

Previous Year Question Paper of UPSC – IFS EXAM INDIAN FOREST SERVICE EXAM ZOOLOGY MAIN Paper II Examination

2014

(Original Question Paper UPSC IAS)

Union Public Service Commission Examination



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ZOOLOGY

PAPER-II

Time Allowed : Three Hours

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Maximum Marks : 200

QUESTION PAPER SPECIFIC INSTRUCTIONS

Please read each of the following instructions carefully before attempting questions

There are EIGHT questions in all, out of which FIVE are to be attempted.

Question Nos. 1 and 5 are compulsory. Out of the remaining SIX questions, THREE are to be attempted selecting at least ONE question from each of the two Sections A and B.

Attempts of questions shall be counted in chronological order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

Answers must be written in ENGLISH only.

Neat sketches may be drawn, wherever required.

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SECTION-A

- 1. Write notes on the following :
 - (a) Sex determination in nematodes
 - (b) Protective mimicry and warning mimicry
 - (c) Convergent evolution and divergent evolution
 - (d) Post-transcriptional gene regulation
 - (e) Concept of 'cladistics'
- 2. Answer the following in detail :
 - (a) Considering the inheritance of earlobes in humans in a given population,
 84% of people have free earlobes, whereas 16% of people have attached
 earlobes. Calculate the frequencies of F and f alleles and frequencies of three
 different genotypes with reference to Hardy-Weinberg law.
 - (b) Describe the process of sex determination in Drosophila with emphasis on polyploidy and gynandromorphism.

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8×5=40

- 3. Answer the following :
 - (a) What is meant by 'C-value' paradox? Describe the ultrastructure of chromatin with emphasis on nucleosome and solenoid model of chromatin.
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 - (b) What are fossils? Describe the process of fossilization in brief. Discuss the evolution of elephant in brief. Draw suitable diagrams. Prepare a tabulated account on one separate sheet.
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- 4. Answer the following :
 - (a) What is a congenital disease? Enlist various congenital diseases of humans.
 Discuss each one by mentioning symptoms, consequences and remedial measures.
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 - (b) What is genome mapping? Discuss in brief the progress made in understanding human genome. Provide state-of-the-art information. Discuss the applicability advantage of exploring genome mapping of plants and animals.

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SECTION-B

- 5. Define and differentiate the following in not more than 150 words each : 8×5=40
 - (a) Polyunsaturated fatty acids (PUFA) and Highly unsaturated fatty acids (HUFA)
 - (b) Tropomyosin and Troponin
 - (c) Creatine and Creatinine
 - (d) Vision and Olfaction in man
 - (e) Neoteny and Paedogenesis
- **6.** Answer the following :
 - (a) What is meant by teratogenesis? Describe in detail about genetic and environmental teratogenesis. Give suitable examples.
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 - (b) What are hormones? Who discovered these and in which year? Provide a tabulated chart of their classification. Briefly narrate biosynthesis and functions of steroid hormones.
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- 7. Answer the following in detail :
 - (a) How are airborne chemicals perceived? Describe the structure and physiology of specific receptors concerned with olfaction in humans.
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 - (b) Describe the physiological role of gonadotrophic hormones on puberty and the regulation of menstrual cycle in women.
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- 8. Answer the following in detail :
 - (a) Discuss organogenesis of eye with associated sequential steps. Support your answer with diagrams in a tandem manner.
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 - (b) Define synapse and different types of synapses. Mention different types of neurotransmitters and their role in synaptic transmission.
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