

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2026
(Second Semester)
Branch - **ZOOLOGY**

DEVELOPMENTAL BIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Who proposed the theory of epigenesis? (i) Aristotle (ii) Morgan (iii) Mendel (iv) Spemann	K1	CO1
	2	Telolecithal eggs undergo (i) Equal holoblastic cleavage (ii) Meroblastic discoidal cleavage (iii) Unequal holoblastic cleavage (iv) Superficial cleavage	K2	CO1
2	3	The fluid-filled cavity in the blastula is known as (i) Archenteron (ii) Coelom (iii) Blastocoel (iv) Blastopore	K1	CO2
	4	The process by which tissues and organs form during development is called (i) Cleavage (ii) Gastrulation (iii) Blastulation (iv) Organogenesis	K2	CO2
3	5	The region that induces neural tissue formation in vertebrates is called the (i) Blastocoel (ii) Notochord (iii) Organizer (iv) Archenteron	K1	CO3
	6	At 72 hours of incubation, the chick embryo shows (i) Absence of circulatory system (ii) No brain differentiation (iii) Well-developed heart and circulation (iv) Only germ layer formation	K2	CO3
4	7	The mammalian egg is classified as (i) Telolecithal (ii) Isolecithal (iii) Centrolecithal (iv) Mesolecithal	K1	CO4
	8	The placenta in humans is classified as haemochorial because (i) Maternal and foetal blood mix directly (ii) Maternal blood vessels remain intact (iii) Placenta lacks chorionic villi (iv) Foetal chorion is in contact with maternal blood	K2	CO4
5	9	Transfer of a fertilized embryo from donor to recipient female is called (i) Embryo transfer (ii) Embryo culture (iii) Cryopreservation (iv) Xenotransplantation	K1	CO5
	10	Quadriparental hybrids are produced by (i) Fusion of two sperms and one ovum (ii) Nuclear transplantation (iii) Fusion of two embryos at early cleavage stages (iv) Artificial insemination	K2	CO5

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Define the stages of spermatogenesis and their significance in gamete formation.	K1	CO1
		(OR)		
	11.b.	Find the functional role of egg membranes during fertilization		
2	12.a.	Show the process of cleavage and blastulation in animals.	K1	CO2
		(OR)		
	12.b.	List the role of differential gene expression in cell differentiation.		
3	13.a.	Explain embryonic induction in vertebrates.	K3	CO3
		(OR)		
	13.b.	Describe cleavage and blastulation in chick embryo.		
4	14.a.	Examine cleavage and blastocyst formation in rabbit.	K4	CO4
		(OR)		
	14.b.	Analyze about different types of placenta in mammals.		
5	15.a.	Assume the steps involved in embryo transfer technique.	K4	CO5
		(OR)		
	15.b.	Examine the role of embryonic stem cells in the production of chimeric mice.		

SECTION - C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyse the relevance of ancient theories of developmental biology in understanding modern embryology.	K2	CO1
2	17	Discuss fate map and gastrulation in frog with suitable diagrams.	K2	CO2
3	18	Describe embryogenesis of chick with reference to structure of egg, cleavage, blastulation, and gastrulation.	K4	CO3
4	19	Justify embryogenesis of rabbit with reference to structure of egg, cleavage, and blastocyst formation.	K5	CO4
5	20	Discuss manipulation of reproduction in animals with reference to artificial insemination and embryo transfer.	K4	CO5

Z-Z-Z

END