head and midpiece/mid-section/body;
tail/flagellum; *(at least four times length of the head and containing fibres)*
acrosome; *(shown as distinct structure near front of head)*
nucleus; *(occupying more than half the width or length of head)*
mitochondria; *(as repetitive structures inside membrane of mid piece)*
centriole; *(between head and midpiece)*
(plasma) membrane; *(shown as single line covering whole cell)*
microtubules; *(in 9 plus 2 array)* 4 max

(b) FSH promotes development of a new follicle;
also leads to the production of estrogen;
estrogen brings about repair and growth of uterine lining;
estrogen causes negative feedback of FSH;
estrogen brings about LH production;
LH stimulates follicle growth;
LH triggers ovulation;
estrogen contributes to the proliferative phase of the uterine cycle / triggers LH surge;
progesterone contributes to the secretory phase of the uterine cycle/ maintains uterus lining;
lowered level of progesterone (due to degeneration of corpus luteum) leads to menstruation; 6 max

(c) *cause:* ***[4 max]***
AIDS caused by HIV;
penetrates (T) lymphocytes;
(envelope/glyco)protein and cell receptors involved;
reverse transcriptase enables DNA to be produced from viral RNA; *(reject DNA transformed into RNA)*

number of lymphocytes reduced over years;
results in lower immunity;
other illnesses develop (as result of lower immunity);
AIDS is the observed syndrome when final stages of infection develop / *OWTTE*;

transmission: ***[3 max]***
HIV transmitted through blood/sexual contact/body fluids/placenta/ childbirth/breastfeeding;
distribution/transmission uneven around the world;
transmission risk increased depending on society's traditions/beliefs/ behaviour;
(rare minority of) individuals do not have cell receptors and do not develop AIDS;
condoms/latex barriers only protection against transmission through sexual contact;

thick myosin fibres;
arrival of action potential;
release of Ca^{2+};
from sarcoplasmic reticulum;
exposes binding sites of myosin fibres;
ATP used to break cross bridges between myosin and actin fibres;
hydrolysis of ATP resets myosin head;
causing sliding of actin and myosin; 8 max

*(Plus up to **[2]** for quality)*

15. (a) *Award **[1]** for each structure correctly drawn and labelled.*
esophagus — attached to both mouth and stomach;
stomach — j-shaped sac attached to esophagus and u-shaped portion of small intestine;
large intestine — wider diameter than small intestine, attached to small intestine;
pancreas —eaf-shaped, in u-shaped region of small intestine with small duct
connected to small intestine;
liver — large, triangular, to left of stomach;
gall bladder — small sac drawn on top of liver with tube connected to small
intestine at same region as duct from pancreas;
anus — at end of large intestine but narrower in diameter; 4 max

(b) large molecules cannot be absorbed;
mechanical digestion only to break down food physically;
enzymes breakdown large molecules into smaller ones (that can be absorbed);
need several enzymes as they are substrate specific;
enzymes speed up the rate of digestion considerably;
higher speeds at low / normal body temperature;
named example of enzyme;
example of named enzyme's action; 6 max

(c) important that some products of digestion not lost;
products in the blood stream;
ultrafiltration in the glomerulus;
fenestrated capillaries / podocytes;
basement membrane acts as the filter;
proteins too large to pass through;
importance of proximal convoluted tubule;
reabsorption of salts / glucose / ions / other named substance;
microvilli;