

*SH-III/ZOO/302/C-6(P)/19*

**B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32622**

**Course Code : SH/ZOO/302/C-6**

**Course Title: Animal Physiology Controlling and Co-ordinating System 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 histological tissue sections (A and B) provided with identifying characters. 2×3=6  
Identificaton : 1  
Reasons : 2
  2. Prepare a thin paraffin section of the tissue from the tissue block provided. Stretch and orient the sections on glass slide. 2+1+1=4
  3. Prepare a temporary mount of the sample provided. Draw the structure and label it. 1+1=2
  4. Submit two permanent slides prepared from two different mammalian tissues. ½+½=1
  5. Submit your Laboratory Notebook. 2
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*SH-III/ZOO/302/C-6(PI)/19*

**B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32622**

**Course Code : SH/ZOO/302/C-6**

**Course Title: Animal Physiology Controlling and Co-ordinating System Lab.**

**Instructions to the Examiners.**

1. The examiners are requested to make the necessary arrangements before the date of commencement of practical examination.
2. For question No. 1, examiners are requested to instruct the examinee to identify and write down the characters of the histological section provided. At least two different sets should be provided for each batch of students. (Identification-1mark, Characters-2marks.)
3. For tissue section, the examiners are requested to supply marked slides to the examinees and instruct them to make 8-10  $\mu$ m thin ribbon by using microtome, stretch, and orient the tissues in two rows.
4. For question no. 3, marked slides are to be provided to the examinees and then asked to prepare a temporary mount of the supplied tissues (according to Item No. 2 of the syllabus).
5. Examiners are requested to send the following items within 7 days after completion of the examination to the convenor:
  - (a) Examiners 'Data sheet' containing names, specimen signature, address and phone number of all the Examiners.
  - (b) Key to identification for Question No. 1.
  - (c) Answer scripts of the candidates under sealed cover.
  - (d) Photo copies of the attendance sheets of all candidates.

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SH-III/ZOO/303/C-7/19

**B.Sc. 3rd Semester (Honours) Examination, 2019-20****ZOOLOGY****Course ID : 32613****Course Code : SH/ZOO/303/C-7****Course Title: Fundamentals of Biochemistry****Time: 1 Hour 15 Minutes****Full Marks: 25**

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

1. Answer *any five* of the following: 1×5=5
- What is hn RNA?
  - What are glycolipids?
  - Name two non-essential amino acids.
  - Draw the structure of deoxyribose sugar.
  - What is the empirical formula of carbohydrates?
  - What is co-enzyme?
  - What is oxydative phosphorylation?
  - What is glycolysis?
2. Answer *any two* of the following: 5×2=10
- State the differences between DNA and RNA with suitable diagram(s). 3+2=5
  - Why Citric Acid Cycle is designated as an open cycle? Distinguish between Transamination and Deamination with suitable examples. 1+3+1=5
  - What is Km? Mention four factors those determine the velocity of enzyme reaction. 1+4=5
  - What is Chargaff's rule? Draw the transcribed structure of the following DNA segment 5'-CGTTCGGTC-3'. If GC content of a DNA molecule is 64% (per cent), then what will be the percentages of the four bases (A, T, G and C) in this molecules? 1+2+2=5
3. Answer *any one* of the following: 10×1=10
- How does nucleosides differ from nucleotides? Mention the bonds responsible for the stabilization of protein structures. Describe the urea cycle and why does it occurs in liver. 2+2+4+2=10
  - What is SIDS? What is the final step in the  $\beta$ -oxidation of fatty acids? Mention the scopes of biochemistry in Medical Science. Describe the role of Cholesterol in hormone synthesis. 1+2+4+3=10

*SH-III/ZOO/303/C-7(P)/19*

**B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32623**

**Course Code : SH/ZOO/303/C-7**

**Course Title: Fundamentals of Biochemistry 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. Perform the qualitative tests of the functional group in the sample provided to you mentioning the principle and result. 1+2=3
  2. Quantitatively estimate the amount of protein in the provided sample by Lowry method mentioning its principle and result. 2+4=6
  3. Perform the experiment with the sample provided to you mentioning its principle and result. 1+3=4
  4. Submit the laboratory notebook. 2
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*SH-III/ZOO/303/C-7(PI)/19*

