

University of Mumbai

Model Answer Key S.Y.B.Sc Zoology P-I Semester-IV (CBCSGC)

Q.P.Code: 30999

Time: 03 Hours

Marks: 100

- Q.1 A) Fill in the blanks by choosing the correct option given below** **05**
- a) Deutrostomes 01
 - b) Coeloblastula 01
 - c) Surrogacy 01
 - d) Council 01
 - e) 1972 01
- B) Match the columns I and II and rewrite** **05**
- | | Column I | | Column II | |
|---------------------------|----------|---|---------------------|----|
| a) CPCSEA | | : | 1991 | 01 |
| b) Non-deciduate placenta | | : | Cattle and pigs | 01 |
| c) Discoidal cleavage | | : | Reptiles and Birds | 01 |
| d) Testosterone | | : | Male sex hormone | 01 |
| e) Bisphenol A | | : | Endocrine disruptor | 01 |
- C) State whether True or False** **05**
- a) True 01
 - b) False 01
 - c) True 01
 - d) False 01
 - e) True 01
- D) Define the following.** **05**
- a) **Blastomeres:** The cells of the multicellular embryonic stage blastula are known as blastomeres 01
 - b) **Protostomes:** Animals belonging to lower invertebrate groups, where the archenteron develops into gut and the blastopore into mouth are termed protostomes. 01
 - c) **Andropause:** Male menopause or the steady decline in testosterone production with age without any loss in fertility in human males 01
 - d) **Research hypothesis:** it is a prognostic statement that connects an independent variable to a dependent variable and may be described as an 'educated guess'. 01
 - e) **Conceptual research:** it is the research used by philosophers and thinkers to develop new abstract ideas and for reinterpreting existing ones. 01
- Q.2 A) Basic structure of sperm and Note on Determinate egg** **10**
- 1. Basic structure of sperm- Description with diagram 06
 - 2. Structure of determinant egg – Description with diagram 04

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OR

A) Types of cleavage	10
1. Introduction	02
2. Explanation Holoblastic, cleavage based on symmetry and meroblastic	06
3. Diagrams	02
B) Explain any two from the following.	
a) Polylecithal egg	05
1. Introduction	1.5
2. Explanation with Illustration of mesolecithal and macrolecithal	3.5
b) Coelom formation	05
1. Description and explanation of Schizocoely and enterocoely	04
2. Diagram	01
c) Endogenous yolk sac	05
1. Introduction of yolk sac	01
2. Description with diagram	04
d) Basic histological characteristics of placenta	05
1. Definition of Placenta	01
2. Structure-description of characteristics and functions	03
3. Diagram	01
Q.3 A) Hormonal regulation of the female reproductive system	10
1. Introduction- Menarche to menopause, Female fertility cycle-MC	02
2. Explanation of four phases of the Female Menstrual cycle and associated hormonal, ovarian and uterine changes	06
3. Schematic representation of Hormonal regulation-Role of HPG axis, pituitary and ovarian hormones	02

OR

A) IVF and Embryo transfer	10
1. IVF- Definition, steps, applications diagram	05
2. Embryo transfer- Definition, stages/Days of transfer, technique, applications, diagram	05
B) Explain any two from the following:	
a) Barrier methods of contraception	05
1. Introduction	01
2. Description of different methods, their efficacy /failure rate	04

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b) Treatment of male infertility by removal of causative environmental factors	05
1. Introduction – For low sperm counts/abnormal sperms-First line of treatment-removal of causative environmental factor in males	01
2. Explanation of environmental factors and their effects	04
3. Limitations	01
c) STDs associated with infertility in females	05
1. Introduction –Definition of STDs	01
2. Role of Chlamydia, Gonorrhoea and Syphilis in female infertility	04
d) Sperm banks	05
1. Introduction-Definition	01
2. Description –Sources of sperms, role of sperm donors or partner donation, applications of donated sperms, criteria for screening sperm donors	04
Q.4 A) Application of computer in research studies.	10
Application of computer in:	
a. Conceptual phase	2.5
b. Empirical phase	2.5
c. Data analysis	2.5
d. Research publication	2.5
OR	
A) Components of research paper	10
1. Description of preliminary material of research paper	02
2. Description of main body of research paper	05
3. Description of supplementary material of research paper	03
B) Explain any two from the following:	10
a) Critical thinking	05
1. Definition	01
2. Description	04
b) Inductive reasoning	05
1. Introduction/definition	02
2. Description	03
c) Plagiarism	05
1. Definition and introduction	02
2. Description	03



d) Conflict of interest	05
1. Introduction	01
2. Examples of situations that give rise to conflict of interest	02
3. Description	02
Q.5 Write short notes on any four:	20
a) Coeloblastula	05
1. Introduction to blastula	01
2. Description with diagram	04
b) Haemoendothelial	05
1. Introduction to placenta	01
2. Description with diagram	04
c) Causes of male infertility	05
1. Definition of male infertility	01
2. Description of Causes (Any Four)	04
d) ZIFT	05
1. Introduction – Definition, applications	02
2. Explanation -Technique and its advantages	03
e) Role of chance in scientific discovery	05
1. Description	03
2. Examples	02
f) Scientific research: Definition & characteristics	05
1. Definition	01
2. Characteristics	04
