

Sample Provincial exam Q's: Reproduction

KEY

11. Functions

<p>Testosterone</p> <p>any one for 1 mark</p>	<p>Makes the male sex organs function normally, and also inhibits hypothalamus's release of GnRH and thus LH & FSH and thus testosterone ... when there's <u>enough</u> testosterone.</p> <ul style="list-style-type: none"> • causes sperm maturation • promotes the normal development of the primary sex organs • brings about and maintains the secondary sex characteristics in males
<p>Follicle stimulating hormone</p> <p>any one for 1 mark</p>	<p>Males: sperm and inhibin production Females: causes follicle to produce estrogen</p> <ul style="list-style-type: none"> • stimulate the follicle to produce estrogen • initiates egg maturation and sperm production • promotes spermatogenesis in the seminiferous tubules
<p>Luteinizing hormone</p> <p>any one for 1 mark</p>	<p>Males: testosterone production Females: stimulates corpus luteum to produce progesterone</p> <ul style="list-style-type: none"> • promotes ovulation • controls testosterone levels • controls sex hormone production • stimulates the corpus luteum to produce progesterone
<p>Estrogen</p> <p>any one for 1 mark</p>	<p>Feedback control over hypothalamus and anterior pituitary (causes them to stop producing GnRH, FSH, & LH when there is enough FSH & LH. (Causes development and maintenance of female reproductive parts)</p> <ul style="list-style-type: none"> • stimulates growth of the endometrium (begins the development of the uterine lining) • causes female secondary sex characteristics
<p>Progesterone</p> <p>any one for 1 mark</p>	<p>Feedback control over hypothalamus and anterior pituitary (causes them to stop producing GnRH, FSH, & LH when there is enough FSH & LH. (Causes development and maintenance of female reproductive parts)</p> <ul style="list-style-type: none"> • stimulates growth of the endometrium • causes the endometrium to become secretory • causes the uterine glands to mature, producing a thick mucoid secretion • brings about and maintains the secondary sex characteristics in females
<p>Oxytocin</p> <p>any one for 1 mark</p>	<ul style="list-style-type: none"> • causes the uterus to contract during childbirth • stimulates the release of milk from the mother's mammary glands

9. a) • day 14 / 15 / 16 (1 mark)
b) i) hormone X is luteinizing hormone ii) The pituitary gland secretes hormone X (LH)
c) Hormone Y (FSH) causes <ul style="list-style-type: none"> • Follicle-stimulating hormone (FSH) causes the follicle to mature. • Increasing amounts of estrogen (and some progesterone) are released. • This leads to the negative feedback of luteinizing hormone (LH) and FSH. • Proliferation of the endometrium occurs. • Ovum matures in the follicle.

12	Identify the structure in female that:
	Produces an egg
	OVARY
	Provides nourishment for developing embryo
	PLACENTA
	Enables the egg to travel to the uterus.
	FALLOPIAN TUBE

10	(a) Describe any TWO events that occur during days 15 to 28 of the ovarian or uterine cycles
	OVARIAN
	Corpus luteum swells and develops up to day 23 then degenerates if no embryo
	<ul style="list-style-type: none"> • Follicle-stimulating hormone (FSH) causes the follicle to mature. • Increasing amounts of estrogen (and some progesterone) are released. • This leads to the negative feedback of luteinizing hormone (LH) and FSH. • Proliferation of the endometrium occurs. • Ovum matures in the follicle.
	Estrogen levels fall after day 12
	Progesterone levels rising until about day 20, when they peak, then drop. Causes thickening of the uterus and mucus glands & blood vessels to develop.
	Menstruation occurs on about day 28.
	(b) during days 1 – 13 of the ovarian cycle, what would occur if FSH was not secreted?
	No follicle would develop in the ovary so no egg would be shed (no ovulation).

