SHRI KRISHNA ACADEMY

NEET,JEE & BOARD EXAM(10th,+1,+2) COACHING CENTRE

SBM SCHOOL CAMPUS, TRICHY MAIN ROAD,NAMAKKAL

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STD: XII **02.08.2019**

SUBJECT: BIO- ZOOLOGY **TENTATIVE ANSWER KEY**

MARKS : 25

SECTION - I

	CHOOSE THE CORRECT ANSWER	
Q.No		**Marks**
1	d) To secrete Oxytocin during Parturition	1
2	a) Arrhenotoky	1
3	d) A-iv, B-i, C-ii, D-iii	1
4	a) Recensive genes responsible present in X-Chromosome	1
5	d) Semi-Conservative nature of DNA replication	1

SECTION - II

6	• Development of an egg into a complete individual without fertilization is known as parthenogenesis. • e.g. Honey bees, Solenobia	1 1
7	• The **Skene's glands** are located on the anterior wall of the vagina and around the lower end of the urethra. • They secrete a lubricating fluid and are homologous to the prostate gland of the males.	1 1
8	a) Zygote intra-fallopian transfer b) Intra-cytoplasmic sperm injection	1 1

9

Intersex	Supersex
1. Combination of chromosomal genotypes and sexual phenotype other than XY male and XX female.	1. Super females They are Poly X females.
2. Variations in Sex characteristics like chromosomes, gonads, sex hormones or genitals. They do not fit into typical male or female.	2. They have 47 autosomes and 3x chromosomes.
3. Previously they were called as hermaphrodites	3. It is called triple X syndrome
4. They have one extra X and Y chromosome	4. They are mentally retarded and sterile. Supermales (XYY males)
5. They have both ovarian and testicular tissues.	5. They have an extra 'Y' chromosome.

1 1

	6. External genitalia is not well defined.	6. This is called xyy syndrome. They show mental retardation and criminal attitude.

10

CODON	Anticodon
AAU	UUA
CGA	GCU
UAU	AUA
GCA	CGU

2

SECTION - III

11

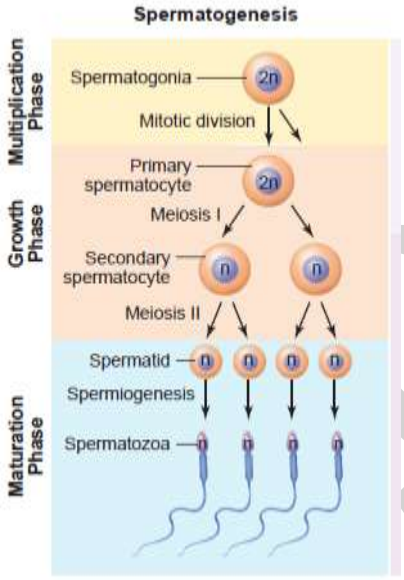


Diagram-2
Parts-1

12

Syngamy	Fertilization
❖ It is the fusion of male and female pronuclei after fertilization.	❖ It is the fusion of male and female gamete.
❖ It confirms the diploid state of the zygote.	❖ It refers to the process of confirming fertility.

1 ½

1 ½

13

- Avoid sex with unknown partner/ multiple partners
- use condoms
- In case of doubt, consult a doctor for diagnosis and get complete treatment.

1
1
1

14

- It is inherited as an autosomal dominant lethal gene in man.
- It is characterized by involuntary jerking of the body and progressive degeneration of the nervous system, accompanied by gradual mental and physical deterioration.
- The patients with this disease usually die between the age of 35 and 40.

1
1

1

15

- The order of base pairs along DNA molecule controls the kind and order of amino acids found in the proteins of an organism. This specific order of base

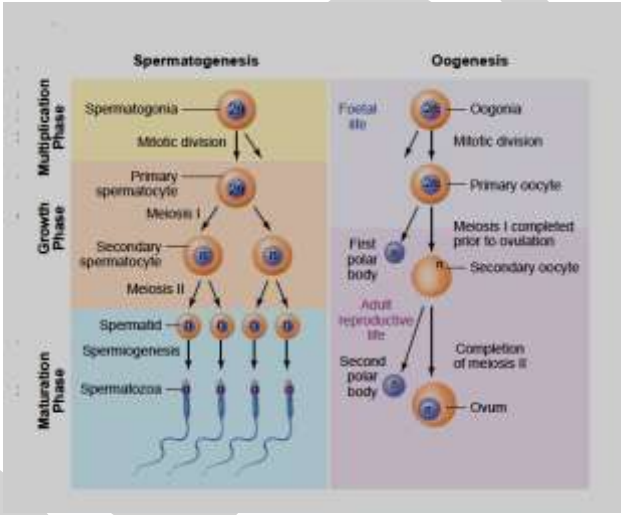
1

pairs is called genetic code, the blue print establishing the kinds of proteins to be synthesized which makes an organism unique.

- Genetic code is the sequence relationship between nucleotide in genes (or mRNA) and the amino acids in the proteins they encode. There are 64 possible triplets, and 61 of them are used to represent amino acids. The remaining three triplet codons are termination signals for polypeptide chains. Since there are only 20 amino acids involved in protein synthesis, most of them are encoded by more than one triplet. — 1
- Two things make this multiple (degenerate) coding possible. First, there is more than one tRNA for most amino acids. Each tRNA has a different anticodon. Second, this pairing is highly specific for the first two portions on the codon, permitting Watson and Crick base pairs (A – U and G - C) to be formed. But at the third position there is a great deal of flexibility as to which base pairs are acceptable. Most part of the genetic code is universal, being the same in prokaryotes and eukaryotes. — 1

SECTION - IV

16.



