

Question	E	Answers	Marks	Additional Guidance
1 (a) (i)		follicle stimulating hormone / FSH ; oestrogen ;	[2]	
	(ii)	ovary ;	[1]	
(b)	1 2 3 4 5 6 7	thickens / maintains, endometrium / lining of, uterus / womb ; prepares (endometrium) for implantation ; prevents menstruation / stops menstrual cycle in pregnancy ; promotes development / maintains, blood vessels / glands (in endometrium) ; prevents FSH secretion / inhibits LH ; prevents follicle development ; AVP ; e.g. prevent muscle contraction of uterus wall	[max 3]	R wall ecf thereafter  A stimulates mammary glands
(c)	1 2 3 4 5 6  7 8 9 10 11	<i>advantages to max 2</i> (passive) immunity / antibodies (to baby) ; develops bond between baby and mother ; <i>idea of composition matches baby's needs / easier to digest ;</i> reduced risk of cancers (child or mother ) ; cost ; AVP ; e.g. milk is sterile / at body temperature / less chance of allergy  <i>disadvantage to max 1</i> difficulty in producing (enough) milk ; embarrassment ; nipples become painful ; cannot delegate to (male) partner / AW ; AVP ; e.g. HIV, some drugs, nicotine may be transmitted	[max 3]	
<b>[Total: 9]</b>				

Question	E	Answers	Marks	Additional Guidance
2 (a)		X – menstruation / described ; Y – ovulation / described ;	[2]	R ova produced
(b)	1 2 3 4 5 6 7 8	<i>stimulates</i> repair of the, endometrium / lining of uterus ; <b>A</b> womb thickening / building up, of endometrium ; development / AW, of blood (vessels) / glands ; prepares (uterus) for, implantation / reception of ‘egg’ or embryo ; release of LH ; inhibits release of FSH (from pituitary) ; stops, production / release, of more eggs ; causes change in cervical mucus ;	[max 4]	R repair/thickening of uterus <u>wall</u> in MP1 and 2  A ref to uterus (alone) for MP 3 and 4
(c) (i)		FSH is, given / taken / injected, at beginning of the cycle ; stimulates development of, follicles / eggs ; many / several / more than one ; reason women may be infertile is not producing, any / enough, FSH ; enables IVF ;	[max 2]	R ova produced/made  A follicles produced/made A FSH causes more ova to be released
(ii)		allows infertile couples to have children ; may not treat infertility successfully ; expense of fertility treatment ; may lead to multiple births ; AVP ; e.g. ref. to adverse effects	[max 1]	I ref. to religious beliefs
(d)		so no more eggs released ; no fertilisation ; no more embryos ; <i>idea that</i> do not have, embryos / fetuses / ‘babies’, at different stages of development in the womb at the same time ;	[2]	
<b>[Total: 11]</b>				

- 3 (a) penis becomes, firm / erect ;  
penis inserted into vagina ;  
ejaculation ;  
sperm / semen, deposited, in vagina / near cervix ; [max 2]
- (b) ( mechanical / barrier ; **A** physical [1]
- (ii) semen / sperm, collect / trapped, in condom ; **A** cannot enter female  
so fertilisation is not possible / sperm cannot reach egg *or* oviduct / AW ;  
**A** male gamete for sperm **R** 'sperm cannot reach ovary' [2]
- (c) ( 1 HIV transmitted in, semen / vaginal fluids / body fluids / blood ;  
2 from infected to, uninfected / AW, during sexual intercourse ;  
3 condoms, prevent contact between body fluids ; **A** mixing of body fluids  
4 (no condoms) more unprotected sex / greater chance of infection ; [max 2]
- (ii) sharing needles (during drug taking) ; **R** unsterilised / used  
tattoos / body piercing ;  
(transmission in) blood products / blood transfusion / transplants ;  
**A** blood to blood contact, e.g. open wounds ;  
**A** refs to breast milk ; across placenta ; (blood mixing) at birth ; [max 2]
- (iii) virus, invades / attacks / kills, lymphocytes / CD4 cells / T cells ;  
**R** white blood cells unqualified  
antibodies, not produced / don't work / not effective ; *ora*  
phagocytes not as effective ; *ora*  
loss of (existing) immunity ;  
cannot defend against / (more) susceptible to / less resistance to ,  
pathogen / infection / disease ; **A** ref to opportunistic infection  
**R** 'fight' disease / infection [max 3]
- (d) ( sores / ulcers, on, penis / genitals ;  
discharge (of pus) from, penis / urethra / sex organ(s) ;  
(male) pain when urinating ;  
inflammation of, testes / prostate / urethra / vagina ;  
discharge of pus from the vagina ; [max 1]
- (ii) *accept any from (i) if not already given*  
damage to, urinary / reproductive, organs ;  
sterility / infertility ;  
blindness in a baby born to a mother with the disease ;  
abdominal pain ;  
produce antibodies ; [max 1]
- (iii) use antibiotic(s) / named antibiotic ; **A** penicillin (although not used now) [max 1]

**[Total: 15]**

4 (a) (where sperm are stored before ejaculation) E ;  
(is cut or tied during a vasectomy) B ;  
(produces fluid for sperm to swim in) C ;  
(where meiosis occurs) F ; [4]

(b) (i) urethra ; [1]

(ii) reduction in flow of urine / difficult to urinate ;  
difficult to empty bladder ;  
pain (when urinating) ;  
needing to urinate more often ;  
dribbling / spraying, of urine ;  
increased risk of infections of, bladder / kidney / prostate / urethra ;  
difficult to ejaculate ; A difficulty in release of, sperm / semen [max 2]

(c) *many examples that candidates may give*

named structure ;  
how diameter is reduced ;  
purpose ; [3]

(d) fertility drugs

FSH / LH / clomiphene / clomid ; R oestrogen  
causes the ovaries to produce more eggs / AW ;  
increases chance of fertilisation ;  
ref to in vitro fertilisation ;  
*female* hCG ;  
stimulates follicles to release eggs ;  
progesterone ;  
causes, lining of uterus / endometrium, to thicken ; A maintains lining  
increases chance of implantation ;  
*male* hCG ;  
to stimulate testosterone production ;  
FSH / LH / testosterone ;  
stimulates sperm production ; max 3

*chemical methods of birth control*

oestrogen / progesterone ;  
(contraceptive) pill / patch / injection / implant ; R tablet / medicine  
prevents FSH release / AW ;  
prevents, egg / follicle, development ;  
prevents, ovulation / release of eggs ; A no egg to be fertilised  
(progesterone only pills)  
inhibit sperm movement through cervix / plug of mucus at cervix ;  
prevents implantation ;  
kills sperm in, vagina / cervix ;  
prevents sperm, reaching egg / entering oviduct ; max 3 [6]

**[Total: 16]**