Class XII Biology — Practice Paper 1

Practice paper in the CBSE section pattern · Time: 1 hour · Maximum marks: 30

General instructions
1. This is an original practice paper, shorter than a board paper. It is not an official CBSE sample paper; official sample papers are published at cbseacademic.nic.in.
2. All questions are compulsory. Marks are shown in brackets.
3. Section A has 1-mark questions, Section B 2-mark, Section C 3-mark, Section D a 5-mark question and Section E a case-based question.
4. Write neatly, show your working and check your answers in the last five minutes.

Section A (6 marks)

Multiple choice and assertion–reason. 1 mark each.

1. In humans, fertilisation usually takes place in the: [1]
   (a) uterus
   (b) ovary
   (c) ampullary region of the fallopian tube
   (d) cervix

2. The restriction enzyme EcoRI is obtained from: [1]
   (a) Bacillus
   (b) Escherichia coli
   (c) yeast
   (d) Agrobacterium

3. The start codon is: [1]
   (a) UAA
   (b) UGA
   (c) AUG
   (d) UAG

4. Pollination by wind is called: [1]
   (a) entomophily
   (b) hydrophily
   (c) anemophily
   (d) ornithophily

5. Malaria is caused by: [1]
   (a) a virus
   (b) Plasmodium
   (c) a bacterium
   (d) a roundworm

6. Assertion (A): DNA replication is semi-conservative. [1]
   Reason (R): Each new DNA molecule has one parent strand and one new strand.
   (a) Both true, R explains A
   (b) Both true, R does not explain A
   (c) A true, R false
   (d) A false, R true

Section B (6 marks)

Very short answers. 2 marks each.

7. What does the tapetum do in an anther? [2]

8. Give two differences between innate and acquired immunity. [2]

9. What are cry genes? Give one use. [2]

Section C (9 marks)

Short answers. 3 marks each.

10. Explain how the lac operon is switched on when lactose is present. [3]

11. In snapdragon, a red-flowered (RR) plant is crossed with a white-flowered (rr) plant. Give the F1 and F2 results. [3]

12. Name and explain the three steps of one PCR cycle. [3]

Section D (5 marks)

Long answer. 5 marks.

13. Explain how energy flows through an ecosystem. Why is the pyramid of energy always upright? [5]

Section E (4 marks)

Case-based question. 4 marks.

14. A student grew yeast in a flask of nutrient broth and counted the cells each day. The numbers rose fast, then slowed and levelled off. [4]
(i) What does 'K' mean in the logistic growth model? (1)
(ii) Name the shape of this curve. (1)
(iii) Give two factors that stop the growth. (2)

Answer key and marking guide

Award marks for each correct step shown in brackets. Accept any correct method or equivalent wording; value points are a guide, not a script.

Section A

Q	Answer	Marking
1	(c)	1 mark for the correct answer.
2	(b) E. coli	1 mark for the correct answer.
3	(c) AUG	1 mark for the correct answer.
4	(c) anemophily	1 mark for the correct answer.
5	(b) Plasmodium	1 mark for the correct answer.
6	(a)	1 mark for the correct answer.

Section B

Q	Answer	Marking
7	Nourishes the developing pollen grains	Nourishment (1); innermost wall layer of the anther (1).
8	Present from birth / developed after exposure; non-specific / specific; no memory / memory	Any two, 1 mark each.
9	Genes of Bacillus thuringiensis coding for insect-killing Cry proteins; used in Bt cotton against bollworms	Meaning (1); use (1).

Section C

Q	Answer	Marking
10	Repressor normally blocks the operator; lactose (inducer) binds the repressor; RNA polymerase transcribes the structural genes	1 mark each step.
11	F1 all pink (Rr); F2 1 red : 2 pink : 1 white	F1 (1); F2 ratio (1); incomplete dominance named (1).
12	Denaturation (DNA strands separate on heating); annealing (primers bind); extension (Taq polymerase builds new strands)	1 mark each.

Section D

Q	Answer	Marking
13	Sun → producers → consumers; only about 10% passes to the next level; rest lost as heat in respiration; flow is one-way; less energy at each higher level, so the pyramid is always upright	Flow (2); 10% idea (1); one-way flow (1); reason for upright pyramid (1).

Section E

Q	Answer	Marking
14	(i) Carrying capacity (ii) Sigmoid (S-shaped) (iii) Limited food, waste build-up, space	(i) 1. (ii) 1. (iii) Any two, 1 each.

Marking guide in brief

- Step marks: a correct method with a slip in arithmetic keeps most of the marks.
- Units, labels and a final statement are part of the answer.
- In long answers, marks go to the points made, not the length.
- Time check: about 1 minute per mark leaves time to revise.