SH-I/Zoology/103GE-1(T)/19

B.Sc. Semester I (Honours) Examination, 2018-19

ZOOLOGY

Course ID: 12614 **Course Code : SHZOO-103GE-1(T)**

Course Title: Animal Diversity

Time: 1 Hour 15 Minutes **Full Marks: 25**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

দক্ষিণ প্রান্তস্থ সংখ্যাগুলি প্রশ্নের পূর্ণমানের নির্দেশক।
পরীক্ষার্থীদের যথাসম্ভব নিজের ভাষায় উত্তর দিতে হবে।

1. Answer *any five* questions: 1×5=5

নিম্নলিখিত *যে কোনো পাঁচটি* প্রশ্নের উত্তর দাও ঃ

(a) Write the scientific name of two protozoans, one having flagella and other having pseudopodia.

ফ্লাজেলা ও সিউগোপোডিয়া সমন্বিত দুটি প্রোটোজোয়ার বিজ্ঞানসম্মত নাম লেখ।

(b) What is choanocyte?

Choanocyte কী?

(c) What is nematocyst?

নিমাটোসিস্ট কী?

(d) Define metamerism.

মেটামেরিজম এর সংজ্ঞা দাও।

(e) What s Tiedemann's body?

Tiedemann's body কী?

(f) Define amniotes.

Amniotes-এর সংজ্ঞা দাও।

(g) Mention two differences between protochordata and chordata.

প্রোটোকর্ডাটা ও কর্ডাটার মধ্যে দুটি পার্থক্য লেখো।

(h) Give the scientific name of one parasitic protozoa and one parasitic nematode.

একটি পরজীবী প্রোটোজোয়া ও একটি পরজীবী নিমাটোডের বিজ্ঞানসম্মত নাম লেখ।

2. Answer *any two* questions: 5×2=10

নিম্নলিখিত *যে কোনো দুটি* প্রশ্নের উত্তর দাও ঃ

(a) Mention two characteristics features of Phylum Porifera. Briefly describe the Leuconoid type of canal system with diagram. 1+4=5

পর্ব পরিফেরার দুটি বৈশিষ্ট্য লেখো। Leuconoid type canal system-এর সচিত্র বর্ণনা করো।

(b) Briefly describe the process of pearl formation in bivalve molluscs with suitable illustration. 3+2=5

Bivalve মোলাস্কায় মুক্তো তৈরি হওয়ার পদ্ধতি সংক্ষেপে চিত্রসহ বর্ণনা করো।

(c) Mention the characteristics features of primates. Briefly discuss the different types of dentition in mammals. 2+3=5

Primates-এর বৈশিষ্ট্য লেখো। স্তন্যপায়ী শ্রেণিতে বিভিন্ন ধরণের Dentition-এর সম্পর্কে লেখো।

(d) Discuss about different castes of social insects you have studied. 5

তোমার পাঠ্য যেকোনো Social insects-এর বিভিন্ন Castes এর সম্পর্কে লেখো।

3. Answer *any one* question: 10×1=10

যে কোনো একটি প্রশ্নের উত্তর দাও ঃ

(a) Give an account of polymorphism found in Cnidarians with examples and suitable illustration. 8+2=10

উপযুক্ত চিত্র ও উদাহরণসহ Cnidaria পর্বের Polymorphism সম্পর্কে আলোচনা করো।

(b) Define anadromous and catadromous fish migration. What is the significance of fish migration? Write about the osmoregulation process in marine teleosts. 2+2+2+4=10

Anadromous ও Catadromous পরিযান এর সংজ্ঞা দাও। মাছের পরিযানের তাৎপর্য কী? সামুদ্রিক Teleost মাছ এর Osmoregulation পদ্ধতি বর্ণনা করো।

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SP-I/Zoology/101C-1A(P)/19

B.Sc. Semester I (General) Examination, 2018-19

ZOOLOGY

Course ID: 12618 **Course Code : SPZOO-101C-1A(P)**

Course Title: Invertebrate-I

Time: 1 Hour 15 Minutes **Full Marks: 25**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

দক্ষিণ প্রান্তস্থ সংখ্যাগুলি প্রশ্নের পূর্ণমানের নির্দেশক।
পরীক্ষার্থীদের যথাসম্ভব নিজের ভাষায় উত্তর দিতে হবে।

1. Answer *any five* questions: 1×5=5

নিম্নলিখিত *যে কোনো পাঁচটি* প্রশ্নের উত্তর দাও ঃ

(a) What is tautonym? Give an example. ½+½=1

'Tautonym'-এর সংজ্ঞা দাও। একটি উদাহরণ দাও।

(b) What will happen if choanocyte cells become motionless?

