



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE
AND TECHNOLOGY**

UNIVERSITY EXAMINATION 2012/2013

**3RD YEAR 1ST SEMESTER EXAMINATION FOR THE DEGREE
OF BACHELOR OF EDUCATION SCIENCE WITH IT
(SCHOOL BASED)**

COURSE CODE: SZL 301

TITLE: DEVELOPMENTAL BIOLOGY

DATE: 1/5/2013

TIME: 14.00-16.00PM

DURATION: 2HOURS

INSTRUCTIONS

- 1) This paper contains FIVE [5] questions.**
- 2) Answer question ONE [1] COMPULSORY and ANY other TWO [2] questions.**
- 3) Write ALL answers in the booklet provided.**

QUESTION 1

- a) Identify the fates of the gastrula three germ layers 3mks
- b) List the factors responsible for embryonic induction during organogenesis. 3mks
- c) Define the following terms:
 - i. Cleavage
 - ii. Gastrulation
 - iii. Fertilization
 - iv. Teratogenesis. 4mks
- d) Explain factors that determine cleavage patterns in animals. 2mks
- e) Give a brief explanation on the major types of meroblastic cleavage. 6mks
- f) Explain how the mammalian ovum adapted to its function? 3mks
- g) An expectant mother is always advised to avoid exposure to pathogens like viruses or bacteria, drugs like alcohol or any other environmental hazards. Explain. 3mks
- h) Predict what would happen if you injected Ca^{2+} into an unfertilized sea urchin egg. 3mks
- i) A frog zygote and a frog blastula are nearly the same size. Explain this observation. 3mks

SECTION B (40 MARKS): ANSWER ANY TWO QUESTIONS FROM THIS SECTION- EACH QUESTION CARRIES 20 MARKS

QUESTION 2

- a) Describe the process of acrosome reaction in a named animal 6mks
- b) Describe the mechanism of neurulation in mammals. 10mks
- c) Explain how the sperm is adapted to its function. 4mks

QUESTION 3

Give an account of spermatogenesis in mammals. 20mks

QUESTION 4

Describe the process of cleavage in a named animal. 20mks

QUESTION 5

Explain the process of gastrulation in a named animal. 20mks

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