

**B.Sc. Semester II (Honours) Examination 2018**

**PHYSIOLOGY PRACTICAL**

**Subject Code : 22511**

**Course Code : SH/PHY/201/CP<sub>3</sub>**

**Course Title : Physiology of Nerve and Muscle Cells Lab**

**INSTRUCTIONS TO THE EXAMINERS**

1. One slide should be marked by diamond pencil.
  - Marking —
  - Teasing - 2
  - Staining - 3
  - Mounting - 1
  - Focussing of Striation - 1
  - Focussing of Nucleus - 1
  - Drawing and Labelling - 1+1
2. Credit should be given on the basis of—
  - Laboratory notebooks must be signed by the class teachers.
  - Percentage of syllabus covered.
  - Neat presentation of the notebook.
3. Viva Voce : Questions are to be asked from—  
Practical performed, Instruments used and theoretical knowledge.

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***BNK22511***

**B.Sc. Semester II (Honours) Examination 2018**

**PHYSIOLOGY PRACTICAL**

**Subject Code : 22512**

**Course Code : SH/PHY/202/CP<sub>4</sub>**

**Course Title : Chemistry of Biomolecules Lab**

**Time: 2 Hours**

**Full Marks: 15**

*The figures in the right hand side margin indicate marks.*

1. Identify the supplied bio-chemical substance in solution (lottery system) through systematic analysis with one confirmatory test. 10  
(Write in detail of all the tests performed systematic analysis-8, confirmatory test-2.)
  2. Laboratory Notebook 3
  3. Viva Voce : 2
    - (a) On practicals performed
    - (b) On practical instruments
    - (c) On theoretical part of the syllabus
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***BNK22512***

**B.Sc. Semester II (Honours) Examination 2018**

**PHYSIOLOGY PRACTICAL**

**Subject Code : 22512**

**Course Code : SH/PHY/202/CP<sub>4</sub>**

**Course Title : Chemistry of Biomolecules Lab**

**INSTRUCTIONS TO THE EXAMINERS**

1. Following samples are to be prepared : 10  
Glucose, Fructose, Lactose, Sucrose, Albumin, Starch, Peptone, Urea, Bile salt and Glycerol.
  - Systematic tests—8
  - Confirmatory tests—2
  - No mark should be given for incorrect identification.
2. Laboratory Notebook 3
  - Biochemistry(The Notebook must have Qualitative analysis including unknown test.)
  - Marks should be awarded in the notebooks on the basis of— coverage of syllabus and regular signature by class teacher(s).
3. Viva voce 2  
Question should be asked on—Practicals performed and on theoretical portion of the syllabus including instruments used.

**General Instructions**

- (i) All part marking (including spot marking) should be noted in the answer-script in respective question/answer.
  - (ii) Award list, Sample key, Answer-scripts and Award key (photocopy) should be submitted to H.E. with proper signature of all examiners.
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***BNK22512***

**B.Sc. Semester II (Honours) Examination 2018**

**PHYSIOLOGY PRACTICAL**

**Subject Code : 22513**

**Course Code : SH/PHY/203/GEP<sub>2</sub>**

**Course Title : Developmental Biology and Embryology Lab**

**Time: 2 hours**

**Full Marks: 15**

*The figures in the right hand side margin indicate marks.*

1. Stain properly the supplied tissue section using haematoxylin and eosin focus under the microscope, identify the tissue and write its two characteristics. 8+2  
প্রদত্ত কলার নমুনা হিমাটক্সিলিন ও ইওসিন দ্বারা রঞ্জিত করো, অনুবীক্ষণ যন্ত্রের নীচে দৃশ্যমান কলাটি শনাক্ত করো এবং তার শনাক্তকারী দুটি বৈশিষ্ট্য লেখো।
  2. Laboratory notebook 3  
পরীক্ষাগারের ব্যবহারিক খাতা
  3. *Viva Voce* 2  
মৌখিক
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**BNK22513**

