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20/3/25

B.Sc. (Honours) Examination, 2024
Semester-I
Zoology
[NEP based syllabus]
Minor Course in Zoology (Theory)
Paper: MNZO01 (Animal Diversity)

Time: 3 hours

Full Marks: 60

Questions are of value as indicated in the margin.

1. Answer **any six** questions.

2x6=12

- Write characteristics of Zoomastigophora.
- Add a short note on Oligochaeta.
- What do you mean by paedogenesis?
- What do you mean by parapsid skull?
- What is the function of choanocytes in sponges?
- Define madreporite.
- Add a note on the parasitic adaptations in helminthes.
- How can you differentiate a millipede with centipede?

2. Answer **any four** of the following questions

4x4=16

- Describe the parental care in Amphibia.
- Write a short note on snake venom.
- * c) Give ~~an account of flight mechanism in birds~~ *a brief note on metamorphism in annelids.*
- Briefly comment upon the advantages of bird migration.
- Write any four reasons that make insects as the most successful animal on the earth.
- f) Write in brief about the evolutionary significance of "Onychophorans"?

3. Answer **any four** of the following questions

8x4=32

- Explain the theories of 'Sol-Gel' and 'folding-unfolding' to support the locomotion of Protozoa. 4+4=8
- Explain Life-cycle of social insects and describe the social organization of "Honey bee colony". 4+4=8
- * c) Give an account of flight mechanism in birds. Differentiate between complete and partial neoteny. 5+3=8
- d) Give outline classification of Reptilia upto order level with suitable characteristics and examples. Describe different types of fangs in snake. 5+3=8
- e) Describe the structure of the water vascular system in echinoderms. Explain how it aids in locomotion. 5+3=8
- f) What are the structural and functional differences between the asconoid and leuconoid canal systems in sponges? 4+4=8

Four Year Undergraduate Examination (NEP) 2024

Semester - I

Subject AECC / MIL (Bengali)

Course: AECC BENG01

(For Regular & Back Candidates)

জনপ্রিয় সাহিত্য

প্রশ্নের মান দক্ষিণ প্রান্তে উল্লিখিত

সময়: ২ ঘন্টা

পূর্ণমান: ৪০

যে-কোনো দুটি প্রশ্নের উত্তর দাও:

২×১০ = ২০

- ১। হাস্যরস পরিবেশনের ক্ষেত্রে 'লক্ষ্মণের শক্তিশেল'-এর বৈশিষ্ট্য ব্যাখ্যা করো।
- ২। অ্যাডভেঞ্চারের কাহিনি হিসেবে 'যকের ধন'-এর গুরুত্ব বিচার করো।
- ৩। 'ভয়ংকর সুন্দর' উপন্যাসে সন্তুর কিশোর মনের অভিব্যক্তি কীভাবে ধরা পড়েছে আলোচনা করো।
- ৪। মনোজদের বাড়ির সদস্যদের সংক্ষিপ্ত পরিচয় দিয়ে তাদের বাড়িকে কেন অদ্ভুত বলা হয়েছে তা নিজের ভাষায় লেখো।

৫। যে-কোনো চারটি বিষয়ে টীকা লেখো:

৪×৫=২০

- ক) 'লক্ষ্মণের শক্তিশেল' নাটকে রাম চরিত্র
- খ) 'যকের ধন'-এর পরিণতি
- গ) করালী চরিত্র
- ঘ) 'ভয়ংকর সুন্দর' উপন্যাসে কাশ্মীরের প্রকৃতি
- ঙ) গোয়েন্দা বরদাচরণ
- চ) 'মনোজদের অদ্ভুত বাড়ি' উপন্যাসে একটি ফোটোগ্রাফের গুরুত্ব

2024
HINDI
Paper : AECC-MIL-1

Full Marks : 40

Time : 2 Hour

The figure in the right-hand margin indicates marks.
Candidates are requested to give their answers in their own words as far as practicable.

(हिन्दी - व्याकरण और रचना)

1. निम्नलिखित प्रश्नों में से किन्हीं चार के उत्तर दीजिए :
4X5=20

- (क) संज्ञा के भेदों को सोदाहरण लिखिए।
- (ख) विशेषण के प्रकारों पर विचार कीजिए।
- (ग) उपसर्ग के पाँच उदाहरण दीजिए।
- (घ) प्रत्यय और उपसर्ग में अंतर स्पष्ट कीजिए।
- (ङ) पल्लवन का आशय सोदाहरण स्पष्ट कीजिए।
- (च) निम्नलिखित शब्दों के तीन पर्यायवाची शब्द लिखिए—
अनल, धरती, जल, ईश्वर, सुमन

