

MSc Sem.-1 Examination

404

CE & ART

February-2025

Time : 2-30 Hours]

[Max. Marks : 70

Q.1A	Explain the molecular mechanisms of sperm differentiation and maturation.	7
Q.1B	Describe the role of the hypothalamic-pituitary-gonadal (HPG) axis in male fertility.	7
OR		
Q.1A	Discuss the function of Sertoli cells and their role in spermatogenesis.	7
Q.1B	Describe the anatomy of the male reproductive system with labeled diagrams.	7
Q.2A	Describe the morphology and structure of normal sperm.	7
Q.2B	Explain the process of spermatogenesis and its hormonal regulation.	7
OR		
Q.2A	Explain the significance of sperm motility and morphology in fertilization.	7
Q.2B	What are the genetic and epigenetic factors affecting spermatogenesis?	7
Q.3A	What is the role of FSH and LH in the regulation of ovarian function?	7
Q.3B	Explain the phases of the menstrual cycle and their hormonal regulation.	7
OR		
Q.3A	Discuss the role of estrogen and progesterone in female reproductive function.	7
Q.3B	Explain the importance of endometrial receptivity in implantation.	7
Q.4A	Explain the importance of oocyte competence markers in fertility treatment.	7
Q.4B	How does obesity alter endometrial gene expression and implantation potential?	7
OR		
Q.4A	What is the role of mitochondrial DNA in oocyte competence and embryo quality?	7
Q.4B	How does the genetic regulation of meiosis affect oocyte quality?	7
Q.5	Answer the Following Short Questions (Any 7)	14
1.	What is the impact of oxidative stress on male reproductive function?	
2.	What are the physiological roles of activin and inhibin in testicular function?	
3.	What are the functions of seminal vesicle proteins in sperm function?	
4.	How does temperature affect spermatogenesis?	

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5.	What is the role of zinc in sperm structure and function?	
6.	What is the function of the cumulus-oocyte complex?	
7.	What is the impact of chronic inflammation on fertility?	
8.	How does hormonal stimulation impact oocyte quality?	
9.	What is the impact of endometriosis on ovarian function?	
10.	How does polycystic ovary syndrome (PCOS) affect gametogenesis?	
11.	What is the physiological role of the LH surge in ovulation?	
12.	What is the function of granulosa cells in folliculogenesis?	