Entrance Examination for Admission to the P.G. Courses in the Teaching Departments, 2022										
	CSS									
AQUATIC BIOLOGY AND FISHERIES/ ZOOLOGY (PURE AND APPLIED)/ INTEGRATIVE BIOLOGY										
				Gener	ai instru	ctions				
1. Т С	The Question Paper is having two Parts — Part 'A' Objective type (60%) & Part 'B' Descriptive type (40%).									
2. C	Objective type questions which carry 1 mark each are to be (\checkmark) 'tick marked' in the response sheets against the appropriate answers provided.								d' in the	
3. 8	8 questions are to be answered out of 12 questions carrying 5 marks each in Part 'B'.									
4. <u>N</u> ii	<u>Negative marking</u> : 0.25 marks will be deducted for each wrong answer in Part 'A'.									
Time : 2 Hours Max. Marks : 100										
To be filled in by the Candidate										
Register Number		in Figures								
		in words								
							·			
							1			

PART – A

(Objective Type)

Choose appropriate answer from the options in the questions. **One** mark **each**.

(60 × 1 = 60 marks)

- 1. Which parasite causes parasitic castration of crab?
 - a) Leishmania b) Sacculina
 - c) Ascaris d) Giardia

DONOTWRITEHERE

2. Ink glands as a means of escape from predators are present in

- a) Pila b) Sepia
- c) Dentalium d) Echinus
- 3. A special feature of evisceration is found in
 - a) Sea cucumber b) Sea anemone
 - c) Octopus d) Leech

4.	Fas	ciola belongs to					
	a)	Trematoda	b)	Turbellaria			
	c)	Cestoda	d)	Gastropoda			
5.	Aris	stotle's lantern is a characteristic fe	ature	of			
	a)	Echinus	b)	Ophiothrix			
	c)	Peripatus	d)	Limulus			
6.	Ret	rogressive metamorphosis is found	d in				
	a)	Cephalochordate	b)	Urochordata			
	c)	Echinodermata	d)	Vertebrata			
7.	Neo	oteny is exhibited by					
	a)	Branchiostoma	b)	Amblystoma			
	c)	Stegostoma	d)	Phrynosoma			
8.	The	e reptilian order Squamata includes	5				
	a)	Crocodiles and alligators	b)	The living fossil 'tuatara'			
	c)	Turtles and tortoises	d)	Snakes and lizards			
9.	Wh	ich of the following is a living fossil	?				
	a)	Echeneis	b)	Lepidosteus			
	c)	Latimeria	d)	Lepidosiren			
10.	Arc	haeopteryx is a connecting link be	tweer	ı			
	a)	Birds and mammals	b)	Reptiles and birds			
	c)	Fishes and reptiles	d)	Amphibians and reptiles			
11.	Fluid mosaic model of cell membrane was proposed by						
	a)	Danielli and Davson	b)	Singer and Nicholson			
	c)	Schleidan and Schwann	d)	Meselson and Stahl			

12.	Whi	of the following organelle is called the 'suicidal bags' of the cell?				
	a)	Ribosomes	b)	Lysosomes		
	c)	Mitochondria	d)	Endoplasmic reticulum		
10	Cro	aging over taken place during				
13.			LA	7		
	a)	Pachytene	D)	Zygotene		
	c)	Diplotene	d)	Leptotene		
14.	Whi	ich one of the following is found on	ly in a	animal cells?		
	a)	Plastids	b)	Ribosome		
	c)	Centriole	d)	Golgi apparatus		
15.		is known as programme	d cel	death.		
	a)	Apoptosis	b)	Endocytosis		
	c)	Necrosis	d)	Metastasis		
4.0				00040		
16.	vvna	at is the theme of World Environme	ent Da	ay 2021?		
	a)	Beat Plastic Pollution				
	b)	Seven Billion People. One Planet	. Cor	sume with Care.		
	c)	Raise Your Voice Not the Sea Le	vel			
	d)	Ecosystem Restoration				
17.	Whi	ich of the following is a Ramsar site	e?			
	a)	Vembanad-Kol Wetland	b)	Sasthamkotta lake		
	c)	Ashtamudi Wetland	d)	All of the above		
18.	. The historic convention on Biological Diversity held in Rio de Janeiro in 1992 is known as:					
	a)	CITES Convention	b)	The Earth Summit		
	c)	G-16 Summit	d)	MAB Programme		

N – 3564

- 19. What is the animal symbol of WWF (World Wildlife Fund)?
 - a) Dolphin b) Giant Panda
 - c) Tiger d) Kangaroo

