

2020

RANK *Improvement* **WORKBOOK**



**Answer key and Hint of
Objective & Conventional Questions**

Civil Engineering
Irrigation Engineering



MADE EASY
Publications

1

Water Requirements of Crops

LEVEL 1 Objective Questions

1. (d)
2. (c)
3. (b)
4. (d)
5. (d)
6. (a)
7. (b)
8. (c)
9. (c)
10. (b)
11. (a)
12. (d)

© Copyright: Subject matter to MADE EASY Publications, New Delhi. No part of this book may be reproduced or utilised in any form without the written permission.

LEVEL 2 Objective Questions

13. (5200)
14. (c)
15. (a)
16. (b)
17. (b)
18. (d)
19. (c)
20. (a)
21. (a)
22. (c)
23. (d)
24. (b)

LEVEL 3 Conventional Questions**Solution : 1**

$$Q = 11.703924 \text{ m}^3/\text{s}$$

Solution : 2

Evapotranspiration,

$$C_u = 34.1806 \text{ cm}$$

$$\text{FIR} = 35.8163 \text{ cm}$$

Solution : 3(i) Gross storage for reservoir = 13.35 Mm³

(ii) Full supply discharge = 66.47 cumec

Solution : 4

$$t = 39.06 \text{ minutes}$$

$$A_{\max} = 0.144 \text{ ha}$$

Solution : 5

$$C_u = 34.16 \text{ cm}$$

$$\text{FIR} = 35.8 \text{ cm}$$

Solution : 6

$$Q = 4.595 \text{ cumecs}$$

Solution : 9

$$105.93 \text{ Mm}^3$$

Solution : 10

$$\eta_a = \left(\frac{t_d}{T} \right)^{n+1} \times 100$$

Solution : 11

(a) 0.08 or 8%

(b) 92.24%

(c) 31.97 minutes

■■■■

2

Design of Stable Channels

LEVEL 1 Objective Questions

1. (2.6425)
2. (1/3371)
3. (b)
4. (c)
5. (a)
6. (c)
7. (c)
8. (b)
9. (d)
10. (b)
11. (a)
12. (d)
13. (c)

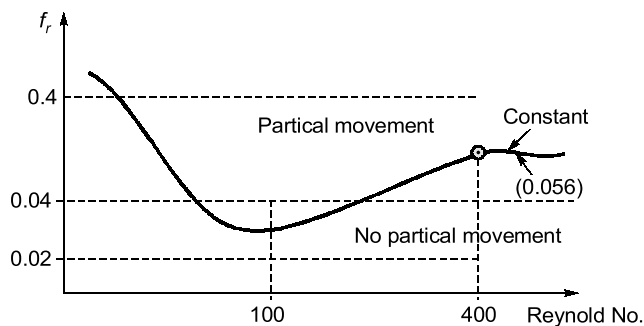
© Copyright: Subject matter to MADE EASY Publications, New Delhi. No part of this book may be reproduced or utilised in any form without the written permission.

LEVEL 2 Objective Questions

14. (c)
15. (c)
16. (d)
17. (c)
18. (a)
19. (d)
20. (b)
21. (b)
22. (b)
23. (b)
24. (d)
25. (a)
26. (b)

LEVEL 3 Conventional Questions

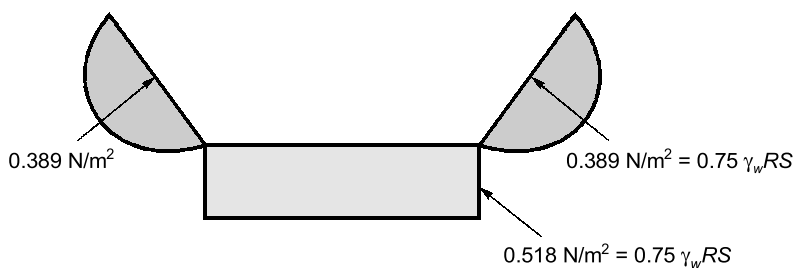
Solution : 1



Solution : 2

$$H_L = 0.0754 \text{ m}$$

Solution : 3



Solution : 5

390.70 tonnes per day

Solution : 6

$$C = 16.81 \times 10^{-6} \text{ ppm}$$

Solution : 7

$$b_{\min} = 3 \text{ m}$$

Solution : 8

(a) Average boundary stress $\tau_0 = 2.918 \text{ N/m}^2$

(b) Percentage saving in earthwork = 34.55%

Solution : 9

$$c = 290 \text{ ppm}$$

■■■■

3

Design and Construction of Gravity Dams

LEVEL 1 Objective Questions

1. (d)

2. (a)

3. (d)

4. (c)

5. (b)

6. (b)

7. (d)

8. (a)

9. (b)

10. (c)

11. (d)

12. (a)

LEVEL 2 Objective Questions

13. (c)

14. (d)

15. (a)

© Copyright: Subject matter to MADE EASY Publications, New Delhi. No part of this book may be reproduced or utilised in any form without the written permission.

