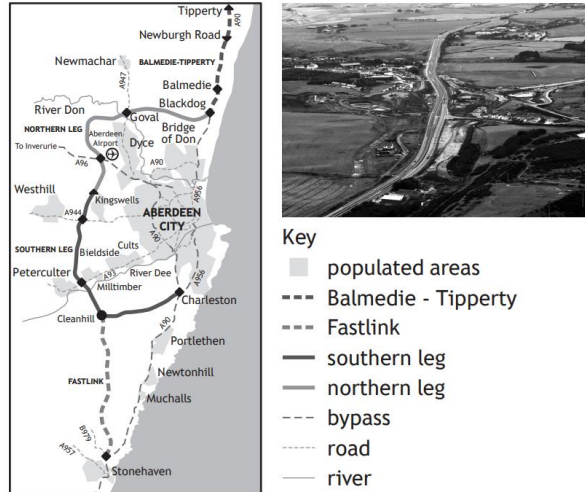


3. Engineering Roles Past Paper Problems

2019 Q5.

1. Engineers are involved in large scale projects such as the Aberdeen city bypass road shown below.



- a) State the branch of engineering that would be responsible for
- i. designing the connecting roads 1
 - ii. monitoring the impact to local wildlife during construction 1

2019 Q11

2. A visitor centre is to be built next to a viewing platform.
An electrical engineer works as part of a team designing the visitor centre.
- a) Describe two tasks an electrical engineer would carry out during the design. 2

2018 Q1.

3. A team of engineers is designing a kitchen blender.



- a) State the type of engineer that would calculate the size of the gears to be used in the kitchen blender. 1
- b) State the type of engineer that would simulate the speed control circuit in the kitchen blender. 1

4. A sailing catamaran is shown.



Describe two specific roles a structural engineer may have had in the development of the catamaran.

2017 Q10

5. A boiling water tap and heating tank is shown below. It is installed in a busy office kitchen, where 200 staff can make hot drinks throughout the day. The temperature of the water is monitored by an electronic circuit.

Describe two tasks an Electronic Engineer would have undertaken when designing this circuit

2

2016 Q9

6. State what type of engineer would be responsible for developing the lubricants used in a gear drive.

2015 Q8

7. A geothermal power station is shown below.



Describe the role of:

- a) a mechanical engineer during the design of the power station;
- b) a civil engineer during the construction of the power station;
- c) an electrical engineer during the monitoring of the power station.

1

1

1

2015 Q13

8. A rollercoaster is shown below.



- a) Describe two tasks a structural engineer would undertake during the design of the rollercoaster's structure.

2

An electronic engineer used computer simulation during the design of the rollercoaster.

- b) State one feature of the rollercoaster design that the electronic engineer would simulate.

1