20. The ability of a population to increase under ideal environmental conditions is called

- a) Natality b) Carrying capacity
- c) Biotic potential d) Redox potential
- 21. The chromosomal complement of individuals with Turner's syndrome is

a)	44A+X	b)	44A +XX
C.	44A+XY	d)	44A + XXY

- 22. If a colour blind lady marries a normal man, their children will be
 - a) Normal daughters and normal sons
 - b) Normal sons and carrier daughters
 - c) Colour blind sons and carrier daughters
 - d) Colour blind sons and colour blind daughters
- 23. A cross between the progeny of F1 and its homozygous recessive parent is called
 - a) Back cross b) Test cross
 - c) Reciprocal cross d) F1 cross

24. When one gene controls two or more different characters simultaneously, the phenomenon is called ————

- a) Apomixis b) Pleiotropy
- c) Polyploidy d) Polyteny
- 25. Decreased ability or inability of blood to clot is
 - a) Thalassemia b) Sickle cell anaemia
 - c) Haemophilia d) Haemolysis

- 26. If a child has O blood group and the father B type, the genotype of the father will be
 - a) l^ol^o b) l^ol^B
 - c) $I^A I^B$ d) $I^B I^B$
- 27. Which of the following is a holandric trait?
 - a) Sickle cell anaemia b) Hypertrichosis
 - c) Colour blindness d) Haemophilia
- 28. Western blotting is the technique for the detection of
 - a) Specific DNA in a sample
 - b) Specific RNA in a sample
 - c) Specific protein in a sample
 - d) Specific glycolipid in a sample
- 29. The human genome contains approximately
 - a) 6 billion base pairs
 - b) 8 billion base pairs
 - c) 3 billion base pairs
 - d) 20 billion base pairs
- 30. Which is the most commonly used enzyme for polymerase chain reaction?
 - a) DNA polymerase b) Taq polymerase
 - c) Reverse transcriptase d) Vent polymerase
- 31. DNA finger printing technique was developed by
 - a) Francis Crick b) HG Khorana
 - c) Alec Jeffrey d) James Watson
- 32. Non-coding sequences in a gene are called as
 - a) Exons b) Introns
 - c) Mutons d) Euchromatin

N – 3564

33. What type of genetic transfer was displayed in the Frederick Griffith experiment?

- a) Transduction b) Transformation
- c) Conjugation d) Transposition
- 34. Which of the following is not a stop codon
 - a) UAA b) UAG
 - c) UGA d) UAC
- 35. If a species contains 23% adenine (A) in its DNA, what is the percentage of guanine (G)?
 - a) 23% b) 87%
 - c) 46% d) 27%

36. Restriction endonucleases are

- a) Enzymes which cleave DNA at specific sites
- b) Enzyme used to generate cDNA from an RNA template
- c) Enzyme which brings about ligation of DNA
- d) Enzymes used in vector-less direct gene transfer
- 37. The Polymerase Chain Reaction was developed by
 - a) Alfred Hershey b) Victor McKusick
 - c) Oswald Avery d) Kary Mullis
- 38. Which of the following cells is involved in cell-mediated immunity?
 - a) Basophils b) T cells
 - c) Mast cells d) Thrombocytes
- 39. Which of the following is an autoimmune disorder?
 - a) Rheumatoid arthritis b) Graves disease
 - c) Type 1 diabetes d) All of the above

- 40. The mean of ten numbers is 58. If one of the numbers is 40, what is the mean of the other nine?
 - a) 18 b) 60
 - c) 162 d) 540
- 41. The average mark secured by 100 students was found to be 40. It was later found that one figure was wrongly read as 83 instead of the correct value of 53. What is the correct mean?
 - a) 39.7 b) 40.3 c) 39.3 d) 40.7

42. The functional unit of contractile system in striated muscle is

- a) Myofibril b) cross bridges
- c) Z-band d) Sarcomere
- 43. Muscles get fatigued due to accumulation of
 - a) ATP b) Lactic acid
 - c) Carbon dioxide d) Phosphate molecule
- 44. Upon stimulation of skeletal muscles, calcium is immediately made available for binding to troponin from
 - a) Bone b) Sarcoplasmic reticulum
 - c) Lymphatic system d) Circulatory system
- 45. In cellular respiration, which of the following metabolic pathways occur only inside mitochondria
 - a) Glycolysis and citric acid cycle
 - b) Glycolysis and oxidative phosphorylation
 - c) Glycolysis and gluconeogenesis
 - d) Citric acid cycle and oxidative phosphorylation

