.

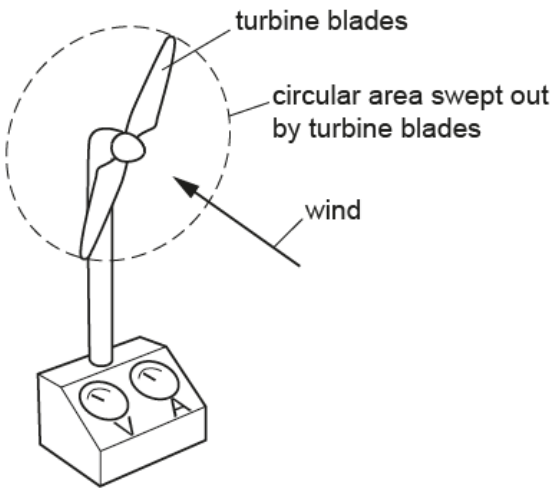


Fig. 3.1

(a) The mass of air passing through the circular area swept out by the turbine blades each second is 7.5 kg. The kinetic energy of the air that passes through this circular area each second is 240 J.

(i) Calculate the speed of the air.

speed = ... [3]

(ii) The kinetic energy of the air drives a generator. State the input power of the air passing through the turbine blades.

input power = ... [1]

(b) The output current of the generator is 2.0A. The output potential difference (p.d.) of the generator is 11 V.

(i) Calculate the output power of the generator.

output power = ... [2]

(ii) Calculate the efficiency of the wind turbine.

efficiency = ... % [2]

(c) The density of air is 1.3 kg / m^3.
Calculate the volume of air passing through the circular area swept out by the turbine blades each second.

volume = ... [2]

[Total: 10]

5. June/2020/Paper_12/No.9

Which energy resource is **not** renewable?

A geothermal

B nuclear fission

C solar

D wind

6. June/2020/Paper_13/No.10

Which energy resource stores kinetic energy?

A coal

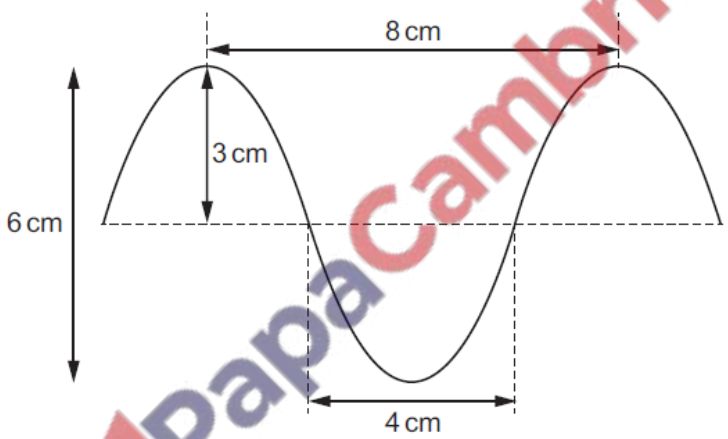
B nuclear fission

C solar

D wind

7. June/2020/Paper_21/No.11

The diagram shows a wave.

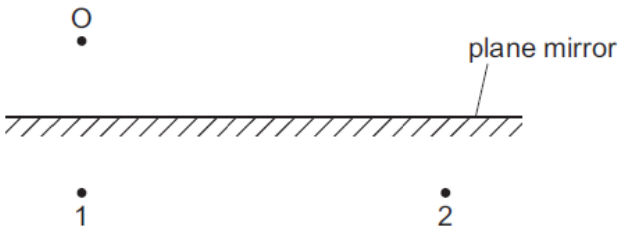


What are the amplitude and the wavelength of this wave?

	amplitude / cm	wavelength / cm
A	3	4
B	3	8
C	6	4
D	6	8

8. June/2020/Paper_22/No.10

An object O is placed in front of a plane mirror as shown.



Which row is correct?

	position of the image	nature of the image
A	1	real
B	1	virtual
C	2	real
D	2	virtual

9. June/2020/Paper_42/No.3

(a) A solar panel receives energy from the Sun at a rate of 5.0 kW.

Thermal energy is transferred from the solar panel to water with an efficiency of 20%.

Cold water of mass 15 kg enters the solar panel every hour.

The specific heat capacity of water is 4200 J/(kg °C).

Calculate the temperature increase of the water.

temperature increase = ... °C [4]

(b) State and explain **one** advantage and **one** disadvantage of heating the water in a solar panel compared with heating the water in a coal-burning boiler.

advantage .....

explanation .....

.....

disadvantage .....

explanation .....

..... [4]

[Total: 8]