

Numerical Answers to Exam Question

Academic Year : 2020-2021 Semester : 1 Course Code : CV2013

Course Title : Engineering Geology & Soil Mechanics

Question No	Answer
2a - (i)	243/26W (will accepting dip direction 240-145, dip angle 25-27)
2a - (ii)	$788-300 = 488 \text{ m}$
2a - (iii)	$50 \times \cos(26^\circ) = 45 \text{ m}$
3(a)	$h = 3.325 \text{ m}$
3(b)	$i_A = 0.175; i_B = 1.6625$
3(c)	1.66 m
3(d)	1.67 hr
3(e)	36.4 kPa
4a -(i)	$2.21 \times 10^{-2} \text{ cm}^2/\text{s}$
4a -(ii)	23.7 kPa
4b -(i)	[52 kPa, 40 kPa, 0 kPa, 12 kPa]; [126 kPa, 114 kPa, 74 kPa, 12 kPa]
4b -(ii)	0 kPa; 86 kPa
4b -(iii)	0.566 m
4b -(ivi)	1.12 yr

Numerical Answers to Exam Question

Academic Year : 2020-2021 Semester : 1 Course Code : CV2015

Course Title : Hydraulics

Question No	Answer
1	(ci) 1.333 m, 4.822 m ² /s
2	(ci) 0.475 m; (cii) 1.029 m; (ciii) 1.125 m
3	(bi) 3.298 m; (bii) 3.298 m; (c) 11.409
4	(bi) 1.056 m, 2.291 m; (bii) M2; (biii) 202 m upstream of the fall

Numerical Answers to Exam Question

Academic Year : 2020-2021 Semester : 1 Course Code : CV3011

Course Title : REINFORCED CONCRETE DESIGN

Question No	Answer
Q1	311.25 KNm; 297.5 KNm; 1900 mm ² ; 1560 mm ²
Q2	427.8 KN; 0.579; 0.24
Q3	3.53 kN/m ² , H10@200 (393 mm ²), Actual L/d = 32.4, allowable L/d = 44
Q4	Moment of resistance: 825.7 kN/m, Shear resistance: 6.72 N/mm ² , 1849 kN, 722 kN

Numerical Answers to Exam Question

Academic Year : 2020-2021 Semester : 1 Course Code : CV3015

Course Title : Environmental Engineering

Question No	Answer
Q1a (i)	NIL
Q1a (ii)	NIL
Q1a (iii)	1.3 mg/L
Q1b	100.9 mg/L; 50 mg/L; 92.6 mg/L; 0.73, 0.15
Q2a	NIL
Q2b(i)	0.2 L/h; 7.2 mg/L
Q2b(ii)	NIL
Q3a(i)	722 mg/L
Q3a(ii)	338 mg/L
Q3a(iii)	242 mg/L
Q3a(iv)	156 mg/L
Q3a(v)	480 mg/L
Q3a(vi)	182 mg/L
Q3b	43.4 m ² ; 101.7 m ²
Q3c(i)	0.26 kgBOD/kgMLVSS.d
Q3c(ii)	0.3 d
Q3c(iii)	87.5%; 70%
Q4a	543.5 m ³ ; 2013 m ³ ; 35.8 m
Q4b	75%; 1.001; 1.004
Q4c(i)	124.8 m ³

Q4c(ii)

4.20 kg/m³d

Numerical Answers to Exam Question

Academic Year : 2020-2021 **Semester :** 1 **Course Code :** CV 4011

Course Title : Project Planning and Management

Question No	Answer
Q1	NIL
Q2(a)	213 days
Q2(b)	183 days
Q3(a)	Approximate 162 days (range due to floating points)
Q3(b)	Approximate 3.4 unit/week (range due to floating points) Optimum team size = 64 person
Q4(a)	Project duration = 24 weeks, cumulative project cost = SGD 102800, cumulative project value = SGD 114280.
Q4(b)	Working capital (approx) = SGD 46871 at week 20

Numerical Answers to Exam Question

Academic Year : 2020-2021 Semester : 1 Course Code : CV4102

Course Title : Advanced Steel Design

Question No	Answer
Q1 (a)	$\gamma = \frac{d_0}{2t_0} = \frac{168.3}{2 \times 12.5} = 6.732$ $\beta = \frac{d_1 + d_2}{2d_0} = \frac{139.7 + 114.3}{2 \times 168.3} = 0.755$ $0.2 \leq \frac{d_1}{d_0} \leq 1.0 \Rightarrow 0.2 \leq \frac{139.7}{168.3} = 0.830 \leq 1.0$ $0.2 \leq \frac{d_2}{d_0} \leq 1.0 \Rightarrow 0.2 \leq \frac{114.3}{168.3} = 0.679 \leq 1.0$ $10 \leq \frac{d_0}{t_0} \leq 50 \Rightarrow 10 \leq \frac{168.3}{12.5} = 13.464 \leq 50 \leq 46.382 \text{ (Class 2, it is O.K.)}$ $\frac{d_1}{t_1} \leq 50 \Rightarrow \frac{139.7}{10.0} = 13.970 \leq 50 \leq 46.382 \text{ (Class 2, it is O.K.)}$ $\frac{d_2}{t_2} \leq 50 \Rightarrow \frac{114.3}{8.0} = 14.288 \leq 50 \leq 46.382 \text{ (Class 2, it is O.K.)}$
Q1 (b)	$\lambda_{ov} = 30.932\%$ $e = 19.347 \text{ mm}$
Q1 (c)	$N_{1,Rd} = 1245.881 \text{ kN}$ $N_{2,Rd} = 1245.881 \text{ kN}$
Q2 (a)	$F_{t,Ed} = 42.402 \text{ kN}$ $F_{v,Ed} = 38.333 \text{ kN}$
Q2(b)	$F_{v,Rd} = 135.552 \text{ kN}$ $F_{t,Rd} = 203.328 \text{ kN}$
Q2(c)	$F_{v,Rd} = 65.503 \text{ kN}$
Q3 (a)	Flange (Class 1) Web (Class 3)
Q3 (b)	Mb,Rd = 22,219 kNm MMax = 14,004 kNm
Q3 (c)	VMax = 1,833 kN < 7,412 kN

Numerical Answers to Exam Question

Academic Year : 2020-2021 Semester : 1 Course Code : CV4116

Course Title : Coastal Engineering

Question No	Answer
1	(a)(i) 0.5, (ii) 1.0, 0.0, (iii) 0.725, 0.23; (b) (i) 2.2m, 4.5s; (ii) 10.3 to 13.7 hr
2	(i) 2.45m; 78m; (ii) 1.0, 1.26; (iii) 0, 2.6m/s; 784kPa, 37.8 kPa
3	(a) 2.25m; (b) 177.8 kN/m;
4	(a) 134.3 kN/m; (b) 285m, 0.038m

Numerical Answers to Exam Question

Academic Year : 2020-2021 Semester : 1 Course Code : MT2003

Course Title : Maritime Technology

Question No	Answer
2c	\$3,341,850

Numerical Answers to Exam Question

Academic Year : 2020-2021 Semester : 1 Course Code : MT4001

Course Title : Shipping Logistics

Question No	Answer
4a (i)	optimal size = 599; cycle inventory = 279.5
4a (ii)	optimal size = 660

Numerical Answers to Exam Question

Academic Year : 2020-2021 Semester : 1 Course Code : MT4003

Course Title : Maritime Strategy

Question No	Answer
1	NA
2	NA
3	NA
4	Average ROE = -5.8%
5	Enterprise value = -3.96 million Present value of terminal value = 1357.29

