

Microbes in Human Welfare — CBSE Pattern Test 1

Class 12 Biology · 90 minutes · 40 marks · Sections A–D with answer key · Narayan Gurukul Academy

Test 1 — CBSE Pattern (90 minutes, 40 marks)

Class 12 Biology · Microbes in Human Welfare · Narayan Gurukul Academy (ClassApna)

General Instructions: (1) This paper has four sections — Section A (1×10), Section B (2×4), Section C (3×4) and Section D (5×2) — total 40 marks. Time allowed: 90 minutes.
(2) All questions are compulsory. No overall choice is given; internal choice, where allowed, is clearly marked.
(3) For MCQ questions choose the single correct option; for VSA answers write a single line.
(4) Take $g = 10 \text{ m/s}^2$. All symbols carry their usual meaning. Use of a calculator is not permitted.

Section A — MCQ & VSA ($10 \times 1 = 10$ marks)

1. Curd is formed by
 - (A) lactic acid bacteria
 - (B) yeast
 - (C) mould
 - (D) virus
2. The first antibiotic discovered was
 - (A) penicillin
 - (B) streptomycin
 - (C) tetracycline
 - (D) chloramphenicol
3. Biogas is mainly
 - (A) methane
 - (B) carbon dioxide
 - (C) nitrogen
 - (D) oxygen
4. Rhizobium fixes
 - (A) nitrogen
 - (B) phosphorus
 - (C) potassium
 - (D) carbon
5. The microbe used in bread-making is
 - (A) yeast
 - (B) mould
 - (C) bacterium
 - (D) virus
6. BOD is a measure of
 - (A) organic pollution
 - (B) temperature
 - (C) pH
 - (D) colour
7. A biocontrol agent for aphids is the
 - (A) ladybird

- (B) beetle
 - (C) butterfly
 - (D) moth
8. Mycorrhiza is a symbiotic association of a fungus with
- (A) roots
 - (B) leaves
 - (C) stem
 - (D) fruit
9. What is sewage?
10. What is a biofertiliser?

Section B — Short Answer I ($4 \times 2 = 8$ marks)

11. Which microbe produces ethanol?
12. Name the first antibiotic.
13. What is biogas?
14. Name one biocontrol agent.

Section C — Short Answer II ($4 \times 3 = 12$ marks)

15. Describe the two stages of sewage treatment.
16. What is the role of Rhizobium and mycorrhiza?
17. Describe the process of cheese-making.
18. Why is biological control preferred over chemical pesticides?

Section D — Long Answers ($2 \times 5 = 10$ marks)

19. (a) Describe the role of microbes in household products. (b) Describe the production of antibiotics.
20. (a) Describe sewage treatment. (b) Describe the production of biogas.

Answer Key (Marking Scheme)

- Q1 — (A) lactic acid bacteria. Q2 — (A) penicillin. Q3 — (A) methane. Q4 — (A) nitrogen. Q5 — (A) yeast. Q6 — (A) organic pollution. Q7 — (A) ladybird. Q8 — (A) roots.
- Q9 — Sewage is municipal wastewater.
- Q10 — A biofertiliser is an organism that enriches soil nutrients.
- Q11 — Yeast (*Saccharomyces cerevisiae*).
- Q12 — Penicillin.
- Q13 — Biogas is a methane-rich gas produced by methanogens.
- Q14 — Ladybird (or *Bacillus thuringiensis*).
- Q15 — Primary (physical) and secondary (biological) treatment.
- Q16 — Rhizobium fixes nitrogen; mycorrhiza improves phosphorus uptake.
- Q17 — LAB curdle milk; specific microbes ripen the cheese for flavour.
- Q18 — It is eco-friendly, specific and does not harm non-target organisms.
- Q19 — (a) Curd, bread and cheese. (b) *Penicillium notatum* produces penicillin, which kills bacteria.

Q20 — (a) Primary + secondary treatment removes solids and organic matter. (b) Methanogens produce methane-rich biogas from sludge.