Pragati Classes

Full Syllabus Mock Test

Date: 20 Jan 2027 | **Class XII · Biology** | Duration: 180 Minutes | Max. Marks: 70

Section A — 1 Mark Questions

Q1. If E. coli with ^{15}N DNA is grown in ^{14}N medium for three generations, the fraction of hybrid ($^{15}N/^{14}N$) DNA molecules is

(A) 1/2 **(B)** 1/8
(C) 1/4 **(D)** 3/4

Q2. Which group has the highest percentage of species facing threat of extinction?

(A) Amphibians (32 per cent) **(B)** Birds (12 per cent)
(C) Mammals (23 per cent) **(D)** Gymnosperms (31 per cent)

Q3. The interaction between the sea anemone with stinging tentacles and the clown fish that lives among them is

(A) mutualism **(B)** commensalism
(C) amensalism **(D)** parasitism

Q4. [CBSE 2024] The rate of formation of new organic matter by consumers, and the biomass available for consumption of herbivores as well as decomposers are referred to as :

(A) Gross primary productivity and Net primary productivity **(B)** Net primary productivity and Secondary productivity
(C) Secondary productivity and Net primary productivity **(D)** Secondary productivity and Gross primary productivity

Q5. A person bitten by a snake is given anti-venom. The immunity is

(A) artificially acquired passive immunity **(B)** naturally acquired active immunity
(C) artificially acquired active immunity **(D)** innate immunity

Q6. Hugo de Vries, working on evening primrose, proposed

(A) mutation theory (saltation – single-step large mutation) **(B)** natural selection
(C) inheritance of acquired characters **(D)** genetic drift

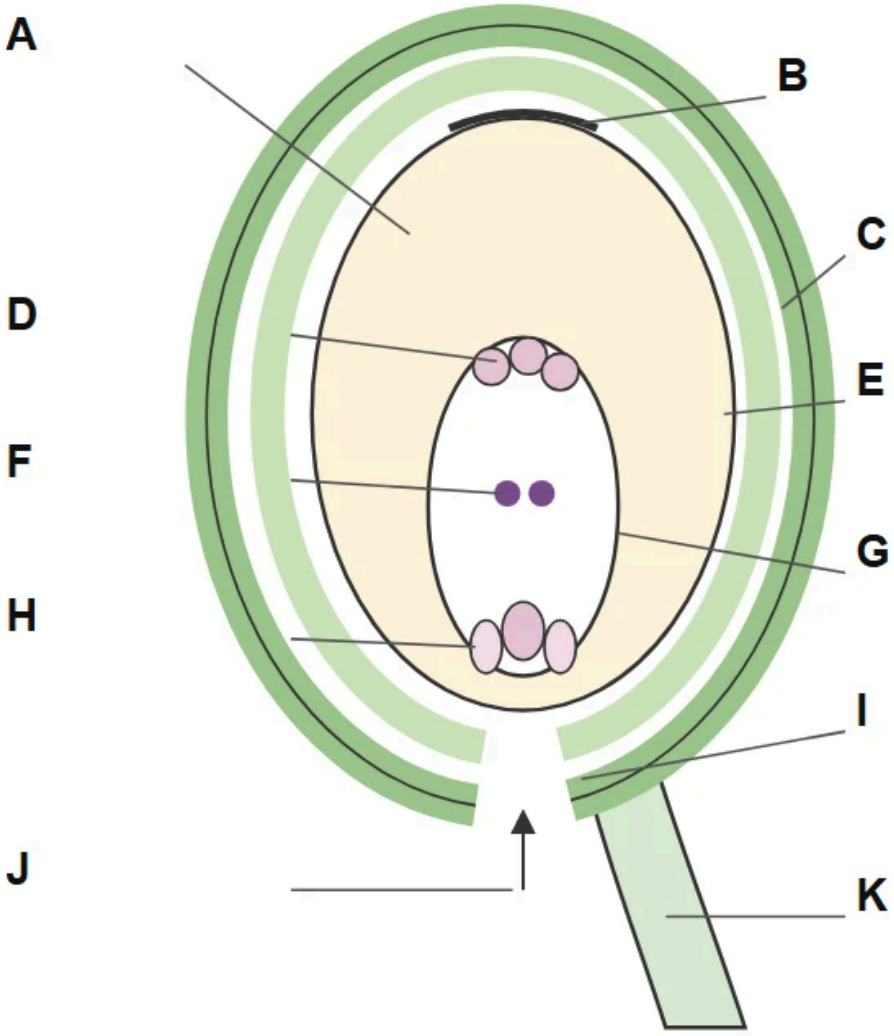
Q7. Which of the following is a correct match?