Choanocyte কোশগুলির চলন ক্ষমতা নষ্ট হয়ে গেলে তার পরিণতি কী হবে?

(c) Explain the functions of macro-and micro-nucleus in *Paramoecium*. ½+½=1

'Paramoecium'-এর ম্যাক্রো-এবং মাইক্রো নিউক্লিয়াসের কাজ ব্যাখ্যা করো।

(d) Define schizogony.

'Schizogony'-এর সংজ্ঞা দাও।

(e) What do you mean by radial symmetry? Give an example. ½+½=1

অরীয় প্রতিসাম্য বলতে কী বোঝো? একটি উদাহরণ দাও।

(f) Explain the term 'metagenesis'.

'Metagenesis' ব্যাখ্যা করো।

(g) What do you understand by 'Atoll'?

'Atoll' বলতে তুমি কী বোঝো?

(h) What do you mean by digenetic parasite? Give an example. ½+½=1

Digenetic পরজীবি বলতে কী বোঝো? একটি উদাহরণ দাও।

2. Answer *any two* questions: 5×2=10

নিম্নলিখিত *যে কোনো দুটি* প্রশ্নের উত্তর দাও ঃ

(a) Schematically represent the life cycle of *Plasmodium vivax*.

Plasmodium vivax-এর জীবনচক্র চিত্রের মাধ্যমে দেখাও।

(b) Give an account of conjugation in *Paramoecium* with diagram. 3+2=5

Paramoecium এর কনজুগেশন প্রক্রিয়াটির উপযুক্ত চিত্রসহ বর্ণনা করো।

(c) Write a short note on importance of coral reef. List up the factors for coral reef formaton. 3+2=5

Coral reef-এর গুরুত্বের উপর একটি টীকা লেখো। Coral reef-এর গঠনের কারণগুলি উল্লেখ করো।

(d) Mention the salient features of phylum Platyhelminthes. Name on free-living and one parasitic Platyhelminthes (scientific name). 3+2=5

পর্ব Platyhelminthes-এর অন্তর্গত প্রাণীদের মুখ্য বৈশিষ্ট্যগুলি উল্লেখ করো। একটি স্বাধীনজীবি ও একটি পরজীবি Platyhelminthes-র বিজ্ঞানসম্মত নাম লেখো।

3. Answer *any one* question: 10×1=10

যে কোনো একটি প্রশ্নের উত্তর দাও ঃ

(a) Describe the life cycle, pathogenicity and control measures of *Wuchereria bancrofti*. 5+3+2=10

Wuchereria bancrofti-র জীবনচক্র, রোগসৃষ্টিকারী ক্ষমতা এবং এই পরজীবীটির নিয়ন্ত্রণের উপায়গুলি বর্ণনা করো।

(b) Classify phylum Porifera upto classes with examples. Which cell of Porifera is known as totipotent and why? 8+2=10

পর্ব Porifera-এর শ্রেণিবিভাগ করো এবং প্রত্যেকটি শ্রেণির উপযুক্ত উদাহরণ দাও। Porifera-এর কোন কোশকে totipotent বলা হয় এবং কেন বলা হয়?

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SH-I/Zoology-101C-1(P)/19

B.Sc. Semester I (Honours) Practical Examination, 2018-19

ZOOLOGY

Course ID: 12611 **Course Code: SHZOO-101C-1(P)**

Course Title: Non-Chordates – I Lab

Time: 2 Hours **Full Marks: 15**

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer **all** questions.

1. Identify the specimens with reasons provided as A, B and C. (Scientific name: ½, Systematic position: 1, Reasons: 1½). 3×3=9

2. Make a smear preparation of the gut content of Cockroach. Stain it and identify the specimen. (Preparation/Procedure: 1, Staining/Observation: 1, Identification with reasons: 2.) 1+1+2=4

3. Submission of laboratory notebook. 2

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B.Sc. Semester I (Honours) Practical Examination, 2018-19

ZOOLOGY

Course ID: 12611 **Course Code: SHZOO-101C-1(PI)**

Course Title: Non-Chordates – I Lab

Instructions to the Examiners

- For question No.1, three (03) specimens are to be selected, one from each of item 2, 3 and 4 as prescribed in the syllabus.

