Assessment Schedule – 2005

Human Biology: Describe functioning of the human reproductive system (90179)

Evidence Statement

Q	Achievement	Achievement with Merit	Achievement with Excellence
1	Any THREE correct of: **Testis**: sperm production / testosterone production. **Vas deferens**: carry sperm from testis / epididymis to urethra / penis. **Epididymis**: sperm mature here / sperm stored here. **Seminal vesicle**: add nutrients / sugar to sperm / alkaline fluid / neutralise acidic vaginal secretion.		
2(a)	(Inside) ovary / follicle in ovary.		
2(b)	Any idea of: Mixture of sperm and fluid Eg Sperm and fluid from seminal vesicle / prostate gland **OR** Sperm and nutrients / fructose.		
2(c)	Idea of: Sperm fuses with egg.	One sperm penetrates the egg. Linked to: sperm nucleus fuses with egg nucleus / 23 + 23 = 46 chrom or similar.	
2(d)	Idea of: There is increased chance / embryo has to implant / burrow into uterus wall / uterus lining / endometrium.	**Increases chance** of one out of three embryos **successfully** linked to: implanting / burrowing into uterus (lining) / endometrium / foetus developing.	

Q	Achievement	Achievement with Merit	Achievement with Excellence
3(a)	Idea of: **Progesterone** levels remain high / don't drop. NOT progesterone increases.		
3(b)	Describe what happens Any TWO (biological) ideas from: • yellow body / corpus luteum continues to produce progesterone • uterus lining / endometrium stays thickened. • levels of oestrogen higher • levels of progesterone remain high • embryo implants into uterus lining • mucus plug starts to develop / thickens • breasts swell, tenderness increases • Feels sick / 'morning sickness' • Tiredness • Urinate more.	Explaining the effect / purpose Any TWO **i**deas developed: • Yellow body / corpus luteum continues to produce progesterone. **Linked to** Uterus lining / endometrium stays thickened. • Levels of oestrogen and progesterone remain high **linked to menstruation ceases during this time / prevents uterine contractions.** • **Levels of oestrogen stimulate growth of milk secreting tissue.** • **Progesterone inhibits milk production / secretion.** • Embryo implants into uterus lining **linked to** embryo supplied nutrients from mother. • Mucus plug starts to develop **linked to** reduce entry of pathogens into uterus during pregnancy. • Tired **:** Progesterone has sedative effect on female. • Tired **:** incr. blood supply / metabolic changes. • More blood flow to kidney / more urine produced.	Relate effect / relevance to pregnancy Any TWO **i**deas in Merit **plus** ONE of: **Linked to** embryo can implant / borrow into uterus lining. **Linked to** follicle / egg maturing in ovary ceases during this time. Heart muscles enlarge to pump more blood (40%) per minute More blood flow (35–60%) and increased urine output (25%)

Q	Achievement	Achievement with Merit	Achievement with Excellence
4(a)	Idea of: Fluid protects (cushions) foetus / developing baby from harm as mother moves / reduces friction as baby moves.		
4(b)	Idea of: **Carries / transports oxygen** **AND** any ONE of glucose / amino acids / vitamins / minerals / water / nutrients from mother to foetus / developing baby. Do not accept 'food'.		
4(c)	Describes WHAT the function of **umbilical cord and placenta** are in terms of nourishment. Any ONE of Eg Substances are exchanged at the placenta between mother and foetus. Umbilical cord carries nutrients to foetus **OR** Small nutrient molecules / soluble nutrients move across placenta membrane and into umbilical cord to baby. **OR** Umbilical cord (vein) takes nutrients from placenta to baby	Explain nutrient movement from the placenta into the vein of umbilical cord. Details what substances / structures / processes occur. Any ONE of • Explain how substances needed by foetus are obtained from mother's blood. Eg mother's blood vessel to placenta is rich in oxygen and glucose / DIFFUSION. These move from the mother's blood into the baby's blood vessel **at the placenta.** • Mother's blood and baby's blood never mix. Membranes keep two systems separate. • Placenta has large surface area therefore increases diffusion rate / efficiency. • Placenta – mother's blood floods sinuses and bathe surrounding foetal capillaries which then take nutrients via umbilical cord.	Links ideas of TWO of Eg HOW and WHY OR HOW and WHERE OR WHY and WHERE from Merit answer. • Idea of diffusion / substances moving across a concentration gradient eg glucose moves from mother's blood high concentration to baby's blood low concentration. • Idea of how concentration gradient is maintained, eg nutrients used up by foetus therefore concentration decreases compared to concentration in mother's blood • Different blood types (mother rhesus –ve and foetus +ve) sets up reaction, causes agglutination of foetal blood and stops nutrients getting to foetus. • Effect of 'counter flow current' between mother's blood and foetal flow (see diagram previous page) increases rate of uptake of nutrients.

Q	Achievement	Achievement with Merit	Achievement with Excellence
5(a)	Describes idea of / HOW: Amniotic fluid (around baby / foetus) passes out of mother. **OR** Amniotic sac breaks.	Gives reason for / WHY: Amniotic fluid (around foetus passes out of mother). **Linked to ONE of** **Amnion has to break / rupture to allow fluid to escape.** **OR** **Foetus bearing down on cervix breaks sac.** **OR** Uterus contractions cause amnion to burst to allow fluid to escape.	
5(b)	Any **TWO** of: • cervix dilates to 10 cm • mucus plug dislodged, a little bleeding occurs • **uterine** contractions increase in strength • vagina stretches as baby's head is pushed out through vagina • afterbirth is expelled • pelvic bones softened • oxytocin levels increased (starts / maintains contractions) • oxytocin makes placenta detach from uterus • increase in pain • decrease in progesterone. Note: Other ideas must relate to changes in the **mother's** body.		

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
SEVEN opportunities answered at Achievement or higher. 7 × A	SEVEN opportunities answered with THREE at Merit level or higher, and FOUR at Achievement level. 3 × M *plus* 4 × A	SEVEN opportunities answered with ONE at Excellence level, TWO at Merit level and FOUR at Achievement level. 1 × E *plus* 2 × M *plus* 4 × A