

Register Number :

Name of the Candidate :

0 3 7 1

B.E. DEGREE EXAMINATION, 2018

(CIVIL ENGINEERING)

(SIXTH SEMESTER)

CLEC- 601/ PCLEC-304. HYDROLOGY

(Common with Part-Time)

May]

[Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT - I

1. Explain the hydrology cycle with neat sketch.
2. Explain the meteorology, structure and constituents of atmosphere.

UNIT - II

3. The annual average rainfall of four Stations A, B, C and D in an area are 105, 122, 95 and 102 cm respectively. In a particular year, Station 'C' did not function and the rainfall values of stations A, B and D are 90, 97 and 82 cm. Compute the missing data.
4. The maximum values of one day rainfall in cm, during each year for a site for a period of 25 years are as follows :
55, 90, 140, 130, 95, 85, 125, 115, 65, 35, 25, 40, 110, 100, 80, 45, 105, 135, 145, 120, 75, 30, 70, 50 and 60.

Compute :

- (a) The maximum rainfall values that can occur with the recurrence interval of 15 and 5 years.
- (b) 75 % dependable rainfall.
- (c) Recurrence interval for 93 cm rainfall.

UNIT - III

5. Derive an Horton's equation for the determination of infiltration capacity curve.
6. Explain the field measurement of infiltration rate.

UNIT - IV

7. Derive the ordinates of 12 hours unit hydrograph with the help of given 4 hour unit hydrograph and draw the unit hydrograph.

Time (hr)	0	4	8	12	16	20	24	28	32	36	40	44
U.H.O. (m ³ /sec)	0	20	75	125	150	125	90	50	25	15	5	0

8. (a) Describe the various procedure of getting synthetic unit hydrograph for a basin. (8)
 (b) Explain the various component parts of flood hydrograph. (7)

UNIT - V

9. How is the Gumble's method used to determine the annual peak flood discharge ?
 10. The inflow and outflow hydrographs for a reach of a river are given below. Determine the value of the Muskingum co-efficient K and x for each :

Time (hr)	:	0	24	48	72	96	120	144	168	192	216
Inflow (cumec)	:	35	125	575	740	456	245	144	95	67	50
Outflow (cumec)	:	39	52	287	624	638	394	235	142	93	60

Register Number :

Name of the Candidate :

0373

B.E. DEGREE EXAMINATION, 2018

(CIVIL, CIVIL AND STRUCTURAL ENGINEERING)

(SIXTH SEMESTER)

CLEC-603 / CSEC-602 / PCLEC-303 / PCSEC-504 / PCLEC-202.

STRUCTURAL MECHANICS - II

May]

[Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks..

UNIT - I

1. Analyse the two span continuous beam shown in figure-1 by slope deflection method. Draw the bending moment diagram. (15)

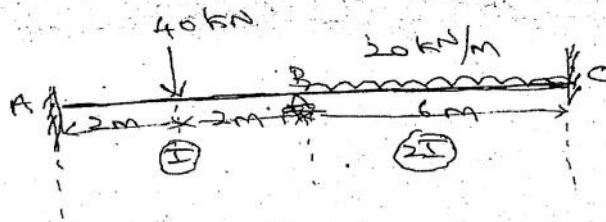


Figure - 1.

(OR)

- 2 Analyse the frame shown in figure-2 by consistent deformation method.. (15)

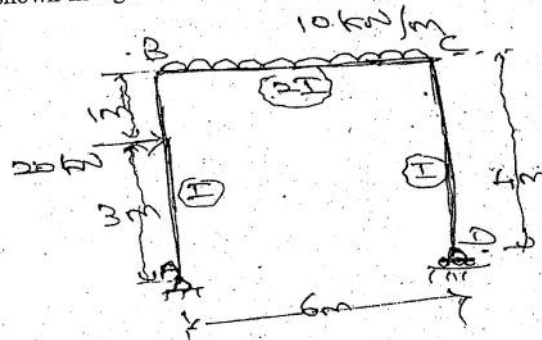


Figure - 2.

