The Royal College of Pathologists
Pathology: the science behind the cure

# Part 1 examination

## Reproductive Science: First paper

## Tuesday 25 September 2018

*Candidates must answer FOUR questions ONLY – Use of subheadings is permitted.*

**Time allowed: Three hours**

1. For an 'add on' or optional extra of your choice, justify its use and outline the steps you would consider if introducing to your service.

2. Discuss all of the considerations for long-term cryopreservation including, but not limited to: legislation and audit, equipment and facilities.

3. Discuss the impact of international regulatory differences for donation and use of gametes and embryos.

4. A male patient is about to undergo chemotherapy for an aggressive form of cancer. He has stored sperm and his wife is due to start stimulation for IVF/ICSI. She has enquired about the use of fresh sperm if her partner is able to provide a sample on the day of egg collection, by which time his treatment will have started. She is concerned that the cycle is more likely to fail using frozen sperm. Discuss the possible risks of using the male partner's sperm after he has started chemotherapy, versus any risks involved with the use of frozen sperm. In taking the male patient's consent to sperm storage, what advice would you give regarding the number of years of storage, and the need to keep in touch with the clinic while his sperm is in storage?

5. What approaches can be taken to improve the implantation of an embryo?

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## Reproductive Science: First paper

## Tuesday 26 September 2017

*Candidates must answer FOUR questions only*

**Time allowed: three hours**

1. What non-invasive methods are available for embryo selection? Consider the underlying science, effectiveness and cost, and make recommendations as to which, if any, should be adopted for routine use. Discuss the relative merits of early embryo selection and transfer, and extended culture leading to blastocyst transfer.

2. Mitochondrial transfer for the prevention of mitochondrial disease has been described as a technique that will produce genetically modified children. Is this description justified? Describe the possible risks of mitochondrial transfer in terms of safety and the major ethical concerns with regard to welfare of the potential child and the use of donated eggs.

3. You are required to undertake an audit of all cryopreserved material at your centre. Explain how you would proceed and why. State the discrepancies you are most likely to come across, and how you would resolve them. Describe the procedure you would follow if an accident during the audit resulted in the unintentional thawing of a sample.

4. Explain the underlying causes and consequences of the decline in reproductive fitness in men and women as they get older. Discuss whether it is reasonable to have a precise age cut off for treatment or whether some other criteria should be applied.

5. A patient with obstructive azoospermia has undergone a surgical sperm retrieval from which sperm were retrieved for freezing from testicular tissue. He is due to commence a cycle of ICSI with his partner and he has enquired as to the effectiveness of the use of frozen sperm as opposed to having a second fresh TESA on the day of egg collection. He has also enquired if as a couple if it would increase their chances of success if they used donor sperm. Explain the advice you would give to the couple, and the strategy you would follow to give this couple the best chance of success including any associated risks. Would this strategy be different if the male partner was suffering from non-obstructive azoospermia.

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# Part 1 Examination

## Clinical Embryology: First paper

***Candidates must answer FOUR questions ONLY***

***Use of subheadings is permitted***

**Time allowed: Three hours**

1. What non-invasive methods are available for embryo selection? Consider the underlying science, effectiveness and cost, and make recommendations as to which, if any, should be adopted for routine use. Discuss the relative merits of early embryo selection and transfer, and extended culture leading to blastocyst transfer.

2. Mitochondrial transfer for the prevention of mitochondrial disease has been described as a technique that will produce genetically modified children. Is this description justified? Describe the possible risks of mitochondrial transfer in terms of safety and the major ethical concerns with regard to welfare of the potential child and the use of donated eggs.

3. You are required to undertake an audit of all cryopreserved material at your centre. Explain how you would proceed and why. State the discrepancies you are most likely to come across, and how you would resolve them. Describe the procedure you would follow if an accident during the audit resulted in the unintentional thawing of a sample.

4 Explain the underlying causes and consequences of the decline in reproductive fitness in men and women as they get older. Discuss whether it is reasonable to have a precise age cut off for treatment or whether some other criteria should be applied.

5. A patient with obstructive azoospermia has undergone a surgical sperm retrieval from which sperm were retrieved for freezing from testicular tissue. He is due to commence a cycle of ICSI with his partner and he has enquired as to the effectiveness of the use of frozen sperm as opposed to having a second fresh TESA on the day of egg collection. He has also enquired if as a couple if it would increase their chances of success if they used donor sperm. Explain the advice you would give to the couple, and the strategy you would follow to give this couple the best chance of success including any associated risks. Would this strategy be different if the male partner was suffering from non-obstructive azoospermia.