

TIMING : 1.30 Hrs
CLASS : XII

COMMON QUARTERLY EXAM-2024
PART – II – BIO- ZOOLOGY
PART – I
TRNTATIVE ANSWER KEY

TOTAL MARKS : 35

CHOOSE THE CORRECT ANSWER

(8 × 1 = 8)

Q.NO	ANSWER	MARKS
1	(c) Natural selection	1
2	(a) 231	1
3	(c) Mammals	1
4	(d) Saheli - Progestraset	1
5	(c) Capacitation	1
6	(a) Liver fluke	1
7	(a) A is true R is false	1
8	d) Promotor	1

PART – II

(4 × 2 = 8)

Answer any FOUR from the following question.

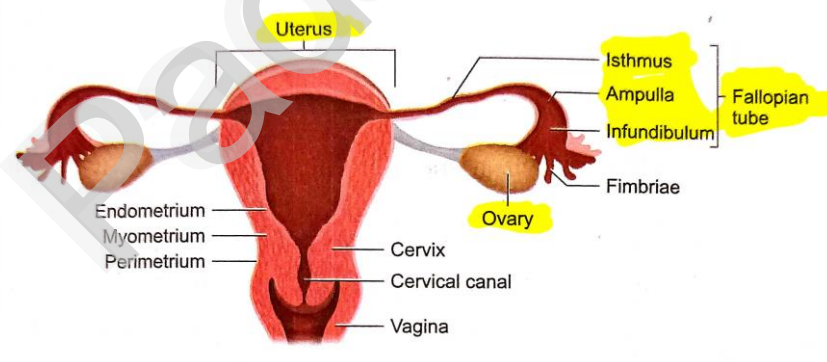
Q.NO	ANSWER	MARKS SPLIT	TOTAL MARKS				
9	Thelytoky In this type only females are produced by parthenogenesis.eg: Solenobia	(2)	(2)				
10	<table border="1"> <thead> <tr> <th>SPERMIOGENESIS</th> <th>SPERMATOGENESIS</th> </tr> </thead> <tbody> <tr> <td>The spermatids are transformed into mature spermatozoa (sperms) by the process called spermiogenesis.</td> <td>It is the sequence of events in the seminiferous tubules of the testes that produce the male gametes, the sperms.</td> </tr> </tbody> </table>	SPERMIOGENESIS	SPERMATOGENESIS	The spermatids are transformed into mature spermatozoa (sperms) by the process called spermiogenesis.	It is the sequence of events in the seminiferous tubules of the testes that produce the male gametes, the sperms.	(1+1)	(2)
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11	Zygote Intra-Fallopian Transfer (ZIFT) Intra-Cytoplasmic Sperm Injection (ICSI)	(1 +1)	(2)				
12	i) Mary Lyon suggested that Barr bodies represented an inactive chromosome, which in females becomes tightly coiled into a heterochromatin, a condensed and visible form of chromatin (Lyon's hypothesis). (or) ii) The number of Barr bodies observed in cell was one less than the number of X-Chromosome. XO females have no Barr body, whereas XXY males have one Barr body.	(2)	(2)				
13	Meselson and Stahl experiment proved semi conservative nature of DNA replications.	(2)	(2)				
14	The allele frequencies in a population are stable and are constant from generation to generation in the absence of gene flow, genetic drift, mutation, recombination and natural selection	(2)	(2)				

PART – III

(3 × 3 = 9)

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Answer any THREE from the following question. (Q.NO.19 is compulsory Question)

Q.N O	ANSWER			MARKS SPLITT	TOTAL MARK S
15	S.NO	DIVERGENT EVOLUTION	CONVERGENT EVOLUTION	(1 ½+1 1/2)	(3)
	1	Structures which are similar in origin but perform different functions	Organs having different structural patterns but similar function are termed as analogous structures		
	2	e.g. thorn of Bougainvillea and the tendrils of Curcubita and Pisum sativum represent homology	e.g. the wings of birds and insects are different structurally but perform the same function of flight		
16	i) In human beings a dominant X – linked gene is necessary for the formation of colour sensitive cells, the cones. ii) The recessive form of this gene is incapable of producing colour sensitive cone cells. iii) Homozygous recessive females (Xc Xc) and hemizygous recessive males (Xc Y) are unable to distinguish red and green colour			(1+1+1)	(3)
17	a. Avoid sex with unknown partner/ multiple partners.			(1)	(3)
	b. Use condoms.			(1)	
	c. In case of doubt, consult a doctor for diagnosis and get complete treatment			(1)	
18	 <p style="text-align: center;">Diagrammatic view of female reproductive system</p>			(1+1+1)	(3)
19	s.no	Monocistronic	Polycistronic	(1 ½ +1 ½ =3)	(3)
		In eukaryotes, each gene transcribes a single mRNA and encodes information	In prokaryotes, clusters of related genes, known as operon, often found next to each other on the		

