Name: \_\_\_\_MARKING KEY\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ /40 %

**fertility**

the essential guide

The West Australian

ADVERTISING FEATURE

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1. Assisted conception are a group of medical treatments aimed at increasing the chance of pregnancy each moth through a procedural intervention with sperm, eggs or embryos spending some time outside the body. What do the abbreviations stand for and briefly explain the following techniques.

(5 marks)

|  |  |
| --- | --- |
| * IUI | * PGD |
| IUI (intrauterine insemination) (1)   * Assisted insemination into the uterus (placing sperm into the uterus)(1) | PGD (Pre-implantation genetic diagnosis) (1)   * Genetic diagnosis of an IVF embryo before embryo transfer (1/2) * Removes one or two cells of the embryo (1/2) |

2. Why is CGH considered to be more efficient than FISH. (4 marks)

* Targets all chromosomes
* Blastocysts- more cells available
* More precise results
* Better embryo survival
  + Less invasive
  + Less impact on embryo

3. List 5 possible reasons and contributing factors of male infertility.

(5 marks)

* DNA fragmentation (separation or breaking of DNA strands)
* Low morphology (normal forms)
* Low motility
* Low sperm count
* Sperm health
* Nutritional status (especially antioxidants)
* Heavy metal toxicity
* Toxin exposure
* Hormonal factors
* Poor lifestyle choices
* Prostate conditions
* Hormone dysfunction (low testosterone)
* Libido issues
* Stress related concerns

(Any 10 of the above 1 mark each)

4. SCSA (Sperm Chromatin Structure Assay) is a test to measure the level of DNA fragmentation (an essential marker of sperm health). What is the effect of a poor result on the following ? (3 marks)

1. Fertilisation: inability to initiate fertilisation
2. Implantation: implantation failure, miscarriage may occur
3. Pregnancy: inability to conceive due to the fragmentation of sperm

5. Aneuploidy is a major factor in the failure to establish or maintain a pregnancy.

i What is aneuploidy? (1 mark)

* The wrong numbers of chromosomes / abnormal number of chromosomes / extra or missing chromosomes

ii What does the new technology 24sure enable scientists to do? (1 mark)

* Screen for aneuploidy in developing embryos

iii List 3 groups of women who would most benefit from this test. (3 marks)

* Ages more than 35yrs
* History of miscarriage
* Had 3 or more IVF cycles without success

6. Both anonymous and known donations are permitted for sperm, eggs and embryos as alternative to IVF in the WA.

i What is donor insemination? (2 marks)

* a medical procedure carried out by inserting semen collected from a donor (1) into the vagina of a woman when she is ovulating (1)

ii What screens are carried out on donor sperm and eggs? (1 mark)

* Genetic and infectious diseases (1)

12. How does “Home 4 Life” differ from foster carers and adoption? (2 marks)

* Provides a child with a single permanent and caring home – for life
* Child is placed with the same foster carer until the child turned 18
* After 3 years of permanent care, a carer may apply to adopt a child from being in care
* Permanent foster carers make a lifelong commitment to look after the child

(any 2 of the above )

13. Answer true or false for the following IVF statements. (10 marks)

\_\_\_T\_\_ if a male has problems with sperm count, the sperm can be concentrated and placed into the uterus at the appropriate time

\_\_F\_\_\_ if a woman isn’t ovulating, she can go through a process to produce eggs and have them taken out of her fallopian tube.

\_\_T\_\_\_ IVF is currently the most commonly practiced treatment for infertile women in Australia

\_\_\_F\_\_ IVF involves the removal of one egg from the ovary after stimulation

\_\_F\_\_\_ the resulting embryo is transferred to the womb for implantation within 24 hours

\_\_T\_\_\_ The egg collection is generally done mid cycle around day 14

\_\_T\_\_ A woman’s own hormones are suppressed when gonadotrophins are taken to stimulate the growth of follicles

\_\_T\_\_\_ The eggs and sperm are cultured together overnight

\_\_F\_\_\_ A fine catheter is used to transferred to the fallopian tube

\_\_\_F\_\_ A blood test is performed every week and at 6-8 weeks an abdominal ultrasound is performed

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i What is the ‘fertile window’? (1 mark)

* the days in a woman’s menstrual cycle when pregnancy is possible (1)

ii Work out the day a woman with a 26 day cycle would most likely ovulate and when her fertile window begins. (2 marks)

Ovulation - Day \_\_\_\_\_\_26 – 14 = day 12\_\_\_\_\_\_\_\_\_\_

Fertile window begins - Day \_\_\_\_26 – (14 + 3) = day 9\_\_\_\_\_\_\_\_\_\_