[Turn Over]

2. अपने विभागाध्यक्ष के पास एक आवेदन-पत्र लिखिए जिसमें कुछ दिनों के अवकाश के लिए अनुमति मांगी गयी हो।

अथवा

अपने पिता के पास एक पत्र लिखिए जिसमें अपनी जरूरत के अनुरूप कुछ पैसे माँगने हेतु आप निवेदन कर रहे हों।

1X10=10

3. निम्नलिखित में से किसी एक विषय पर निबंध लिखिए :
1X10=10

- (क) शान्तिनिकेतन
- (ख) महात्मा गाँधी
- (ग) सी. एफ. एंड्रयूज
- (घ) पर्यावरण का महत्व
- (ङ) नई शिक्षा नीति

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17/3/25

Undergraduate Examination, 2024
Semester-I
Zoology
[NEP based Syllabus]
Multidisciplinary Course: MDZ001 (Theory)
(Applied Zoology)

Time: Three hours

Full Marks: 60

Questions are of value as indicated in the margin.

1. Answer **any Six** questions of the following 2x6=12
 - a) Write any two brood diseases of honey bee and their causative organism.
 - b) Define Integrated pest management.
 - c) What is composite fish culture?
 - d) What is Chandraki?
 - e) What do you mean by species abundance?
 - f) Define biodiversity hotspot.
 - g) What is the function of halter?
 - h) Name the causative agent of Leishmaniasis. Mention its infective and diagnostic stages.

 2. Answer **any four** of the following questions 4x4=16
 - a) Mention the stocking ratio of fish in six species composite carp culture with reasons. 4
 - b) State the lifespans of the different members of any of the honey bee colony and add a note on how one can identify different members of the colony? 2+2=4
 - c) Write a brief note on flagship species. 4
 - d) Describe the different types of pesticides based on their origin. 4
 - e) Write briefly on the different biological and chemical methods of vector control. 4
 - f) Briefly comment on "Simpson's index of biodiversity". 4

 3. Answer **any four** questions of the following 8x4=32
 - a) Write down the causative agent, symptoms and management of Flacherie and Muscardine diseases of silkworm. 4+4=8
 - b) Mentioned the different honey bees used for commercial production of honey in India. Explain the construction of "Langstroth" Bee Hive. Add a note on importance of smoker and swarm catching equipment in apiary. 2+4+(1+1)=8
 - c) What is induced breeding of fish? Write the procedure of pituitary extract preparation and dose of injection to induce breeding of major carps. State the advantages of induced breeding of fish. 2+4+2=8
 - d) Write the scientific name of a brackish water prawn. Mention the water quality requirements and its management in brackish water prawn farming. 2+3+3=8
 - e) Briefly comment on the importance of biosphere reserve in biodiversity conservation. Why biodiversity is rich in the tropics? 4+4=8
 - f) How lymphatic filariasis is transmitted? With a schematic diagram describe the life cycle of *Wuchereria bancrofti*. 2+6=8
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Four Years Undergraduate Examination, 2024

Semester-I

Zoology

Paper-MJZO-02

(Principles of Ecology)

Time : 3 Hours

Full Marks: 60

Questions are of value as indicated in the margin.

1. Answer **any six** questions 2 × 6 = 12
- (i) For what reason the ecologists- Ernst Haeckel and A.G. Tansley are known in the history of Ecology?
 - (ii) Name various levels of organization in Ecology.
 - (iii) Define pioneer species.
 - (iv) Write a short note on keystone species.
 - (v) What do you understand by bio-magnification.
 - (vi) Differentiate between autecology and synecology.
 - (vii) If r is the instantaneous growth rate of a population, what would be the rate of growth of a population with $r > 0$ and $r < 0$?
 - (viii) A population (N) has carrying capacity K . If $K=1000$, at what population size (N) the rate of population growth would be maximum?

2. Answer **any four** questions 4 × 4 = 16
- (i) How does species diversity determine the structure of a community? What do you mean by the characteristics of ecotone?
 - (ii) A population (N) has Birth rate B and Death rate D . Its instantaneous birth and death rates are b and d respectively. If the instantaneous growth rate of the population is r , show that,

$$r = \frac{dN}{N} \times \frac{1}{dt}$$

- (iii) Using flow diagram write a short note on double channel model of energy flow in ecosystem.
- (iv) Write the differences between unitary and modular organisms with examples.
- (v) With suitable examples comment on alpha, beta and gamma diversity.
- (vi) Give a brief account of r and K - selected species.