	for only a single protein and is called monocistronic mRNA	chromosome are transcribed together to give a single mRNA and hence are polycistronic		
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PART – IV**(2 × 5 = 10)****Answer ALL from the following question**

Q.N O	ANSWER					MARK S SPLITT	TOTAL MARK S
20 (a)	<p>i) Gametogenesis: Formation of gametes by spermatogenesis and oogenesis.</p> <p>ii) Insemination: Transfer of sperms by the male into the female genital tract.</p> <p>iii) Fertilization: Fusion of male and female gametes to form zygote, called Fertilization.</p> <p>iv) Cleavage: Rapid mitotic divisions of the zygote which convert the single celled zygote into a multicellular structure called blastocyst.</p> <p>v) Implantation: Attachment of blastocyst to the uterine wall.</p> <p>vi) Placentation: Formation of placenta which is the intimate connection between foetus and uterine wall of the mother for exchange of nutrients.</p> <p>vii) Gastrulation: Process by which blastocyst is changed into a gastrula with three primary germ layers.</p> <p>viii) Organogenesis: Formation of specific tissues, organs and organ systems from three germ layers.</p> <p>ix) Parturition: Expulsion of the foetus from the mother's womb.</p> <p style="text-align: center;">(OR)</p>					(1/2) (1/2) (1/2) (1/2) (1/2) (1) (1/2) (1/2)	(5)
20 (b)	s.n o	Name of the Disease	Causative agent	Symptom	Incubation period		(5)
	1	Genital herpes	Herpes simplex virus	Pain during urination, bleeding between periods	2- 21 days		
	2	Genital warts	Human papilloma virus (HPV)	Hard outgrowth	1-8 months	(5)	(5)

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				s (Tumour) on the external genitalia, cervix and perianal region			
	3	Hepatitis -B	Hepatitis B virus (HBV)	Fatigue, jaundice & liver failure	30-80 days		
	4	AIDS	Human immunodeficiency virus (HIV)	prolonged fever, prolonged diarrhoea, weight reduction,	2 to 6 weeks		
21 (a)	<p>Karyotyping</p> <p>i) It is a technique through which a complete set of chromosomes is separated from a cell and the chromosomes are arranged in pairs</p> <p>ii) An idiogram refers to a diagrammatic representation of chromosomes.</p> <p>Applications of Karyotyping (Any four points)</p> <p>i) It helps in gender identification.</p> <p>ii) It is used to detect the chromosomal aberrations like deletion, duplication, translocation, nondisjunction of chromosomes.</p> <p>iii) It helps to identify the abnormalities of chromosomes like aneuploidy.</p> <p>iv) It is also used in predicting the evolutionary relationships between species.</p> <p>v) Genetic diseases in human beings can be detected by this technique</p> <p style="text-align: center;">(OR)</p>					(1)	
21 (b)	<p>i) In their experiment, a mixture of gases was allowed to circulate over electric discharge from an tungsten electrode.</p> <p>ii) A small flask was kept boiling at 800o C and the steam emanating from it was made to mix with the mixture of gases (ammonia, methane and hydrogen) in the large chamber that was connected to the boiling water.</p> <p>iii) The steam condensed to form water which ran down the 'U' tube.</p> <p>iv) Experiment was conducted continuously for a week and the liquid was analysed. Glycine, alanine, beta alanine and aspartic acid were identified.</p>					(1)	(5)

	v) Thus Miller’s experiments had an insight as to the possibility of abiogenetic synthesis of large amount of variety of organic compounds in nature from a mixture of sample gases in which the only source of carbon was methane.	(1)	
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