10. Give one function of the following in seminal fluid	
Substance	Function
Fructose	<ul style="list-style-type: none"> • for energy OR <ul style="list-style-type: none"> • for the production of ATP required for propulsion
Prostaglandins	<ul style="list-style-type: none"> • to stimulate uterine contractions to propel the sperm to the oviduct
Alkaline (basic) fluid	<ul style="list-style-type: none"> • to neutralize the acidity of OR <ul style="list-style-type: none"> • buffers acidic vagina

10. Identify three components of seminal fluid and give one function of each component	
Component	Function
<ul style="list-style-type: none"> • sugar (i.e., glucose / fructose) OR <ul style="list-style-type: none"> • nutrients OR <ul style="list-style-type: none"> • carbohydrates 	<ul style="list-style-type: none"> • for energy OR <ul style="list-style-type: none"> • for the production of ATP required for propulsion
Prostaglandins	<ul style="list-style-type: none"> • to stimulate uterine contractions to propel the sperm to the oviduct
<ul style="list-style-type: none"> • bicarbonate ion (HCO_3^-) 	<ul style="list-style-type: none"> • to neutralize the acidity of OR <ul style="list-style-type: none"> • buffers acidic vagina
<ul style="list-style-type: none"> • mucus 	<ul style="list-style-type: none"> • to lubricate OR <ul style="list-style-type: none"> • protect sperm
<ul style="list-style-type: none"> • water 	<ul style="list-style-type: none"> • to provide a medium for sperm to swim in OR <ul style="list-style-type: none"> • to lubricate
<ul style="list-style-type: none"> • amino acids OR <ul style="list-style-type: none"> • proteins 	<ul style="list-style-type: none"> • coagulation in female reproductive tract
<ul style="list-style-type: none"> • sperm 	<ul style="list-style-type: none"> • carries chromosomes OR <ul style="list-style-type: none"> • fertilizes egg

4. Identify the labelled structures in the diagram above and give one function of each.
Structure W: Acrosome
Function: Contains acrosome enzymes which aid the sperm in reaching the surface of the egg and allow a single sperm to penetrate the egg.
Structure X: head
Function: Stores genetic material (or DNA) required to produce a new human being.
Structure Y: midpiece
Function: Makes ATP required for propulsion in the tail.
Structure Z: tail or flagellum
Function: Provides the locomotion needed by the sperm to reach the egg (so that fertilization can occur).

5. Menstruation is the discharge of

- a) a follicle
- b) the uterine lining
- c) the corpus luteum
- d) the cells lining the ovary

11	a) Give three characteristics of semen and describe how each of these characteristics facilitates the function of semen
i	
ii	
iii	

Same as for seminal fluid question

b. What would result if luteinizing hormone (LH) was not secreted in the male?
<ul style="list-style-type: none"> • There would be no sex drive. • Sperm would not be able to mature. • Secondary sex characteristics would not develop. • The interstitial cells are responsible for testosterone secretion. • The interstitial cells would not secrete testosterone. • Decrease negative feedback.

10. Identify the following structures indicated in the diagram and give ONE function of each.
Structure X: Ovary
<ul style="list-style-type: none"> ¥ secretes estrogen ¥ secretes progesterone ¥ egg production and maturation ¥ releases egg ¥ corpus luteum development
Structure Y: Uterus or womb
<ul style="list-style-type: none"> ¥ contains developing fetus ¥ acts as the site of fetal development ¥ pathway for sperm

<p> ¥ contracts to expel fetus ¥ site of implantation </p>
<p>Structure Z: vagina or birth canal</p>
<p> ¥ serves as birth canal ¥ receives penis during copulation ¥ creates an acidic environment ¥ pathway for sperm </p>

<p>9. Identify and give one function of each of the following structures.</p>
<p>Structure X: • uterus</p> <ul style="list-style-type: none"> • endometrium • womb
<p>Function:</p> <ul style="list-style-type: none"> • The muscles contract at birth. • It is the site of embryo development. • Site of implantation.
<p>Structure Y: • oviduct</p> <ul style="list-style-type: none"> • fallopian tube
<p>Function:</p> <ul style="list-style-type: none"> • It sweeps the egg toward the uterus. • It is usually the site of fertilization of the egg.
<p>Structure Z: Ovary</p>
<p>Function:</p> <ul style="list-style-type: none"> • It produces eggs. • It produces estrogen. • It produces progesterone. • It produces a follicle.