3. Answer **any four** questions 4 × 8 = 32
- (i) What is character displacement? Briefly comment on agonistic character displacement. 2+6=8
 - (ii) What are the two different growth patterns of population under unlimited and limited resources availability in the environment? How the rate of such growth can be expressed mathematically? A colony of 2000 bacteria cultured in a medium doubled after 40 min. Find the instantaneous growth rate (r) of the bacterial colony. 2+2+4=8
 - (iii) Give a brief account on the different stages of succession in the formation of climax community. Mention four factors that affect ecological succession. 5+3=8
 - (iv) Discuss different types of biotic and abiotic limiting factors in nature? Explain the regions of tolerances explained by V.E. Shelford. 4+4=8

(v) Define competition. With suitable example briefly explain how exploitation differs from interference competition. With suitable example comment on mutualism. $2+4+2=8$

- (vi) (I) Two populations N_1 and N_2 are competing with each other. Give a mathematical expression to show the effect of N_2 on the growth rate of N_1 .
(II) What is isocline? Plot two graphical explanations for population N_1 and N_2 when (a) N_1 always wins and (b) N_2 always wins. (K_1 and K_2 are the carrying capacity of N_1 and N_2 respectively, α and β are competition co-efficient of N_2 on N_1 and N_1 on N_2 respectively). $2+2+(2+2)=8$

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Four Years Undergraduate Examination, 2024
Semester-I [NEP Based]
Zoology
Skill Enhancement Course in Zoology (Theory)
SEZO01 (Sericulture and Apiculture)

Time: 3 hours

Full Marks: 40

Questions are of value as indicated in the margin

1. Answer **any four** questions. 2x4=8
 - a) What is cocoon?
 - b) Define Spinneret.
 - c) What is stifling?
 - d) Write the scientific name of Indian and Italian bee.
 - e) What are the different components present in the "Royal jelly?"
 - f) What is the difference between apiary and bee pasturage?

 2. Answer **any two** of the following questions 4x2=8
 - a) State the ideal features of a silkworm rearing house.
 - b) Describe the different methods of egg production in silkworms
 - c) Describe Langstroth 's Bee Hive Equipment's.

 3. Answer **any three** of the following questions 8x3=24
 - a) Write down the causative agent, symptoms and preventive measures for Pebrine and Muscardine disease in silkworm. 4+4=8
 - b) Differentiate between mountage and mounting? Comment on the different methods of mounting. 3+3+2=8
 - c) What is silk reeling in sericulture? Differentiate between Charkha-Reeling and Cottage Basin System in reeling process. 2+4+2=8
 - d) How do bees make honey and how it is processed for use? Add a note on species of bees used for commercial honey production. 3+3+2=8
 - e) What is the life cycle and life span of different members of bee in hive. Add a note on any two pest and diseases of bees. 2+2)+4=8
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Four Years Undergraduate Examination, 2024
Semester-I
[NEP based Syllabus]
Major Course: MJZO-01
(Biology of Non-Chordates)

Time: Three hours

Full Marks: 60

Questions are of value as indicated in the margin

1. Answer **any six** of the following.

2x6=12

- a) What is Plasmogamy in Protozoa?
- b) State the function of choanocytes in sponges
- c) Name the four class of Annelida.
- d) What is Schizocoelom?
- e) Give two salient features of "Onychophorans" that share with Arthropods.
- f) What is a parasite and a host?
- g) Which class of Platyhelminths contain free living forms? Give one example.
- h) Give two salient features of phylum Echinodermata.

2. Answer **any four** of the following.

4x4=16

- a) Discuss Enterocoel theory for Origin of Coelom.
- b) How do the skeletons of Calcarea, Hexactinellida, and Demospongiae differ from each other?
- c) Differentiate between complete and incomplete metamerism.
- d) Mention the distinguishing features of the class Cephalopoda? How are they more advanced compared to other molluscs.
- e) State the general characteristic features of subphylum Chelicerata?
- f) Describe parasitic adaptation in Helminths.

2+2 =4

3. Answer **any four** of the following.

8x4=32

- a) Who proposed "Contraction-hydraulic theory"? Differentiate between "Walking movement theory" and "folding -unfolding theory" to support the locomotion of *Amoeba* sp.
- b) Compare between a barrier reef and an atoll? How Daly's Glacial Control Theory led to coral reef formation?
- c) Discuss the various types of zooids found in polymorphic Cnidarian colonies. Add a note on the advantage of polymorphism.
- d) Explain in brief the circulatory and respiratory system in *Periplaneta americana*.
- e) How does torsion affect the position of the internal organs in Mollusca? State the significance of shifting organs from the posterior to the anterior part of the body?
- f) Describe in detail the different larval forms of Echinodermata with suitable diagram.

1+7 =8

4+4 =8

6+2 =8

4+4 =8

5+3 =8

8