

Reproduction

Mark Scheme 8

Level	IGCSE
Subject	Biology
Exam Board	CIE
Topic	Reproduction
Paper Type	(Extended) Theory Paper
Booklet	Mark Scheme 8

Time Allowed: 62 minutes

Score: /51

Percentage: /100

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]	
[Total: 9]				

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 ; A 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]	
			[Total: 11]	

- 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]