  Repetition is not allowed for consequent batches in an examination centre.

- For question No. 2 identify the specimens with reasons, draw and label the diagram in the main answerscripts as asked by the examiner.

- A key to the identification of question No. 1 and 2, to be prepared and duly signed by the examiners for each batch and should be enclosed along with the evaluated answerscripts and should be send to the convener within 5 days after completion of examination.

- No marks should be awarded for writing common name of Specimen/Spelling mistake/drawing without labelling/writing technical/scientific terms in other than English.

- Standard procedure for smear preparation of the gut content and standard staining procedure should be given due credit.

- Laboratory note book must cover whole syllabus and due credit should be extended to the candidates for scientific drawing and labelling as well as the endorsement by the concerned teachers.

- During examination only the concerned persons are to be allowed in the examination hall.

- For any discrepancy/anomaly/query, examiners are requested to contact the concerned Convener on urgent basis.

- On completion of the evaluation process the answerscripts are to be enclosed in packets with top sheet containing details of the examinee.

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SH-I/Zoology-102C-2(P)/19

B.Sc. Semester I (Honours) Practical Examination, 2018-19

ZOOLOGY

Course ID: 12622 **Course Code: SHZOO-102C-2(PR)**

Course Title: Perspectives in Ecology Lab.

Time: 2 Hours **Full Marks: 15**

The figures in the right hand side margin indicate marks.
The questions are of equal value.

*Answer **all** questions.*

1. Determine the Shannon—Weiner diversity index of the given natural/hypothetical community. 5

2. Quantify the amount of Dissolved Oxygen content/Free CO_2 by Wrinkler's method of the water sample collected by you and write the principle, procedure and result. 6

(Principle–1½ marks, Procedure–3 marks and Result–1½ marks)

3. Submit a report on the visit as mentioned in the Syllabus. 4

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SH-I/Zoology-102C-2(P)/19

B.Sc. Semester I (Honours) Practical Examination, 2018-19

ZOOLOGY

Course ID: 12622 **Course Code: SHZOO-102C-2(PR)**

Course Title: Perspectives in Ecology Lab.

Card Combination Booklet

A. Compostion and count data of some important water birds in a fresh water wetland of Bankura district is given below. Determine the Shannon–Weiner diversity index of water bird community of the Wetland.

Species	No. of samples
1. Little Grebe	23
2. Little Cormorant	19
3. Pond Heron	14
4. Cattle Egret	16
5. Cotton Teal	52

B. Determine the Shannon–Weiner diversity index of the following hypothetical community.

Species	A	B	C	D	E
No. of samples	26	44	24	30	16

C. Ichthyofounal samples of the following five families have been collected from River Dwarakeswar at a given time. Calculate the Shannon–Weiner diversity index.

Family	No. of samples
1. Clupeiformes	73
2. Perciformes	278
3. Siluriformes	181
4. Cypriniformes	520
5. Osteoglossiformes	16

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D. Determine the Shannon–Weiner diversity index of the following hypothetical community.

Species	A	B	C	D	E
No. of samples	32	48	23	20	27

E. Composition and count data of some important water birds in a fresh water wetland of Bankura district is given below. Determine the Shannon–Weiner diversity index of water bird community of the wetland.

Species	No. of samples
1. Little Grebe	11
2. Little Cormorant	19
3. Pond Heron	04
4. Cattle Egret	05
5. Cotton Teal	29

F. Determine the Shannon–Weiner diversity index of the following hypothetical community.

Species	A	B	C	D	E
No. of samples	27	48	30	24	32

G. Determine the Shannon–Weiner diversity index of the following samples collected from a grassland ecosystem.

	Species	No. of samples
1.	Orthoptera	04
2.	Odonata	07
3.	Hymenoptera	03
4.	Lepidoptera	05
5.	Coleoptera	14

— —

H. Determine the Shannon–Weiner diversity index of the following hypothetical community.

Species	A	B	C	D	E
No. of samples	18	17	24	16	20

I. Ichthyofounal samples of the following five families have been collected from river Gandheswari at a given time. Calculate the Shannon–Weiner diversity index.