2

Spermatogenesis is the sequence of events in the seminiferous tubules of the testes that produce the male gametes, the sperms. During development, the primordial germ cells migrate into the testes and become immature germ cells called sperm mother cells or spermatogonia in the inner surfaces of the seminiferous tubules . The spermatogonia begin to undergo mitotic division at puberty and continue throughout life.

In the first stage of spermatogenesis, the spermatogonia migrate among sertoli cells towards the central lumen of the seminiferous tubule and become modified and enlarged to form primary spermatocytes which are diploid with 23 pairs i.e., 46 chromosomes.

1 ½

Some of the primary spermatocytes undergo first meiotic division to form two secondary spermatocytes which are haploid with 23 chromosomes each. The secondary spermatocytes undergo second meiotic division to produce four haploid spermatids. The spermatids are transformed into mature **spermatozoa (sperms)** by the process called **spermiogenesis**. Sperms are finally released into the cavity of seminiferous tubules by a process called **spermiation**. The whole process of

spermatogenesis takes about 64 days. At any given time, different regions of the seminiferous tubules contain spermatocytes in different stages of development . The sperm production remains nearly constant at a rate of about 200 million sperms per day.

Oogenesis is the process of development of the female gamete or ovum or egg in the ovaries. During foetal development, certain cells in the germinal epithelium of the foetal ovary divide by mitosis and produce millions of **egg mother cells or oogonia**. No more oogonia are formed or added after birth. The oogonial cells start dividing and enter into Prophase I of meiotic division I to form the **primary oocytes** which are temporarily arrested at this stage. The primary oocytes then get surrounded by a single layer of granulosa cells to form the primordial or **primary follicles**. A large number of follicles degenerate during the period from birth to puberty, so at puberty only 60,000 to 80,000 follicles are left in each ovary. 1 ½

The primary follicle gets surrounded by many layers of granulosa cells and a new theca layer to form the **secondary follicle**. A fluid filled space, the antrum develops in the follicle and gets transformed into a **tertiary follicle**. The theca layer gets organized into an inner theca interna and an outer theca externa. At this time, the primary oocyte within the tertiary follicle grows in size and completes its first meiotic division and forms the **secondary oocyte**. It is an unequal division resulting in the formation of a large haploid secondary oocyte and a first polar body. The first polar body disintegrates. During fertilisation, the secondary oocyte undergoes second meiotic division and produces a large cell, the **ovum** and a second polar body. The second polar body also degenerates. The tertiary follicle eventually becomes a mature follicle or **Graafian follicle**. If fertilisation does not take place, second meiotic division is never completed and the egg disintegrates. At the end of gametogenesis in females, each primary oocyte gives rise to only one haploid ovum.

(OR)

Forensic analysis - It can be used in the identification of a person involved in criminal activities, for settling paternity or maternity disputes, and in determining relationships for immigration purposes. 1 ½

Pedigree analysis – inheritance pattern of genes through generations and for detecting inherited diseases. 1 ½

Conservation of wild life – protection of endangered species. By maintaining DNA records for identification of tissues of the dead endangered organisms. 1

Anthropological studies–It is useful in determining the origin and migration of human populations and genetic diversities 1

N 2 XII - Biology

Time: 45 minutes Bio-Zoology Marks: 25

Section-A

I. Answer all the questions. Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer: 5×1=5

1) Which one of the following is not the function of Placeata?
   a) To facilitate supply of oxygen and nutrients to embryo
   b) To secrete oestrogen
   c) To facilitate the removal of Carbondioxide and material from embryo
   d) To secrete oxytocin during Parturition
2) In which type of Parthogenesis are only males produced?
   a) Arrhenotoky b) Thelytoky c) Amphitoky d) Both a and b
3) Match Column I with Column II and select the correct option from the codes given below

Column I	Column II
A. Copper releasing IUD	i) LNG-20
B. Hormone releasing	ii) Lippes Loop IUD
C. Non medicated IUD	iii) Saheli
D. Mini pills	iv) Multiload-375

   a) A-iv, B-ii, C-i, D-iii b) A-iv, B-i, C-iii, D-ii
   c) A-i, B-iv, C-ii, D-iii d) A-iv, B-i, C-ii, D-iii
4) Which of the following statement is correct regarding haemophilia?
   a) Recensive genes responsible present in X-Chromosome
   b) Dominanant genes responsible present in X-Chromosome
   c) Responsible dominant gene present in Y-Chromosome
   d) Responsible dominant gene present in the autuosomal chromosome
5) Meselson and Stahl's experiment proved?
   a) Transduction b) Transformation
   c) DNA is the genetic material d) Semi-Conservative nature of DNA replication

Section - II

II. Answer any three questions in which questions No.9 is compulsory: 3×2=6

6) What is Parthenogeneris? Give two examples from animals?
7) Which gland of female is homologous to the prostate gland of male? Write about it?
8) Expand the following: a) ZIFT b) ICSI
9) Differentiate intersexes from supersexes?
10) Name the anticodon required to recognize the following codons
    AAU, CGA, UAU and GCA.

Section - III

III. Answer any three questions in which questions No.14 compulsory: 3×3=9

11) Draw a labelled sketch of a Spermatogenesis?
12) What is the difference between syngamy and fertilization?
13) Write the preventive measures of STDS?
14) What are the characteristic features of Huntington's chorea in man?
15) What is genetic Code? Explain

Section - IV

IV. Answer the following:- 1×5=5

16) Give a schematic representatives of Spermatogenesis and Oogenesis in human?

[or]

What are the application of DNA finger printing?

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