**B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32623**

**Course Code : SH/ZOO/303/C-7**

**Course Title: Fundamentals of Biochemistry Lab**

**Instructions to the Examiners**

1. For question no 1 examiners are requested to select any one from item no 1 of the syllabus as sample.  
(For principle-1mark and for result-2marks)
2. For question no.2, examiners are requested to make arrangement for known and unknown solutions of protein samples and graph paper for individual candidates.  
(For principle-2mark and for result-4marks)
3. For question no. 3, examiners are requested to select any one item from item no. 3 or 4 of the syllabus.  
(For principle-1mark and for result-3marks)
4. For question no. 4, the candidates should submit their duly signed (by the teacher) laboratory notebook containing every items prescribed in 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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SH-III/ZOO/304/GE-3/19

**B.Sc. 3rd Semester (Honours) Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32614**

**Course Code : SH/ZOO/304/GE-3**

**Course Title: Environment and Public Health**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

*The figures in the margin indicate full marks.*

*The questions are of equal value.*

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

**1. Answer any five questions:**

**2×5=10**

যে কোনো পাঁচটি প্রশ্নের উত্তর দাও :

(a) What is biomedical waste?

স্বাস্থ্য সম্পর্কিত বর্জ্য কী?

(b) Name any two process for secondary waste water treatment.

যে কোনো দুটি পদ্ধতির নাম বলো যেগুলি secondary waste water treatment এর সাথে যুক্ত।

(c) Define carbon foot print.

কার্বন ফুটপ্রিন্ট কী?

(d) Write down the symptoms of Typhoid disease.

টাইফয়েড রোগের লক্ষণগুলি লেখো।

(e) What is kyolo protocol?

কিয়েটো প্রোটোকল কী?

(f) Write the importance 'Reverse Osmosis' in control of water pollution.

জলের দূষণ নিয়ন্ত্রণে 'বিপরীত অভিস্রবন' এর গুরুত্ব লেখো।

(g) Name the causative agent of filariasis.

কোন জীব filariasis-এর জন্য দায়ী?

(h) What do you mean by 'Global warming'?

'বিশ্ব উষ্ণায়ন' বলতে কী বোঝায়?

2. Answer any four questions:

5×4=20

যে কোনো চারটি প্রশ্নের উত্তর দাও :

(a) With the help of an example explain the principle of '3R's' of waste management.

আবর্জনা ব্যবস্থাপনাতে 3R নীতি একটি করে উদাহরণের দ্বারা বুঝিয়ে লেখো।

(b) What do you mean by Ozone layer destruction? Write down the main causes of Ozone layer destruction. State the environmental hazards due to ozone layer destruction.

1+2+2=5

ওজোন স্তরের ক্ষয় বলতে কী বোঝো? ওজোন স্তরের ক্ষয়ের প্রধান কারণগুলি কী? ওজোন স্তরের ক্ষয়ের পরিবেশগত সমস্যাগুলি উল্লেখ করো।

(c) Write one primary and one secondary air pollutant. Write down the possible causes and hazards of Minamata disease.

1+2+2=5

একটি মুখ্য ও একটি গৌণ বায়ুদূষক এর নাম লেখো। মিনামাটা রোগের কারণ ও অসুবিধাগুলি উল্লেখ করো।

(d) Write a short note on the fate of toxic substances in the environment.

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পরিবেশে বিষাক্ত পদার্থের পরিণতি সম্বন্ধে সংক্ষিপ্ত আলোচনা করো।

3. Answer any one question:

10×1=10

যে কোনো একটি প্রশ্নের উত্তর দাও :

(a) What do you mean by occult filariasis? Write down the symptoms of tuberculosis. State the preventive measures of tuberculosis.

2+4+4=10

ওকাল্ট ফাইলেরিয়াসিস বলতে কী বোঝো? Tuberculosis-এর লক্ষণগুলি কী কী? এই রোগের প্রতিরোধ ব্যবস্থাগুলি আলোচনা করো।

(b) Write a short note on any two:

5+5=10

যে কোনো দুটি বিষয়-এর উপর সংক্ষিপ্ত আলোচনা করো :

(i) e-water management

e-বর্জ্য ব্যবস্থাপনা

(ii) Write down the effects of climate on public health

জনস্বাস্থ্যে পরিবেশের প্রভাব আলোচনা করো।

(iii) Sources of environmental hazards.

