

Question 26 (Answer: D)

- The fetus needs oxygen and glucose, so those move from mother to fetus.
- The fetus produces carbon dioxide and urea, so those move from fetus to mother.
- So each substance moves down its own concentration gradient, in the direction the fetus needs.

Question 27 (Answer: C)

- The uterus is the thick-walled muscular chamber where the fetus develops.
- Above it the two oviducts lead to the ovaries.
- Below it the narrow cervix opens into the vagina.

Question 28 (Answer: D)

- The umbilical *artery* carries blood away from the fetus, towards the placenta.
- So it carries the deoxygenated blood, loaded with carbon dioxide and urea.
- The umbilical vein brings oxygenated, glucose-rich blood back to the fetus – the reverse of the usual artery/vein rule.

6(a)	letter in Fig. 6.1	name of the structure	function
	C	scrotum	contains / protects / holds / AW, <u>testes</u> / D
	F	prostate gland	produces seminal fluid
	A	<u>urethra</u>	transports urine and sperm
	E	<u>sperm duct</u>	transport sperm (to urethra)

6(b)	testosterone ;		
6(c)	<i>any three from:</i> 1 <u>flagellum</u> / <u>flagella</u> , for, moving / swimming ; 2 mitochondria to release energy for, moving / swimming ; 3 acrosome to contain enzymes ; 4 enzymes to break down the jelly (coat of the egg) ; 5 haploid nucleus for fusing with the egg nucleus ; 6 streamlined, shape / head, for swimming / AW ;		

Question 8 (Answer: B)

- Substances the fetus needs – oxygen and glucose – move from mother to fetus.
- Waste such as carbon dioxide and urea moves the other way.
- So the tissue that substance 1 leaves and substance 2 enters is the maternal side.

4(a)(i)	1 maternal and fetal blood are kept separate / AW ; <i>plus any three from:</i> 2 umbilical cord / placenta, transfers named substance, from mother / to fetus ; 3 umbilical cord / placenta, transfers named substance, from fetus / to mother ; 4 umbilical cord / placenta, transfers, antibodies / passive immunity, from mother / to fetus ; 5 placenta forms barrier to, toxins / pathogens ; 6 placenta secretes, progesterone / oestrogen ; 7 AVP ;
4(a)(ii)	<i>any three from:</i> 1 protects, (fetus) against (mechanical) damage ; 2 regulation of temperature ; 3 allows fetus to move / allows muscle or bone development ; 4 protects fetus from infection / provides antibodies ; 5 allows lung development ; 6 sac, produces amniotic fluid ; 7 AVP ;
4(b)(i)	HIV / named STI ;
4(b)(ii)	<i>any two from:</i> (named) barrier method of contraception / condom / femidom ; abstinence ; (regular) testing / screening ; education ; tracing sexual partners ; use of antibiotics ; vaccination ; AVP ;