

Q/ complete the following sentences

- 1- is the process of removing one or more embryos from the reproductive tract of one female to another.
- 2- virtually all embryos are collected by the nonsurgical method, which is often referred to as
- 3- When females are used in embryo transfer as embryo donors, *superovulation*, is usually induced with the injection of a
- 4- This approach to embryo required two micromanipulators: one with an aspiration pipette attached, the other with a microsurgical blade.
- 5- is that animals produced by nuclear transfer for the production of an unlimited number of genetically identical offspring.
- 6- In domestic animals the differences in DNA content between X and Y bearing spermatozoa ranges from
- 7- are the advanced cell sorters that use LASER to excite fluorescent dye that binds to the DNA in spermatozoa.
- 8- is the biochemical modification sperm must undergo within the female tract before the cell can bind to the zonapellucida and undergo the acrosome reaction.
- 9- is the most common compounds are known to induce *in vitro* capacitation *in vitro* in the absence of reproductive-tract fluids.
- 10-, are the important maturation system employed in many laboratories in in –vitro maturation of oocyte (IVM).
- 11- Oocytes collected from slaughterhouse were not useful for studying fertilization and culture until
- 12- ovum pick-up (OPU) by using has become the predominant technique for oocyte collection from living cattle.
- 13- The cumulus oocyte complexes (COCs) recovered from abattoirs ovaries evaluate under an
- 14- Oocyte collected from the ovary evaluated as when the oocytes surround with many complete layers of cumulus cells and uniform cytoplasm.

Q2/ false and true

- 1- The use of a catheter inserted trans cervical into the uterus for embryo collection is relatively easy and is routine in cattle and horses.
- 2- The isotonic media which often can be successfully used for recovering embryos of all the species are **Dulbecco's PBS**.
- 3- the cow embryo normally has reached the expanded blastocyst stage on day 8 after estrus, with a diameter of approximately 250 microns.
- 4- The morulae and early blastocysts are typical of the embryos recovered on day 7 post-estrus in cattle.
- 5- microscopic examination of embryos that are recovered from donors is necessary to ensure that the are embryos viable or unfertilized ova are not transferred.
- 6- The degree of estrous synchrony between the donor and recipient has been shown to have a very clear influence on pregnancy rates.
- 7- Embryo splitting, is usually accomplished at the late morula or blastocyst stage prior to hatching from the zona.
- 8- direct nuclear injection using the piezo drill is an efficient method for NT in horse and cattle oocytes
- 9- Trans-vaginal aspiration of ovaries manipulated per rectum and guided by a vaginally-inserted ultrasound probe is more efficient methods for oocyte collection from alive animals.
- 10- In small animals, oocyte collection from alive animals require a laparoscopic approach in which follicles are visibly identified and aspirated.
- 11- IVF is usually achieved by co-incubating sperm and oocytes for 18–20 h in 5% carbon dioxide in air at 38.5°C.
- 12- The transfer of IVF-derived embryos require synchrony the matching of the age of the embryo to the estrous stage of the recipient.
- 13- the oocytes collected from pre-ovulatory follicles had already undergone maturation and thus were ready for *in vitro* fertilization.

Q3/ Advantages of Cloning

enumerate the techniques (methods) which can be used for Oocytes collection from abattoirs ovaries.

Enumerate the major difference between the X and Y chromosomes, which can be used for sperm sexing technique.

Advantages of *In Vitro*-produced Embryos

enumerate the culture systems which have been used for culture the fertilized oocyte (the zygote) to the blastocyst stage, them.

Q3/ Enumerate the method of oocyte collection

Enumerate methods are employed for embryo recovery and mention the advantage and dis advantage for each one.

Advantages and dis advantages of sperm sexing

Enumerate five methods for sperm sexing.

Enumerate the steps of IVF

enumerate the culture systems which have been used for culture the fertilized oocyte (the zygote) to the blastocyst stage, them.

Write about the in-vitro maturation of oocyte (IVM) (benefit and media)

Most embryos are collected six to eight days after estrus (why)

Although it is similar to artificial insemination, nonsurgical transfer of embryos is a more challenging procedure (why ?)

Survival of each demiembryo, on the other hand, is lower than that of intact embryos (why)

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