পরিবেশগত বিপদের উৎস উল্লেখ কর।

*SH-III/ZOO/304/GE-3(P)/19*

**B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32624**

**Course Code : SH/ZOO/304/GE-3**

**Course Title: Environment and Public Health 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. Determine the NO<sub>3</sub> content of supplied water sample by the help of water testing Kit. Write down the result and comment on it. 6  
প্রদত্ত জলে নমুনাটির NO<sub>3</sub>-এর পরিমাণ ফলাফল এবং মন্তব্য লেখ। Kit-এর দ্বারা নির্ণয় করো।  
[Procedure — 2, Result—2, Comment—2]  
[পদ্ধতি—২, ফলাফল—২, মন্তব্য—২]
2. Determine the pH of supplied soil sample. Write down the result and comment on it. 7  
প্রদত্ত মাটির নমুনাটির pH-এর নির্ণয় করো। এর ফলাফল লেখো ও তার সম্বন্ধে মন্তব্য করো।  
[Procedure — 3, Result—2, Comment—2]  
[পদ্ধতি — ৩, ফলাফল — ২, মন্তব্য — ২]
3. Submit the laboratory note book. 2  
ল্যাবরেটরী নোট বইটি জমা করো।



SH-III/ZOO/305/SEC-1/19

**B.Sc. 3rd Semester (Honours) Examination, 2019-20****ZOOLOGY****Course ID : 32615****Course Code : SH/ZOO/305/SEC-1**

Course Title: Apiculture

**Time: 2 Hours****Full Marks: 40**

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

1. Answer *any five* of the following: 2×5=10
  - (a) In which class and order the Honey bee belongs?
  - (b) Write down one Indian species and one European species (Scientific name) of Honey bee.
  - (c) Define Nature's Apiary in Air.
  - (d) What is Royal Jelly?
  - (e) What do you know about Super Sedure?
  - (f) Mention the number of chromosome of Drone?
  - (g) Name four Equipment's used in Apiculture?
  - (h) What is Nuptial Flight?
  
2. Answer any four of the following: 5×4=20
  - (a) Describe the characteristics features of worker Honey bee along with their functions. 3+2=5
  - (b) Define Brood cells? Mention the different types of cells or chambers of Honey comb. 2+3=5
  - (c) What is Swarming? Mention the reasons behind it. 2+3=5
  - (d) Mention the advantages and disadvantages of Improved method of Apiculture. 2½+2½=5
  - (e) Short notes on: 2½+2½=5
    - (i) Honey Dew
    - (ii) Queen Substance
  - (f) Write down the difference between Langstroth and Newton Box.
  
3. Answer *any one* of the following: 10×1=10
  - (a) Define Bee language? Name the scientist who first observed it. Describe one type of Bee dance with suitable figure. 2+1+7=10
  - (b) What is Honey flow period? Describe the different types disease and enemies of Honey bee and their control measures. 2+4+4=+410

**B.Sc. 3rd Semester (Programme) Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32618**

**Course Code : SP/ZOO/301/C-1C**

**Course Title: Physiology and Biochemistry**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

*The figures in the margin indicate full marks.*

*The questions are of equal value.*

*দক্ষিণ প্রান্তস্থ সংখ্যাগুলি প্রশ্নের পূর্ণমানের নির্দেশক।*

*পরীক্ষার্থীদের যথাসম্ভব নিজের ভাষায় উত্তর দিতে হবে।*

**1. Answer any five questions:**

**2×5=10**

*যে কোনো পাঁচটি প্রশ্নের উত্তর দাও :*

(a) Define hemostasis.

Hemostasis-এর সংজ্ঞা দাও।

(b) Mention the functions of Schwann cells in the vertebrate nervous system.

মেরুদণ্ডী প্রাণীদের স্নায়ুতন্ত্রে Schwann কোশের কাজ উল্লেখ করো।

(c) What do you mean by Intercalated discs?

Intercalated discs বলতে তুমি কী বোঝো?

(d) Define Gluconeogenesis.

Gluconeogenesis-এর সংজ্ঞা দাও।

(e) What is Juxtaglomerular apparatus?

Juxtaglomerular apparatus কী?

(f) Explain the term 'Michaelis constant (Km)'.

'Michaelis constant (Km)' কথাটি ব্যাখ্যা করো।

(g) What is Chloride shift?

Chloride shift কাকে বলে?

(h) What do you mean by Z-line in a muscular tissue?

পেশিকলার Z-line বলতে কী বোঝো?