UNIT - II

3. Analyze the continuous beam shown in figure-3 by strain energy method. Also, draw the shear force diagram. (15)

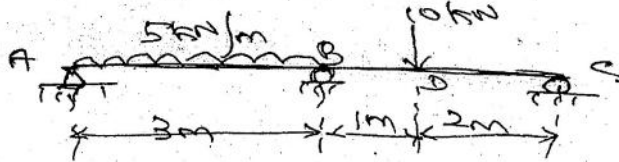


Figure - 3.

(OR)

4. Determine the vertical and horizontal displacement at the free end of the bent shown in figure - 4. Assume uniform flexural rigidity EI throughout the bent. (15)

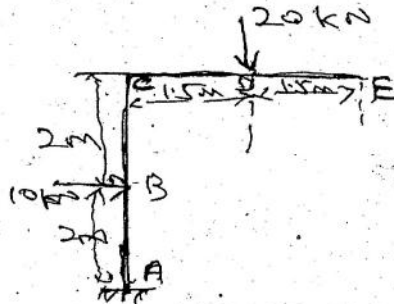


Figure - 4.

UNIT - III

5. Analyze the continuous beam shown in figure-5 using flexibility method. Assume EI is constant. (15)

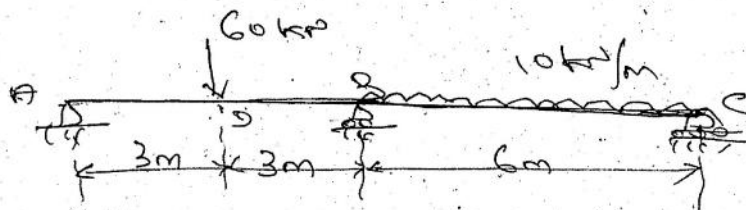


Figure - 5.

(OR)

- 6 Determine the forces in all members of the pin joint frame shown in figure - 6 by flexibility method. (15)

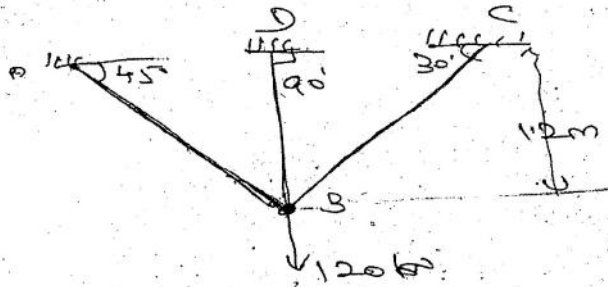


Figure - 6.

UNIT - IV

- 7 A two span continuous beam ABC is fixed at A and simply supported over the supports B and C. The span lengths AB = 10 m and BC = 8 m. Moment of inertia of the beam section is constant throughout. A single concentrated load of 100 kN acts at mid span on AB and a UDL of 80 kN/m acts over BC. Analyze the beam by stiffness method. (15)

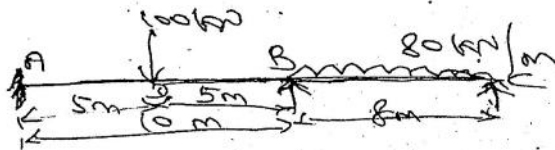


Figure - 7

(OR)

8. Analyze the frame shown in figure - 8 by stiffness method. Assume EI is same for all the members. (15)

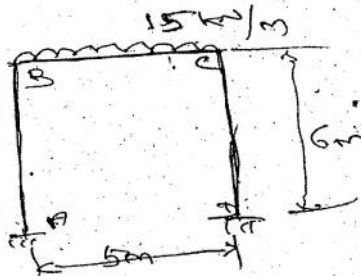


Figure - 8..

UNIT - V

9. Analyze the frame shown in figure - 9 by stiffness method. Assume EI is constant. (15)

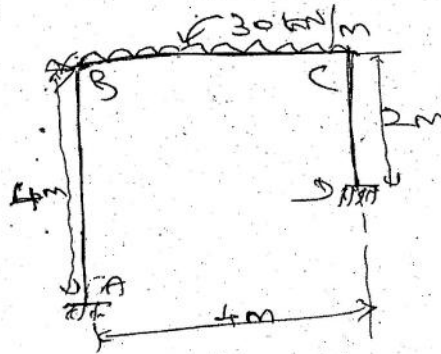


Figure - 9.