**B.Sc. Semester II (Honours) Examination 2018**

**PHYSIOLOGY PRACTICAL**

**Subject Code : 22513**

**Course Code : SH/PHY/203/GEP<sub>2</sub>**

**Course Title : Developmental Biology and Embryology Lab**

**INSTRUCTION TO THE EXAMINERS**

1. (a) Paraffin tissue section is to be given by lottery from common items available (within syllabus).  
(b) (i) Staining with haematoxylin —3  
(ii) Staining with eosin—2  
(iii) Cleanness — 1  
(iv) Mounting — 1  
(v) Identification — 1  
(vi) Two identifying characters — 1+1
  2. Marks should be awarded in the notebook on the basis of coverage of the syllabus and regular signature by class teachers(s). 3
  3. Questions are to be asked from both practical and theoretical portions including the instruments used within practical syllabus. 2
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***BNK22513***

**B.Sc. Semester II (Programme) Examination 2018**

**PHYSIOLOGY PRACTICAL**

**Subject Code : 22514**

**Course Code : SP/PHY/201/C-1B /CP<sub>2</sub>**

**Course Title : Developmental Aspects of Embryo and Foetus Lab**

**Time: 2 hours**

**Full Marks: 15**

*The figures in the right hand side margin indicate marks.*

1. Stain the paraffinised tissue section supplied (by lottery) with haematoxylin and eosin and identify it with two reasons. 8+2=10  
লটারির মাধ্যমে প্রাপ্ত গোমস্ত ছেদককে হিমাটক্সিলিন ও ইওসিন রঞ্জক দ্বারা রঞ্জিত করো এবং দুটি কারণ লিখে শনাক্ত করো।
  2. Laboratory Notebook. 3  
পরীক্ষাগারে ব্যবহৃত খাতা।
  3. *Viva Voce*. 2  
মৌখিক।
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***BNK22514***

**B.Sc. Semester II (Programme) Examination 2018**

**PHYSIOLOGY PRACTICAL**

**Subject Code : 22514**

**Course Code : SP/PHY/201/C-1B/CP<sub>2</sub>**

**Course Title : Developmental Aspects of Embryo and Foetus Lab**

**INSTRUCTIONS TO THE EXAMINERS**

1. (a) Paraffinised tissue section is to be given by lottery from common items available (within syllabus).  
(b) (i) Staining with haematoxylin 3  
(ii) Staining with eosin 2  
(iii) Cleanness 1  
(iv) Mounting 1  
(v) Identification with two characters. 1+(1+1)=3
2. Marks should be awarded in the notebook on the basis of-coverage of syllabus and regular signature by class teacher(s). 3
3. Questions are to be asked from both practical and theoretical portions including the instruments used within practical syllabus. 2

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***BNK22514***

**B.Sc. Semester II (Honours) Examination 2018**

**PHYSIOLOGY**

**Subject Code : 22501**

**Course Code : SH/PHY/201/CT<sub>3</sub>**

**Course Title : Physiology of Nerve and Muscle Cells**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

*The figures in the right hand side margin indicate marks.*

1. Answer *any five* questions of the following : 1×5=5
  - (a) Write the function of glia cells.
  - (b) What do you mean by hyperpolarization?
  - (c) Name the contractile proteins present in skeletal muscle.
  - (d) What is motor unit?
  - (e) Define peristalsis.
  - (f) What do you mean by chronaxie?
  - (g) Why receptors are called 'Biotransducers'?
  - (h) What do you mean by EPP?
  
2. Answer *any two* questions of the following : 5×2=10
  - (i) What is known as 'Pacemaker tissue'? State the role of pacemaker tissue in our body. 1+4=5
  - (ii) What is action potential? State the different phases of action potential. 1+4=5
  - (iii) What are neurotrophins? Mention their functions. 2+3=5
  - (iv) Differentiate between single unit and multi unit smooth muscles. Write the function of smooth muscle in brief. 2+3=5
  
3. Answer *any one* question of the following : 10×1=10
  - I. (a) State the EM structures of myosin and troponin with their respective functions.  
(b) Discuss the role of calcium ion for skeletal muscle contraction. (3+3)+4=10
  - II. (a) Describe the mechanism of signal transduction in neuromuscular junction with proper diagramme.  
(b) Write the basic difference between isotonic and isometric contractions in muscle. (6+2)+2=10

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***BNK22501***



**B.Sc. Semester II (Honours) Examination 2018****PHYSIOLOGY****Subject Code : 22502****Course Code : SH/PHY/202/CT<sub>4</sub>****Course Title : Chemistry of Biomolecules****Time: 1 Hour 15 Minutes****Full Marks: 25***The figures in the right hand side margin indicate marks.*

