QUADRANT II – TRANSCRIPT AND RELATED MATERIALS (NOTES)

Programme: Bachelor of Science (FirstYear)

Subject: ZOOLOGY

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Paper Title: DIVERSITY OF CHORDATES AND GENETICS

Unit 09: CHROMOSOME STRUCTURE

Module Name: GIANT CHROMOSOME- LAMPBRUSH CHROMOSOME

Module No: 13

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Notes

- Lampbrush chromosome is one of the giant chromosome seen in the diplotene stage of meiosis in some organisms.
- The lamp brush chromosme has central axis from which lateral loops arise.
- The loop is an extruded segment of DNA that is being actively transcribed.
- lampbrush chromosomes have served as a powerful system for exploring the general principles of chromosome organization and function.
- Lateral loops of Lampbrush chromosomes are **transcriptionally active sites** and involve synthesis of RNA and protein.
- There are some probabilities that lampbrush chromosomes help in the formation of certain amount of yolk material for the egg.
- It must play some fundamental and general role in oogenesis, since they have been retained throughout evolution.

DIFFERENCE BETWEEN POLYTENE & LAMPBRUSH CHROMOSOMES		
	POLYTENE CHROMOSOME	LAMPBRUSH CHROMOSOME
Appearance	06 arms with light and dark bands	Lampbrush shape does not have a banding pattern.
Presence	Mostly in the Salivary glands (Interphase/Prophase of mitosis)	Oocytes (Diplotene stage in meiosis)
Size	Giant chromosome, but smaller than the lampbrush chromosome	Giant chromosome, larger than the polytene chromosome
Structure	Made up of many DNA strands	Made up of a main axis with lateral loops

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