Family	No. of samples
1. Clupeiformes	14
2. Perciformes	582
3. Siluriformes	604
4. Cypriniformes	1042
5. Osteoglossiformes	362

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J. Determine the Shannon–Weiner diversity index of the following hypothetical community.

Species	A	B	C	D	E
No. of samples	44	60	78	95	22

K. Determine the Shannon-Weiner diversity index of the following samples collected from a grass land ecosystem.

	Species	No. of samples
1.	Hymenoptera	13
2.	Coleoptera	19
3.	Hemiptera	05
4.	Orthoptera	27
5.	Odonata	03
6.	Lepidoptera	17
7.	Diptera	11

L. Determine the Shannon–Weiner diversity index of the following hypothetical community.

Species	A	B	C	D	E
No. of samples	18	22	14	17	13

M. Composition and count data of some important water birds in a fresh water wetland of Bankura district is given below. Determine the Shannon-Weiner diversity index of water bird community of the wetland.

	Species	No. of samples
1.	Little Grebe	33
2.	Little Cormorant	16
3.	Pond Heron	06
4.	Cattle Egret	08
5.	Cotton Teal	17

N. Determine the Shannon–Weiner diversity index of the following hypothetical community.

Species	A	B	C	D	E
No. of samples	22	161	16	250	30

O. Composition and count data of some important water birds in a fresh water wetland of Bankura district is given below. Determine the Shannon-Weiner diversity index of water bird community of the wetland.

	Species	No. of samples
1.	Little Grebe	18
2.	Little Cormorant	12
3.	Pond Heron	03
4.	Cattle Egret	01
5.	Cotton Teal	19

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P. Determine the Shannon–Weiner diversity index of the following hypothetical community.

Species	A	B	C	D	E
No. of samples	15	42	66	94	63

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SH-I/Zoology-103GE-1(P)/19

B.Sc. Semester I (Honours) Practical Examination, 2018-19

ZOOLOGY

Course ID: 12624 **Course Code : SHZOO-103GE-1(P)**

Course Title : Animal Diversity Lab

Time: 2 Hours **Full Marks: 15**

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Identify the specimen (A, B, C) as provided with reasons. $\left(\frac{1}{2}+1\frac{1}{2}\right)\times3=6$

2. Dissect out the specimen provided. Draw a labelled diagram of the same. 3+1+1=5

3. Prepare a temporary mount of the specimen provided and draw and label. 2+1+1=4

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B.Sc. Semester I (Honours) Practical Examination, 2018-19

ZOOLOGY

Course ID: 12624 **Course Code : SHZOO-103GE-1(PI)**

Course Title : Animal Diversity Lab

Instruction to the Examiners

1. Necessary arrangements may please be made before the date of commencement of practical examinations.

2. For Question No. 1, two specimens are to be selected from Item 1 and one from Item 2 of the syllabus.

For specimens, scientific name (½ mark), systematic position (½ mark) and characters (1 mark) are to be given. For T.S ½ mark should be given for identification and 1½ marks for characters.

For Question No. 1, separate loose sheets should be supplied to the candidates in the identification Hall and should be collected within schedule time.

The loose sheets are to be attached with the main answer scripts after evaluation and duly signed by the examiner.

3. For question No. 2, specimens are to be supplied to the examinee as per Item 4 of the syllabus.

Examiners are requested to write the selected dissection for the students on the blackboard and to instruct the examinees to write the allotted dissection of the first right page of the answer script and duly signed the answer script.

Examinees have to draw the labeled diagram of the dissection. For dissection 3 marks, for drawing 1 mark and for labeling 1 mark are to be given.

4. For question No. 3, specimens are to be supplied to the examinee as per Item 3 of the syllabus.

5. Full name and signature along with address of the examiners should be enclosed with the answer scripts.

6. After completion of examination the answer scripts should be enclosed in a sealed packet containing top sheet. Award list should be separately submitted.