1. Answer *any five* questions of the following : 1×5=5
- (a) What are optical isomers?
  - (b) Why unsaturated fatty acids have low melting point than saturated fatty acids?
  - (c) Distinguish between reducing and non-reducing sugars.
  - (d) What do you mean by zwitter ion?
  - (e) Differentiate between MUFA and PUFA.
  - (f) Differentiate between nucleotide and nucleoside.
  - (g) What is ketogenic amino acid?
  - (h) What do you mean by 'Iodine number'?
2. Answer *any two* questions of the following : 5×2=10
- (a) Write one function of each type of RNA. What is plasmid? 3+2=5
  - (b) Discuss the secondary structure of protein. 5
  - (c) Classify lipoproteins and mention their functions.  $2 \frac{1}{2} + 2 \frac{1}{2} = 5$
  - (d) Describe the double helical structure of DNA with suitable diagram. 3+2=5
3. Answer *any one* question of the following : 1×10=10
- (a) Write about  $\alpha$  1, 4 and  $\alpha$  1, 6 glycosidic bonds in glycogen with structure. What is mutarotation?  
What do you mean by pyran ring structure of carbohydrate? (3+3)+2+2=10
  - (b) Write the cloverleaf structure of t-RNA. What do you mean by denaturation and esterification? 6+(2+2)=10

**BNK22502**

**B.Sc. Semester II (Honours) Examination 2018**  
**PHYSIOLOGY**

**Subject Code : 22503**

**Course Code : SH/PHY/203/GET<sub>2</sub>**

**Course Title : Developmental Biology and Embryology**

**Time: 1 Hour 15 Minutes**

**Full Marks: 25**

*The figures in the right hand side margin indicate marks.*

1. Answer *any five* questions of the following : 1×5=5
- (i) Mention the function of Leydig cell.  
লিডিগ কোশের কাজ উল্লেখ করো।
- (ii) Write the names of any two secondary Sex glands of male.  
পুরুষের যে কোনো দুটি গৌণ যৌন গ্রন্থির নাম লেখো।
- (iii) Define organogenesis.  
অরগানোজেনেসিসের সংজ্ঞা দাও।
- (iv) What is blood testis barrier?  
'ব্লাড-টেসটিস' প্রতিবন্ধক কী?
- (v) What is Morula?  
মরুলা কী?
- (vi) What is meant by capacitation?  
ক্যাপাসিটেশন বলতে কী বোঝায়?
- (vii) Write the function of acrosome.  
অ্যাক্রোজোমের কাজ লেখো।
- (viii) What do you mean by vitelline membrane?  
ভাইটেলাইন পর্দা বলতে কী বোঝো?
2. Answer *any two* questions of the following : 5×2=10
- (i) What is blastocoel? How does blastulation occur? 1+4=5  
ব্লাস্টোসিল কী? ব্লাস্টুলেশন কীভাবে ঘটে?
- (ii) What is cleavage? State the different types of cleavage. 1+4=5  
ক্লিভেজ কী? ক্লিভেজের বিভিন্ন প্রকারভেদ উল্লেখ করো।
- (iii) Define Oogenesis. Describe the stages of Oogenesis. 1+4=5  
উজেনেসিসের সংজ্ঞা দাও। উজেনেসিসের দশাগুলি বর্ণনা করো।

**BNK22503**

**Please Turn Over**

**B.Sc-II-SH-PHY/203/GET<sub>2</sub> / 18**

(2)

(iv) Briefly describe the structure of mature Ovum. What is trophoblast?

4+1=5

একটি পরিণত ডিম্বাণুর গঠন বর্ণনা করো। ট্রোপোব্লাস্ট কী?

3. Answer *any one* question of the following :

10×1=10

(i) What is spermatogenesis? Briefly describe the process of spermatogenesis. What is fertilizin?

2+6+2=10

স্পার্মাটোজেনেসিস কী? সংক্ষেপে স্পার্মাটোজেনেসিস পদ্ধতিটি বর্ণনা করো। ফার্টিলাইজিন কী?

(ii) Define gastrulation. Describe the process of gastrulation. Name any two organs develop from ectoderm.