16. (b)

17. (d)

18. (d)

19. (b)

20. (a)

21. (b)

22. (b)

23. (c)

LEVEL 3 Conventional Questions

Solution : 1

$$q = 3.29 \times 10^{-6} \text{ m}^3/\text{s/m}$$

Solution : 3

$$F = 1.63 \text{ (Safe)}$$

Solution : 4

$$11.11 \text{ years}$$

Solution : 5

$$\sigma_{\text{toe}} = 1586.66 \text{ kN/m}^2$$

$$\sigma_{\text{heel}} = -49.2 \text{ kN/m}^2$$

Solution : 6

$$Q_{\text{min}} = 25.14 \text{ m}^3/\text{s}$$

■■■■

4

River Training and Diversion Headworks

LEVEL 1 Objective Questions

1. (a)

2. (a)

3. (d)

4. (c)

5. (e)

6. (a)

7. (c)

8. (b)

9. (b)

10. (a)

11. (b)

12. (c)

13. (c)

LEVEL 2 Objective Questions

14. (a)

15. (d)

16. (c)

© Copyright: Subject matter to MADE EASY Publications, New Delhi. No part of this book may be reproduced or utilised in any form without the written permission.

17. (a)

18. (d)

19. (b)

20. (a)

21. (b)

22. (a)

23. (a)

24. (c)

25. (b)

26. (c)

LEVEL 3 Conventional Questions

Solution : 2

(i) 5 m mho/cm

(ii) $L.F. = 12.8\%$

Solution : 5

2.39 m below the ground.

Solution : 6

Not Safe.

Solution : 7

$LR = 6\%$

$D_i = 85.1 \text{ mm}$

■■■■

LEVEL 1 Objective Questions

1. (Superpassage)

2. (b)

3. (c)

4. (c)

5. (b)

6. (b)

7. (a)

8. (a)

9. (b)

10. (d)

11. (c)

12. (a)

13. (b)

14. (c)

© Copyright: Subject matter to MADE EASY Publications, New Delhi. No part of this book may be reproduced or utilised in any form without the written permission.

LEVEL 2 Objective Questions

15. (a)

16. (d)

17. (a)

18. (a)

19. (c)

20. (d)

21. (c)

22. (c)

23. (b)

24. (a)

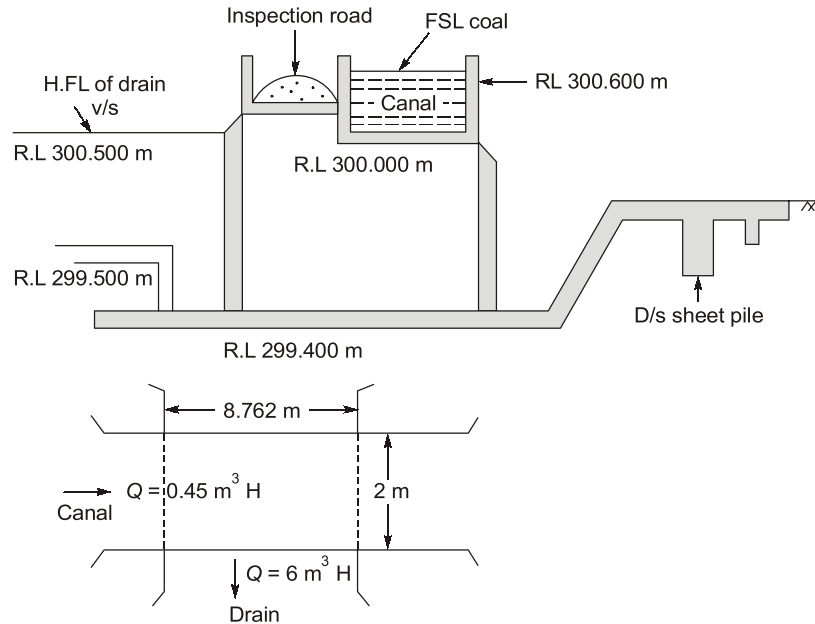
25. (d)

26. (c)

27. (d)

LEVEL 3 Conventional Questions

Solution : 1



Solution : 5

1. Waterway for Barrage

Number of gates required for barrage = 15

2. Waterway for canal head regulator

Number of gates required for canal head regulator each of 10 m span = 7.

3. Design of stilling basin

Level at which jump will form = 202.75 m

Cistern at RL = 202.75 m

Solution : 7

0.17 m

■■■■