

## Answers for support worksheet – Chapter 11

**1 a** (3 – 1 mark for each row)

	Active immunity	Passive immunity
Immunity can be acquired naturally and artificially.	✓	✓
The person produces memory cells.	✓	✗
The person produces an immune response.	✓	✗

**b** any two of: elimination of disease; prevention of epidemics; reduction in health care costs (2)

**c** any two of: possible toxic effects; adverse reactions in some people; possible overload of the immune system (2)

**2 a** false (1)

**b** true (1)

**c** false (1)

**d** true (1)

**3** (8 – 1 mark for each correctly filled box)

Hormone	Produced in	Target organ	Effect of hormone
FSH (follicle stimulating hormone)	pituitary gland	ovary	stimulates maturation of a primary follicle
estrogen	ovary	uterus	growth of uterus lining after menstruation
progesterone	corpus luteum	uterus	stimulates thickening of the uterus lining before ovulation and maintains it during pregnancy
oxytocin	posterior pituitary gland	uterus	causes contractions of the uterus at birth

**4 a** Water loss in sweat and exhalation would increase. (1)

This is because exercise would increase the breathing rate and produce heat, which would be lost by increased sweating. (2)

**b** In hot weather, sweating increases to cool the body so more water is lost in this way. To conserve water in the body, less water is lost in urine, which becomes more concentrated and the volume of urine decreases. (2)

**c** The water balance of the body is important to maintain the correct osmotic balance in cells. (2)

- 5 a As a nerve impulse arrives at a neuromuscular junction, the neurotransmitter **acetylcholine** is released. When this stimulates the muscle membrane, **calcium ions** are released from the sarcoplasmic reticulum. These ions enable the interaction of two muscle proteins, **actin** and **myosin**. (4)

b (5)

Description	Molecule or structure
supplies energy for breaking cross-bridges to reset myosin heads	ATP
protein molecules that form the thin filament of a myofibril	actin
interaction of these two molecules produces the dark bands seen in microscope images of skeletal muscle	actin and myosin
attach muscles to bones	tendons
lubricating substance released at certain joints to allow smooth movement	synovial fluid