2+6+2=10

গ্যাসট্রুলেশনের সংজ্ঞা দাও। গ্যাসট্রুলেশন পদ্ধতি বর্ণনা করো। এক্টোডার্ম থেকে উদ্ভূত যে কোনো দুটি অঙ্গের নাম লেখো।

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***BNK22503***

**B.Sc. Semester II (Programme) Examination 2018**

**PHYSIOLOGY**

**Subject Code : 22504**

**Course Code : SP/PHY/201/C-1B/ CT<sub>2</sub>**

**Course Title : Developmental Aspects of Embryo and Foetus**

**Time: 1 Hours 15 Minutes**

**Full Marks: 25**

*The figures in the right hand side margin indicate marks.*

1. Answer any five questions : 1×5=5  
যে-কোনো পাঁচটি প্রশ্নের উত্তর দাও :
- (i) Define capacitation.  
ক্যাপাসিটেশনের সংজ্ঞা দাও।
- (ii) What is polar body?  
পোলার বডি কী?
- (iii) Name any two secondary sex organs of female.  
যে কোনো দুটি স্ত্রী গৌণ যৌন অঙ্গের নাম লেখো।
- (iv) What is amnion?  
অ্যামনিয়ন কী?
- (v) Define organogenesis.  
অরগ্যানোজেনেসিসের সংজ্ঞা দাও।
- (vi) Write any two functions of seminiferous tubule.  
সেমিনিফেরাস নালীকার যে কোনো দুটি কাজ লেখো।
- (vii) What is blastocoel?  
ব্লাস্টোসিল কী?
- (viii) Which germinal layer of gastrula eye is developed?  
গ্যাস্ট্রুলার কোন জার্মস্তর থেকে চোখ উৎপন্ন হয়?
2. Answer any two questions from the following : 5×2=10  
যে-কোনো দুটি প্রশ্নের উত্তর দাও :
- (i) Discuss the different stages of Spermatogenesis. Write the role of Leydig cells in spermatogenesis. 3+2=5  
স্পারমাটোজেনেসিসের বিভিন্ন দশাগুলির সম্বন্ধে আলোচনা করো। স্পারমাটোজেনেসিসে লেডিগ কোশের ভূমিকা লেখো।

**BNK22504**

**Please Turn Over**

(ii) Describe the process of blastula formation.

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ব্লাস্টুলা গঠনের পদ্ধতিটি বর্ণনা করো।

(iii) Mention the structure of graafian follicle. What is atretic follicle?

4+1=5

গ্রাফিয়ান ফলিকলের গঠন উল্লেখ করো। অ্যাট্রেটিক ফলিকল কী?

(iv) Define gastrulation. Write the process of transformation of blastula to gastrula.

1+4=5

গ্যাস্ট্রুলেশনের সংজ্ঞা দাও। ব্লাস্টুলা থেকে গ্যাস্ট্রুলার রূপান্তর পদ্ধতি লেখো।

3. Answer *any one* of the following questions :

10×1=10

নীচের যে-কোনো একটি প্রশ্নের উত্তর দাও :

(i) Discuss the different types of cleavage. Mention the site of fertilization in human. Define Ovulation.

6+2+2=10

বিভিন্ন প্রকার ক্লিভেজের সম্বন্ধে আলোচনা করো। মানব দেহে নিষেকের স্থান উল্লেখ করো। ডিম্বাণু নিঃসরণের সংজ্ঞা দাও।

(ii) Write about the structure of sperm. State the function of acrosome.

8+2=10

শুক্রাণুর গঠন সম্বন্ধে লেখো। অ্যাক্রোজোমের কাজ লেখো।

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**PHYSIOLOGY PRACTICAL**

**Subject Code : 22511**

**Course Code : SH/PHY/201/CP<sub>3</sub>**

**Course Title : Physiology of Nerve and Muscle Cells Lab**

**Time: 2 Hours**

**Full Marks: 15**

*The figures in the right hand side margin indicate marks.*

Answer all the questions :

1. Show the striations and nucleus of skeletal muscle from supplied sample by methylene blue staining method under microscope. Draw the diagram of the observed field with proper labelling. 10  
[Teasing = 2, Staining = 3, Mounting = 1, Focussing : (Striation = 1, Nucleus = 1), Drawing and Labelling-2.
  2. Laboratory Notebook 3
  3. Viva Voce 2
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***BNK22511***