- 46. In the TCA cycle, which of the following combines with Acetyl CoA to form a 6 carbon compound?
 - a) Oxaloacetate b) Glucose
 - c) Pyruvate d) Succinate
- 47. Hormone that promotes the reabsorption of water by nephron is
 - a) Androgen b) Vasopressin
 - c) Oxytocin d) Trypsin
- 48. Gen Bank, the nucleotide sequence database, is maintained by
 - a) Brookhaven laboratory
 - b) DNA database of Japan (DDBJ)
 - c) European Molecular Biology Laboratory (EMBL)
 - d) National Centre for Biotechnology Information (NCBI)
- 49. Industrial melanism is an example for
 - a) Genetic drift b) Natural selection
 - c) Mutation d) Founder effect
- 50. Who proposed the mutation theory of evolution?
 - a) J.B. Lamarck b) Charles Darwin
 - c) Hugo de Vries d) Mendel
- 51. The main prerequisite for allopatric speciation
 - a) Intra specific completion
 - b) Geographical isolation
 - c) Emigration
 - d) Natural selection
- 52. Discontinuous distribution is exhibited by
 - a) Chaetopterus b) Peripatus
 - c) Adamsia d) Scolopendra

53.	Ont	ogeny recapitulates phylogeny is t	he st	atement of
	a)	Preformation theory	b)	Theory of epigenesis
	c)	Biogenetic law	d)	Germplasm theory
54.	lf ai	n egg is completely divided during	cleav	age, it is said to be as
	a)	Meroblastic cleavages	b)	Holoblastic cleavages
	c)	Vertical cleavage	d)	Horizontal cleavage
55.	Bla	stula of frog is		
	a)	Coeloblastula	b)	Periblastula
	c)	Discoblastula	d)	Amphiblastula
56.	Hov	w many somites are in a 24 hour ch	nick e	embryo?
	a)	24	b)	48
	c)	4	d)	14
57.	In 1 Spe	the development of a frog embr emann's primary organizer?	yo, v	which of the following would be the
	a)	Dorsal lip of blastopore	b)	Archenteron
	c)	Ventral lip of blastopore	d)	Epidermal ectoderm
58.	Gra	idual reduction in response to a rep	peate	d stimulus
	a)	Sensitization	b)	Habituation
	c)	Conditioning	d)	Imprinting
59.	The	e protein coat of viruses that enclos	e the	e genetic material is called
	a)	Peplomers	b)	Capsid
	c)	Pilus	d)	Capsomere
60.	Bac	cteria responsible for converting mi	lk to (curd.
	a)	Lactobacillus	b)	Rhizobium
	c)	Acetobacter	d)	Clostridium

10

ANSWER SHEET — PART – A



21	А	В	С	D	Е
22	А	В	С	D	Е
23	А	В	С	D	Е
24	А	В	С	D	Е
25	А	В	С	D	Е
26	А	В	С	D	Е
27	А	В	С	D	Е
28	А	В	С	D	Е
29	А	В	С	D	Е
30	А	В	С	D	Е
31	А	В	С	D	Е
32	А	В	С	D	Е
33	А	В	С	D	Е
34	А	В	С	D	Е
35	А	В	С	D	Е
36	А	В	С	D	Е
37	А	В	С	D	Е
38	А	В	С	D	Е
39	А	В	С	D	Е
40	А	В	С	D	Е



N – 3564

AQUATIC BIOLOGY AND FISHERIES/ ZOOLOGY (PURE AND APPLIED)/ INTEGRATIVE BIOLOGY

PART – B

(Descriptive Type)

Answer **any eight** questions.

(8 × 5 = 40 Marks)

Each question carries 5 marks.

- 1. List the adaptive features of birds for an aerial life.
- 2. What is cell cycle? Explain different phases of eukaryotic cell cycle.
- 3. Briefly explain the importance of Western; Ghats.
- 4. What are multiple alleles? Explain with reference to human blood group
- 5. Concisely explain southern blotting.
- 6. Explain briefly DNA fingerprinting and its application.
- 7. Briefly discuss the basic structure of immunoglobulin.
- 8. Explain the β oxidation of fatty acids.
- 9. Give an account on major hormones of anterior pituitary and their functions.
- 10. What is adaptive radiation? Illustrate the concept with Darwin's finches.
- 11. Give an account of Spemann's constriction experiments.
- 12. Describe briefly the application of microbiology in industrial and biotechnological fields.

13