Unit 15 · Gametogenesis

WORKSHEET

Full marks 32

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 32

1 Key words [4]

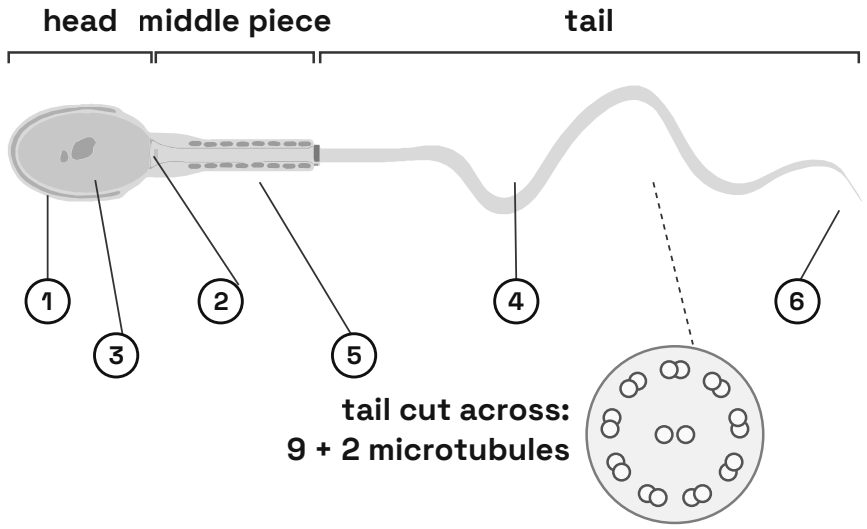
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

cleidoic	**lampbrush**	**Leydig**	**mesolecithal**	**non-cleidoic**	**polar body**	**Sertoli**
spermatogonia	**spermiation**	**spermiogenesis**				

Gametes are made in the gonads, the primary reproductive organs. Between the seminiferous tubules, the _____ cells make testosterone, while the _____ cells among the germ cells hold and feed the developing sperms. The change of a round spermatid into a motile sperm, with no division, is _____. The release of finished sperms into the lumen of the tubule is _____. In a growing frog oocyte, the chromosomes spread out into loops and are called _____ chromosomes. Each unequal division of an oocyte gives off a tiny _____. A frog's egg has no hard shell, so it is _____; it has a moderate amount of yolk, so it is _____.

2 Label the diagram [3]

The diagram shows a sperm. Write the names of the parts 1 to 6. Each carries 0.5 mark.



1. _____ 2. _____

3. _____ 4. _____

5. _____ 6. _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. What is the main function of the acrosome in the sperm of a frog? [1]

a. to provide energy for movement
b. storing genetic material
c. nourishing sperms
d. to penetrate the egg

ii. Which of the following structures surrounds the developing oocytes of a frog? [1]

a. Sertoli cells
b. the chorion
c. follicular cells
d. the corpus luteum

iii. Which of these happens during spermiogenesis? [1]

a. meiosis II, giving four spermatids
b. mitosis of the spermatogonia
c. the acrosome forms from the Golgi body
d. the chromosome number is halved

iv. What triggers the completion of oogenesis in a frog? [1]

a. hormonal changes
b. the male's croaking
c. cleavage
d. the entry of a sperm into the egg

v. A frog's body cells have 26 chromosomes. How many chromosomes does each of its sperms have? [1]

a. 26
b. 13
c. 52
d. 6.5

4 Short answers [9]

Write short answers to the following questions.

a. What is gametogenesis? Name its two forms. [2]

b. Why is meiosis necessary in the making of gametes? Explain with the frog's chromosome number. [2]

c. The eggs in a mass of frog spawn all lie black side up after fertilization. Explain why, and say how this helps them. [2]

d. What is the gray crescent? How does it form, and what is its importance? **[3]**

5 Long answers **[8]**

Write long answers to the following questions.

a. What is spermatogenesis? Describe its phases with a chart. **[4]**

b. Write any four differences between spermatogenesis and oogenesis. **[4]**

6 Think **[3]**

One primary spermatocyte gives four sperms, but one primary oocyte gives only one ovum. Why is this unequal division of the oocyte an advantage to a frog?

7 Activity: Frog spawn

(not marked)

In the rainy season, look at a mass of frog spawn in a pond or paddy field (or a photo of one) with a hand lens. Do not take it home.

What you looked at	What you saw
the jelly round each egg	
the eggs, from above	
the eggs, from the side or below	

Why is the jelly useful to the eggs?