2. Answer any four questions:

5×4=20

যে কোনো চারটি প্রশ্নের উত্তর দাও :

(a) With the help of a suitable diagram, explain the molecular basis of skeletal muscle contraction. 2+3=5

চিহ্নিত চিত্রসহযোগে কঙ্কাল পেশির সংকোচনের প্রক্রিয়াটির molecular ভিত্তি ব্যাখ্যা করো।

(b) Briefly describe the mechanism of urine-formation in a mammalian nephron. 5

স্তন্যপায়ী প্রাণীর nephron-এ মূত্র উৎপাদনের প্রক্রিয়াটি সংক্ষেপে বর্ণনা করো।

(c) Write a short note on the digestion and absorption of lipids in the alimentary canal. 2+3=5

পৌষ্টিকনালীর মধ্যে স্নেহপদার্থের পরিপাক ও বিশোষণের উপর একটি টীকা লেখো।

(d) Define Apoenzyme and Holoenzyme. Mention the major characteristics features of Enzyme. 2+3=5

অ্যাপোএনজাইম ও হলোএনজাইম এর সংজ্ঞা দাও। উৎসেচকের প্রধান বৈশিষ্ট্যগুলি উল্লেখ কর।

3. Answer any one question:

10×1=10

যে কোনো একটি প্রশ্নের উত্তর দাও :

(a) Describe the role of haemoglobin in the transport of oxygen in blood. Explain the oxygen-haemoglobin dissociation curve, mentioning the factors affecting it. 6+4=10

রক্তে Oxygen পরিবহনে Haemoglobin-এর ভূমিকাটি বর্ণনা করো। অক্সিজেন বিয়োজন লেখচিত্রটি (Oxygen-haemoglobin dissociation curve) ব্যাখ্যা করো এবং এর নিয়ন্ত্রণকারী প্রভাবকগুলি উল্লেখ করো।

(b) What is resting membrane potential? With the help of a suitable diagram, describe the generation, propagation & synaptic transmission of an action potential along a myelinated nerve fiber. 2+8=10

স্থিতিবিভব (Resting Membrane Potential) বলতে কী বোঝো? চিহ্নিত চিত্র সহযোগে মায়েলিন আবরণী যুক্ত স্নায়ুতন্তুর মধ্য দিয়ে ক্রিয়াবিভবের (Action Potential) উৎপত্তি, পরিবহন এবং স্নায়ুসন্ধি পরিবহন প্রক্রিয়াটির বর্ণনা দাও।

*SP-III/ZOO/301/C-1C(P)/19*

**B.Sc. 3rd Semester (Programme) Practical Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32628**

**Course Code : SP/ZOO/301/C-1C(P)**

**Course Title: Physiology & Biochemistry 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.*

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

1. Perform a qualitative test of the sample provided. [Principle -1mark & Result- 2marks]

1+2=3=10

প্রদত্ত নমুনাটির গুণগত মান নির্ণয় করো।

2. Estimate the total protein content of the sample provided by the Lowry's Method. [Principle-1mark & Result- 2marks]

1+3=4

Lowry পদ্ধতিতে প্রদত্ত নমুনাটির মোট প্রোটিনের পরিমাণ নির্ণয় করো।

3. Prepare a slide of haemin crystals with the sample provided. [Principle-1mark & Result- 2marks]

1+2=3

প্রদত্ত নমুনাটি থেকে haemin crystals তৈরি করো।

4. Identify the specimens provided (A to B) with reasons. [Identification-½ mark, Reason-1mark]

2×1½=3

উপযুক্তকারণসহ প্রদত্ত নমুনাগুলি (A এবং B) শনাক্ত করো।

5. Submission of Laboratory Notebook.

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Laboratory Notebook জমা দাও।

*SP-III/ZOO/301/C-1C(PI)/19*

**B.Sc. 3rd Semester (Programme) Practical Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32628**

**Course Code : SP/ZOO/301/C-1C**

**Course Title: Physiology & Biochemistry**

**Instructions to the Examiners**

1. For question number 1, examiners are requested to one test from Item No.4.
  2. For question number 2, examiners are requested to ask students to estimate total protein content of the sample provided by Lowry's Method.
  3. For question number 3, examiners are requested to make an arrangement for Haemin crystal preparation from human/rat blood sample.
  4. For question number 4, examiners are requested to select one specimen from Item no. 2 & another from Item no. 3, for identification.
  5. For question number 5, examiners are requested to give credit on the regularity & completeness of the laboratory notebook.
  6. Examiners are requested to send the following items within seven days after completion of the examination to the convener.
    - (a) Examiner's datasheet containing names, specimen signatures, addresses & phone numbers of all examiners.
    - (b) Key to the identification.
    - (c) Answerscripts of the candidates in sealed packet.
    - (d) Award list under sealed cover.
    - (e) Photocopies of the attendance sheet of all candidates.
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SP-III/ZOO/304/SEC-I/19