(A) Multiload 375 – non-medicated IUD **(B)** Progestasert – hormone-releasing IUD
(C) Saheli – injectable **(D)** Lippes loop – copper-releasing IUD

Q8. Autonomously replicating circular extra-chromosomal DNA in bacteria is called a

(A) transposon
(B) operon
(C) plasmid
(D) cosmid

Q9. In the given diagram of an anatropous ovule, the part labelled **K** is



(A) Micropyle
(B) Hilum
(C) Funicle
(D) Egg apparatus

Q10. The outer wall of the pollen grain, the exine, is made of

(A) sporopollenin
(B) cellulose and pectin
(C) suberin
(D) lignin

Q11. [CBSE 2024] A population is in genetic equilibrium/Hardy-Weinberg equilibrium for a gene with 2 alleles (dominant allele is 'A' and recessive allele 'a'). If the frequency of allele 'A' is 0·6, then the frequency of genotype 'Aa' is :

(A) 0·21
(B) 0·42
(C) 0·48
(D) 0·32

Q12. DNA fragments separated by gel electrophoresis are visualised by staining with

(A) iodine

(B) methylene blue in sunlight

(C) ethidium bromide and exposing to UV radiation

(D) safranin

Q13. Assertion (A): Statutory ban on amniocentesis for sex determination is needed in India.
Reason (R): Amniocentesis can reveal the sex of the foetus, which may lead to female foeticide.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(C) Assertion (A) is true but Reason (R) is false.

(D) Assertion (A) is false but Reason (R) is true.

Q14. Assertion (A): Ovulation occurs at the 14th day of the menstrual cycle.
Reason (R): FSH alone causes rupture of the Graafian follicle.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(C) Assertion (A) is true but Reason (R) is false.

(D) Assertion (A) is false but Reason (R) is true.

Q15. Assertion (A): Vasectomy is a terminal method of contraception.
Reason (R): Vasectomy stops the formation of sperms.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(C) Assertion (A) is true but Reason (R) is false.

(D) Assertion (A) is false but Reason (R) is true.

Q16. Assertion (A): The logistic growth model is more realistic than the exponential model.
Reason (R): Resources in nature are limited.

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(C) Assertion (A) is true but Reason (R) is false.

(D) Assertion (A) is false but Reason (R) is true.

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Section B — 2 Marks Questions

Q1. [CBSE 2026] (i) Differentiate between a DNA and RNA nucleotide.
(ii) Name the two types of bonds present within a single nucleotide.

Q2. Distinguish between ectoparasites and endoparasites with examples.

Q3. How many eggs do you think were released by the ovary of a female dog which gave birth to 6 puppies?

Q4. Practise drawing various animals and plants.

Q5. Why did Mendel choose the garden pea?

Section C — 3 Marks Questions

Q1. Can you think of a situation where we deliberately want to make a species extinct? How would you justify it?

Q2. What are the suggested reasons for the population explosion?

Q3. Describe one example of adaptive radiation.

Q4. [CBSE 2016] Name and explain the type of interaction that exists in mycorrhizae and between cattle egret and cattle.

Q5. [CBSE 2023] (i) Expand the abbreviations given below, used for different modes of assisted reproductive technologies : (1) ZIFT (2) ICSI (3) IUT (4) GIFT
(ii) Which one of them cannot be considered as a procedure of IVF ? Give reasons in support of your answer.

Q6. What is the key difference between primary and secondary sewage treatment?

Q7. Explain how antibiotic resistance in bacteria illustrates Darwinian selection.

Section D — 4 Marks Questions

Q1. A student cuts a plasmid and a human DNA fragment with EcoRI, mixes them and adds an enzyme. She then introduces the mixture into E. coli cells treated with $CaCl_2$ and given a heat shock.

(a) Which enzyme must she add to join the fragments?

(b) What is the recognition sequence of EcoRI?

(c) Why are the E. coli cells treated with $CaCl_2$ and heat shock?

Q2. A plant breeder wants to cross a high-yielding wheat variety (female parent) with a disease-resistant variety (male parent). Wheat has bisexual flowers.

(a) Why must the breeder remove the anthers of the female parent flowers?

(b) Why are the flowers covered with butter paper bags?

(c) When is the desired pollen dusted on the stigma, and what is done after that?

Section E — 5 Marks Questions

Q1. [CBSE 2023] Protein synthesis requires the services of all three types of RNAs, namely t-RNA, m-RNA and r-RNA. Explain the role of each of them during the process of protein synthesis in prokaryotes.

Q2. [CBSE 2017] (a) Explain the following phases in the menstrual cycle of a human female: (i) Menstrual phase (ii) Follicular phase (iii) Luteal phase
(b) A proper understanding of menstrual cycle can help immensely in family planning. Do you agree with the statement? Provide reasons for your answer.

Q3. [CBSE 2016] (a) Describe the process of transcription in bacteria.
(b) Explain the processing the hnRNA needs to undergo before becoming functional mRNA in eukaryotes.

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