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SP-I/Zoology-101C-1A(P)/19

B.Sc. Semester I (General) Practical Examination, 2018-19

ZOOLOGY

Course ID: 12628 **Course Code: SPZOO-101C-1A(P)**

Course Title: Core P1 – Invertebrate Lab

Time: 2 Hours **Full Marks: 15**

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer **all** questions

1. Identify the specimens marked A, B, C and D with reasons.
For specimen : [Generic name — ½ ; Systematic position — ½ ; Reasons — 1½] 2½×4=10

2. Spot identify the following specimen and comment on the pathogenic effect. 1+2=3

3. Submission of the Laboratory note book. 2

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B.Sc. Semester I (General) Practical Examination, 2018-19

ZOOLOGY

Course ID: 12628 **Course Code: SPZOO-101C-1A(PI)**

Course Title: Core P1 – Invertebrate Lab

Instructions to the Examiners

1. Necessary arrangements may please be made before the date of commencement of practical examinations.

2. For Question No 1, four specimens are to be selected from the entire syllabus.

   For specimens, scientific name (½ marks), systematic position (½ marks) and characters (1½ marks) are to be mentioned.

   For Question No 1, separate loose sheets should be supplied to the candidates in the identification Hall and should be collected within schedule time.

   The loose sheets are to be attached with the main answer scripts after evaluation and duly signed by the examiner.

3. For Question No. 2, one spot identification to be selected from *Fasciola hepatica*, *Taenia solium* or *Ascaris lumbricoides*. Candidates have to write a note on the pathological pathogenic effect.

4. During assessment of laboratory notebook due credit must be given to examinee who has covered the syllabus on a regular basis.

5. Only the examiner and laboratory personnel's should be allowed to enter the laboratory during examination.

6. Full name and signature together with address of the examiners should be enclosed with the answer scripts.

7. After completion of examination the answer scripts should be enclosed in a sealed packet containing top sheet. Award list should be separately submitted.

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SH-I/Zoology-101C-1(T)/19

B.Sc. Semester I (Honours) Examination, 2018-19

ZOOLOGY

Course ID: 12601 **Course Code: SHZOO-101C-1(T)**

Course Title: Non-Chordate I

Time: 1 Hour 15 Minutes **Full Marks: 25**

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer *any five* questions: 1×5=5

(a) What is holotype?

(b) Why phylum Porifera is known as dead end phylum?

(c) What do you mean by available name?

(d) What is Endomixis?

(e) What do you mean by metachronous rhythm?

(f) Write down the larval form of *Obelia* sp.

(g) What is Schuffner's dot?

(h) Name primary and secondary host of *Plasmodium vivax*.

2. Answer *any two* questions: 5×2=10

(a) What is symmetry? Describe various types of symmetry. 1+4=5

(b) Describe life cycle of *Entamoeba histolytica* with suitable diagram. 3+2=5

(c) What is Atoll? Give example of a Barrier Reef. What is coral bleaching? Mention briefly the importance of corals. 1+1+1+2=5

(d) Explain principle of priority with suitable examples. Distinguish between synonym and homonym. 3+2=5

3. Answer *any one* question: 10×1=10

(a) What is Polymorphism? State the different types of polymorphism in Hydrozoan Cnidaria.

(b) Classify Phylum Porifera upto classes according to Hyman with characteristics features and example of each class.

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SH-I/Zoology-102C-2(T)/19

B.Sc. Semester I (Honours) Examination, 2018-19

ZOOLOGY

Course ID: 12612 **Course Code: SHZOO-102C-2(T)**

Course Title: Perspective in Ecology

Time: 1 Hour 15 Minutes **Full Marks: 25**

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer *any five* questions: 1×5=5

(a) Define Bioindicator.

(b) What do you mean by stenothermal organism?

(c) What is Keystone species?

(d) What is species dominance?

(e) What is carrying capacity?

(f) Define food web.

(g) What is emigration?

(h) What is Blue data book?

2. Answer *any two* questions: 5×2=10

(a) What is survivorship curve? Describe different survivorship curves with examples. 2+3=5

(b) Write Gause's principle and give one example. Define species richness. 1+2+2=5

(c) What do you mean by seral community and climax stage? What is ecotone? 2+2+1=5

(d) Distinguish between Y shaped food chain and detritus food chain. What is NPP? 4+1=5

3. Answer *any one* question: 10×1=10

(a) Discuss the Logistic and Exponential growth curve with figures and equations. Compare between r selected population and K selected population. 6+4=10

(b) Explain Biosphere Reserve using a suitable model. What is cryopreservation? Suggest some management strategies for Tiger conservation. Write full form of UNESCO. 3+1+5+1=10

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