**B.Sc. 3rd Semester (Programme) Examination, 2019-20****ZOOLOGY****Course ID : 32610****Course Code : SP/ZOO/304/SEC-I****Course Title: Apiculture (Economic Zoology)****Time: 2 Hours****Full Marks: 40***The figures in the margin indicate full marks.**The questions are of equal value.**দক্ষিণ প্রান্তস্থ সংখ্যাগুলি প্রশ্নের পূর্ণমানের নির্দেশক।  
পরীক্ষার্থীদের যথাসম্ভব নিজের ভাষায় উত্তর দিতে হবে।***1. Answer any five questions:****2×5=10***যে কোনো পাঁচটি প্রশ্নের উত্তর দাও :*

(a) Define Apiculture.

Apiculture-এর সংজ্ঞা দাও।

(b) Write the scientific name of 'Little bee' &amp; 'Rock bee'.

'Little bee' এবং 'Rock bee'-এর বিজ্ঞান সম্মত নাম লেখো।

(c) What is 'Honey Stomach'?

'Honey Stomach' কী?

(d) Define 'Nuptial flight'.

'Nuptial flight'-এর সংজ্ঞা দাও।

(e) What is Absconding?

'Absconding' কাকে বলে?

(f) What is Queen substance? State its importance in bee hive.

'Queen substance' কী? মৌচাকে এর গুরুত্ব বর্ণনা করো।

(g) What is 'Waggle Dance'?

'Waggle Dance' কাকে বলে?

(h) What do you mean by Apitoxin?

'Apitoxin' বলতে কী বোঝো?

**2. Answer any four questions:****5×4=20***যে কোনো চারটি প্রশ্নের উত্তর দাও :*

(a) What qualities are required to be a 'Good queen' in Apiculture? What is Honey Dew?

3+2=5

মৌমাছি প্রতিপালনের সময় একটি আদর্শ রানী মৌমাছির কী কী গুণাবলী থাকা দরকার? মৌ নিহার কী?

- (b) Write the natural process of 'Ripening of Honey' from pollen. 5  
মকরন্দ থেকে মধু তৈরির প্রাকৃতিক পদ্ধতি টি বর্ণনা করো।
- (c) What are the drawbacks of indigenous method of honey extraction? Who discovered 'Honey Extractor'? 4+1=5  
দেশীয় পদ্ধতিতে মধু নিষ্কাশনের ত্রুটি গুলি কী কী? মধু নিষ্কাশন যন্ত্রের আবিষ্কার্তা কে?
- (d) Write a short note on duties of worker honey bee. 3+2=5  
কর্মী মৌমাছির কাজগুলির উপর সংক্ষিপ্ত টীকা লেখো।
- (e) What are the important features of 'good apiary site'? Mention some modern methods in employing artificial bee hives. 1+1+1+2=5  
একটি আদর্শ Apiary site এর গুরুত্বপূর্ণ বৈশিষ্ট্যগুলি কী কী? কৃত্রিম মৌচাক নির্মাণের কিছু আধুনিক পদ্ধতি উল্লেখ করো।
- (f) What are the uses of these bee keeping instruments? 1+1+1+2=5  
মৌমাছি প্রতিপালনে নিম্নলিখিত যন্ত্রগুলির ব্যবহার কী?  
(A) Bee veil (B) Smoker  
(C) Queen Cage (D) Honey extractor

3. Answer any one question: 10×1=10

যে কোনো একটি প্রশ্নের উত্তর দাও :

- (a) Briefly describe the social organization of bee colony with two characteristics of each class. Write some uses of honey. (4+3)+3=10  
একটি মৌমাছি কলোনির সামাজিক বন্ধন সংক্ষেপে বর্ণনা করো ও প্রতিটি শ্রেণির দুটি করে বৈশিষ্ট্য লেখো। মধুর ব্যবহার সম্বন্ধে লেখো।
- (b) Write a note on the preventive measures and control of bee diseases. 6+4=10  
মৌমাছির রোগ যাতে না হয় সেব্যাপারে সতর্কতা এবং রোগের নিয়ন্ত্রন পদ্ধতি সম্বন্ধে লেখ।

