Methods of Separation in Everyday Life

Standard difficulty · 20 questions · 40 marks · Time: 36 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. Removing small stones from rice by hand is called:
(a) sieving **(b)** filtration **(c)** winnowing **(d)** handpicking

2. The best way to separate bran from wheat flour is:
(a) sieving **(b)** sedimentation **(c)** magnet **(d)** decantation

3. We separate bran from wheat flour by sieving because:
(a) the heavy particles sink by themselves
(b) they differ in size and colour and are few
(c) the particles are of different sizes
(d) beating loosens the grain from the stalks

4. Sea water has about 35 g of salt in every litre. About how much salt is left when 2 L of sea water evaporates?
(a) 70 g **(b)** 37 g **(c)** 105 g **(d)** 7 g

5. A farmer winnows 330 g of grain mixed with husk and blows away 80 g of husk. How much grain is left?
(a) 250 g **(b)** 260 g **(c)** 410 g **(d)** 80 g

6. Curd is churned in 9 batches; each gives 250 g of butter. How much butter in all?
(a) 2,000 g **(b)** 259 g **(c)** 2,500 g **(d)** 2,250 g

7. Which mixture can be separated with a MAGNET?
(a) husk and grain **(b)** chalk powder and water
(c) iron filings and sand **(d)** sugar and water

8. Which mixture can be separated by FILTRATION?
(a) sugar and water **(b)** honey and water
(c) chalk powder and water **(d)** vinegar and water

Section B — Short answer — 8 × 2 = 16 marks

9. Why do we need to separate mixtures?

10. Name the method to separate (a) iron filings from sawdust (b) butter from curd

11. Sea water has about 35 g of salt per litre. How much salt can be got from 17 L?

12. A sieve separated 400 g of fine flour from 180 g of bran. How much did the flour and bran weigh together?

13. 1000 mL of muddy water is left to settle. 80 mL of mud settles at the bottom, and the rest is decanted. How much water is decanted?

14. How would you separate each, and what difference between the parts does it use? (a) iron filings from sawdust (b) chalk powder from water

15. A shop has 9 sacks of 49 kg of rice each. Handpicking removes about 3 kg of stones from each sack. How much clean rice is left?

16. Which of these can be separated from water by filtration: chalk powder or sugar? Why?

Section C — Word problems — 4 × 4 = 16 marks

17. Describe how grain is separated from the harvested crop and cleaned, naming each method.

18. A coastal family lets 35 L of sea water dry in a shallow pan. Sea water has about 35 g of salt per litre. (a) How much salt should be left? (b) If 13 g is lost while scraping, how much do they collect? (c) Name the method and explain it.

19. Describe step by step how you would separate a mixture of chalk powder, sand, salt.

20. A farmer threshes his crop and gets 66 kg of grain mixed with 5 kg of husk and 1 kg of stones. (a) How much clean grain is there? (b) Which methods remove the husk and the stones? (c) Why is winnowing done in a breeze?

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Answer key

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Q	Answer	Working
1	**(d) handpicking**	—
2	**(a) sieving**	—
3	**(c) the particles are of different sizes**	—
4	**(a) 70 g**	35 × 2 = 70
5	**(a) 250 g**	330 − 80 = 250
6	**(d) 2,250 g**	9 × 250 = 2250
7	**(c) iron filings and sand**	—
8	**(c) chalk powder and water**	—
9	**To remove unwanted or harmful things, or to get a useful part.**	—
10	**(a) magnet (b) churning**	—
11	**595 g**	35 × 17 = 595
12	**580 g**	400 + 180 = 580
13	**920 mL**	1000 − 80 = 920
14	**(a) magnet (b) filtration**	—
15	**414 kg**	9 × (49 − 3) = 414
16	**chalk powder: it does not dissolve, so the filter catches it.**	—
17	**Threshing: the stalks are beaten to free the grain. Winnowing: the mixture is dropped from a height in the wind, so light husk blows away and heavy grain falls in a heap. Handpicking or sieving removes any stones and dirt.**	—
18	**(a) 1225 g (b) 1212 g (c) Evaporation: the Sun and wind dry the water, and the dissolved salt is left behind.**	35 × 35 = 1225; − 13
19	**Any correct sequence, for example: add water and stir to dissolve salt; filter out chalk powder and sand; evaporate the water to get back the dissolved solid.**	—
20	**(a) 60 kg (b) Winnowing removes the husk; handpicking or sieving removes the stones. (c) The wind blows the light husk away while the heavy grain falls straight down.**	66 − 5 − 1