The answers are starting with the top right hand organs, and proceeding clockwise...
Parathyroid glands, pancreas, testes, ovaries, kidney, adrenal glands, thymus, thyroid gland, pituitary gland, hypothalamus.

<table>
<thead>
<tr>
<th>Gland</th>
<th>Hormone(s)</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothalamus</td>
<td>ADH &amp; Oxytocin</td>
<td>ADH – Reabsorption of water; Oxytocin – promotion of contractions during labour; letting down breast milk</td>
</tr>
<tr>
<td>Pituitary Gland</td>
<td>Growth Hormone Follicle Stimulating Hormone Luteinising Hormone</td>
<td>Growth hormone promotes growth pre-puberty; FSH – sperm production in males, egg production in females LH – influence synthesis and release of progesterone</td>
</tr>
<tr>
<td>Thyroid Gland</td>
<td>Thyroxine Calcitonin</td>
<td>Thyroxine – influences metabolic rate Calcitonin – promotes Calcium uptake</td>
</tr>
<tr>
<td>Parathyroid Gland</td>
<td>Parathyroid Hormone</td>
<td>Activation of osteoclasts to release calcium from bone stores</td>
</tr>
<tr>
<td>Thymus</td>
<td>Thymosin</td>
<td>In children, development of T cells</td>
</tr>
<tr>
<td>Adrenal Gland</td>
<td>Adrenaline Noradrenaline Aldosterone</td>
<td>Adrenaline &amp; Noradrenaline promote the ‘fight or flight’ responses e.g. increased heart rate, vasodilation of capillaries in skeletal muscle and brain etc; Aldosterone – increases blood pressure by sparing salt [sodium] and therefore saving water.</td>
</tr>
<tr>
<td>Kidney</td>
<td>Erythropoetin</td>
<td>Promotes synthesis of RBC</td>
</tr>
<tr>
<td>Pancreas</td>
<td>Insulin Glucagon</td>
<td>Insulin promotes uptake of glucose into liver, adipose and muscle tissues; Glucagon promotes release of glucose from glycogen stores.</td>
</tr>
<tr>
<td>Ovaries</td>
<td>Oestrogen</td>
<td>Proliferation of endometrium; female secondary sexual characteristics</td>
</tr>
<tr>
<td>Testes</td>
<td>Testosterone</td>
<td>Male secondary sexual characteristics</td>
</tr>
</tbody>
</table>
**Task, page 89**

Humoral control is achieved in response to changes in blood concentrations of chemicals e.g. control of glucose by insulin and glucagon is an example of simple endocrine or humoral control.

Neural control is exerted by the nervous system e.g. release of ADH is nervous control.

Hormonal control is where the presence of one hormone encourages or inhibits the presence of another hormone. E.G. follicle stimulating hormone [FSH] encourages the female eggs to develop, and it also encourages the secretion of oestrogen too. Oestrogen in turn has a positive feedback effect and encourages the production of more FSH.

**Task page 90.**
The diagram shows that we are continually having to adjust to changes in our external and internal surroundings – if we do this properly, then we are well. If we cannot do this, then disease or death may ensue.

**Task, page 91**
From left to right the words are…

Sensor thermostat valve

**Task, page 92**

Sensor comparator/control centre effector

**Task, page 93.**
Negative feedback is where an effector that is activated by a comparator/control centre opposes or gets rid of the stimulus in the system.

The advantage of this type of feedback is that they allow a small range of fluctuation of values, but prevent a system ‘running away’ with itself e.g. producing more and more of a product [like the buckets and mops in the Sorcerers’s Apprentice]

Positive feedback is where the stimulus in a system increases the effects of the system, promoting the effector’s responses.
### Task, page 95
A meal; eating glucose tablets; drinking lucuzade

Insulin from beta cells, and glucagon from alpha cells

Glucose is converted to glycogen. Glycogen is found in liver and muscle

Glucose is mainly released from liver, but is also released from the liver and muscle stores.

### Task, page 96
SUBJECT 1 insulin peak about 30 min, subject 2 about 60 min

### Task, page 97,
Water gains from – fluid ingestion; food; waste water from metabolism
Water losses by – sweating, breathing, urination, tears, secretions, faeces

### Task, page 97
The osmoreceptors act as sensors

### Task, page 97
The pituitary secretes ADH which then acts on the kidney.