**SH-III/ZOO/301/C-5/19**

**B.Sc. 3rd Semester (Honours) Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32611**

**Course Code : SH/ZOO/301/C-5**

**Course Title: Diversity of Chordata**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

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

1. Answer *any five* of the following: 1×5=5
- (a) What is retrogressive metamorphosis?
  - (b) What is Prong horn?
  - (c) Name the bones constituting the Weberian ossicle.
  - (d) Define plastron.
  - (e) Give one example of Parental Care in amphibia.
  - (f) What is wheel organ?
  - (g) What is Physostomous swim bladder?
  - (h) Name one limbless amphibia (scientific name).
2. Answer any two of the following: 5×2=10
- (a) Discuss the causes of migration in birds. 5
  - (b) Mention the Bernoulli's Principle. Briefly discuss the aerodynamics of bird's flight. 1+4=5
  - (c) Distinguish between Chondrichthyes and Osteichthyes. 5
  - (d) Briefly describe the structure and function of mammalian hair. 3+2=5
3. Answer *any one* of the following: 10×1=10
- (a) Classify Reptilia up to living order with examples (Scientific Name). 8+2=10
  - (b) Why platypus is recognised as mammal? What are vibrissae and mane? Draw and describe the structures found in an Ascidian Tadpole larva? Name the organs associated with the echolocation in cetaceans. 2+2+(1+4)+1=10
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*SH-III/ZOO/301/C-5(P)/19*

**B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32621**

**Course Code : SH/ZOO/301/C-5**

**Course Title: Diversity of Chordata (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 specimens provided (A, B and C) with reasons.  
Generic name-1mark, Resons-2marks 3×3=9
  
  2. Dissect out and display the parts of the specimen provided. Draw a neat diagram and label the parts.  
Dissection and display (1+1)=2 marks  
Drawing- 1mark. Labelling-1mark. 2+1+1=4
  
  3. Submission of Laboratory Notebook. 2
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*SH-III/ZOO/301/C-5(PI)/19*

**B.Sc. 3rd Semester (Honours) Practical Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32621**

**Course Code : SH/ZOO/301/C-5**

**Course Title: Diversity of Chordata (Lab)**

**Instructions to the Examiners.**

1. For question no. 1, three specimens are to be selected from item no. 1 of the syllabus taking maximum one from each group. For question no. 1, separate loose sheets should be supplied to the candidates in the identification Hall and should be collected within schedule time.
2. For question no. 2, any one dissection from item 2 or 3 of the syllabus may be given. Please write the dissection selected for students on the blackboard. Instruct the examinees to write the allotted dissection on the first right page of the answer script and should be duly signed by the examiner.
3. For laboratory notebook neatness and regularity should be given due credit.

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**SH-III/ZOO/301/C-5/19**

**B.Sc. 3rd Semester (Honours) Examination, 2019-20**

**ZOOLOGY**

**Course ID : 32612**

**Course Code : SH/ZOO/302/C-6**

**Course Title: Animal Physiology : Controlling and Co-ordinating System**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

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

1. Answer *any five* of the following: 1×5=5
- (a) What is polyspermy?
  - (b) What do you mean by oligomenorrhea?
  - (c) What is primordial germ cell?
  - (d) What is spike potential?
  - (e) What is neurohormone?
  - (f) Which protein helps in the species-specific recognition of sperm and egg?
  - (g) On which day ovulation occurs in menstrual cycle?
  - (h) Name the hormone related to cretinism and myxoedema.
2. Answer *any two* of the following: 5×2=10
- (a) Briefly describe how spermatids are transformed into mature sperm with illustration. 5
  - (b) How metaphase II arrest is relieved in mammalian oocytes? 5
  - (c) Briefly describe the role of progesterone and oestrogen in menstrual cycle. 2½+2½=5
  - (d) Discuss the role of two placental hormones —HCG and HCS. 2½+2½=5
3. Answer *any one* of the following: 10×1=10
- (a) What is motor-end plate? Briefly describe with suitable illustration the mechanism of synaptic nerve impulse transmission. 2+8=10
  - (b) Describe the CAMP signalling pathway mediating the peptide hormone activity with proper illustration. State one example of negative feedback control of hormone action. 6+2+2=10
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