Regular vs Diffused Reflection

A mirror and a white wall both reflect light; only the mirror shows your face. Smooth surfaces keep rays parallel; rough ones scatter them.

Name: _____ Date: _____ Score: ____ / 17

A. Fill in the blanks

1. A smooth surface gives ____ reflection.

2. A rough surface gives ____ reflection.

3. In diffused reflection each ray still obeys i = ____.

4. A wet road looks shiny because water makes the surface ____.

B. True or False

5. Diffused reflection breaks the laws of reflection. True / False

6. A mirror forms an image by regular reflection. True / False

7. We can read a book from any angle because of diffused reflection. True / False

8. Diffused reflection forms clear images. True / False

C. Assertion and reason

9. Assertion (A): A rough surface gives diffused reflection.
Reason (R): Its tiny facets face different directions.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

10. Assertion (A): Diffused reflection violates the laws of reflection.
Reason (R): Diffused reflection does not form an image.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

D. Choose the correct option

11. A plane mirror gives:

(a) diffused reflection
(b) regular reflection
(c) no reflection
(d) refraction

Answer: _____

12. Paper reflects light:

(a) regularly
(b) diffusely
(c) not at all
(d) by refraction

Answer: _____

13. In diffused reflection, parallel incident rays:

(a) stay parallel
(b) scatter in many directions
(c) stop
(d) bend

Answer: _____

14. Glare from a wet road is due to:

(a) diffused reflection
(b) regular reflection from a smoother surface
(c) refraction
(d) absorption

Answer: _____

E. Short answer questions

15. Why does diffused reflection not form an image, though each ray obeys the laws?

16. Give one use of each type of reflection.

F. Match the columns

17. Match each item in Column A with the correct item in Column B.

Column A	Column B	Your answer
1. Smooth surface	(a) Regular reflection	1 → ____
2. Rough surface	(b) Image formed	2 → ____
3. Mirror	(c) Diffused reflection	3 → ____
4. Book page	(d) Seen from any angle	4 → ____

Detailed solutions

1. regular

2. diffused

3. r

4. smoother

5. False. Each ray obeys i = r at its own tiny facet.

6. True. Parallel rays stay parallel.

7. True. Light scatters in all directions.

8. False. Scattered rays cannot form an image.

9. (a) Each ray obeys i = r at its own facet, so the rays scatter.

10. (d) A is false; R is true.

11. (b) regular reflection. Smooth surface.

12. (b) diffusely. Its surface is rough.

13. (b) scatter in many directions. Facets point different ways.

14. (b) regular reflection from a smoother surface. Water fills the roughness.

15. The surface has tiny facets facing different ways; each ray obeys i = r at its facet, but the reflected rays go in different directions, so they cannot meet to form an image.

16. Regular: mirrors for seeing images. Diffused: lets us see objects and read books from any angle.

17. 1 → (a), 2 → (c), 3 → (b), 4 → (d). Surface smoothness decides the type of reflection.