(OR)

10. Analyze the continuous beam shown in figure - 10. The centre support has sunken by 2 mm. Take $E = 20 \text{ kN/mm}^2$ and $I = 5.8 \times 10^{-6} \text{ m}^4$. (15)

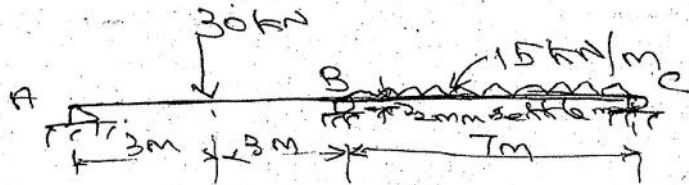


Figure - 10

B.E. DEGREE EXAMINATION, 2018

(CIVIL AND STRUCTURAL ENGINEERING)

(SIXTH SEMESTER)

CLEC-604 / PCLEC -503. FOUNDATION ENGINEERING

(New Regulations)

(Common with Part-Time)

May]

[Time : 3 Hours

Maximum : 75 Marks

*Answer any ONE FULL question from each unit.**ALL questions carry EQUAL marks.*

UNIT - I

1. Explain the various types of foundations.
2. A square footing $1.5 \text{ m} \times 1.5 \text{ m}$ is located at depth 1 m below ground surface. If the soil below the ground level of average density 20 kN/m^2 with $\phi = 20^\circ$, $N_c = 17.7$, $N_q = 7.4$, $N_r = 5$. Assume FOS = 3 and W.T is very deep. Also, compute SBC of the footing, if W.T. raise to the ground level.

UNIT - II

3. Explain with neat sketches, the open excavation and boring methods of the exploration of soil.
4. The settlement of a rigid footing $3.0 \times 3.0 \text{ m}$ carrying a load of 2000 kN supported on a clayey soil. If plate load test gives a settlement of 10 mm under a load of 350 kN/m^2 . Take size of plate as $45 \text{ cm} \times 45 \text{ cm}$.

UNIT - III

5. A retaining wall of 5 m height with smooth vertical back side the back fill is levelled horizontally with top of wall UDL of 40 kN/m^2 were applied over the back fill material is of pure sand having unit weight of 20 kN/m^3 and friction angle of 32° . What is the value of active earth pressure per meter length and located the position of the same from bottom of wall.
6. Explain Rankine's theory of passive earth pressure for a submerged back fill.

UNIT - IV

7. Explain in detail about the various types of pile foundation with neat sketch and write their functions.
8. A pre-cast concrete pile is driven with a 40 kN hammer having a free fall of 1 m . If the penetration in the last blow is 0.5 m , determine the load carrying capacity of the pile using Engineer's new record formula (FOS = 5.0).

UNIT - V

9. Explain the general principles of design of coffer dams.
10. Explain the foundation for machinery and general principles of design.

0 3 7 6

B.E. DEGREE EXAMINATION, 2018

(CIVIL ENGINEERING)

(SIXTH SEMESTER)

CLEC- 605 / PCLEC-502. ENVIRONMENTAL ENGINEERING - I

(Common with Part-Time)

May]

[Time : 3 Hours

Maximum : 75 Marks

*Answer any ONE FULL question from each unit.
Nomograph for Hazen William formula is permitted.
ALL questions carry EQUAL marks.*

UNIT - I

1. Define 'per capita demand'. List out the factors which affect the per-capita demand and explain them. (15)
2. The population of 5 decades from 1930 to 1970 are given below. Estimate the population after one decade, 2 decades and 3 decades beyond 1970 by incremental increase method and geometric increase method. (15)

Year	1930	1940	1950	1960	1970
Population	25,000	28,000	34,000	42,000	47,000

UNIT - II

3. How a particular source of water is selected for a public water supply scheme ? State the factors governing the selection and explain them. (15)
4. Name the different 'intake structures' and explain them with neat sketches. (15)

UNIT - III

5. List out the different pipes used for conveyance of water and narrate the merits and demerits of different pipe materials. (15)
6. (a) Define a pump and explain why pumps are needed for a water supply scheme. (7)
(b) Name the different types of pumps and indicate the types of pumps generally used in water supply scheme and the reasons for it. (8)

UNIT - IV

7. (a) State the purposes of sedimentation tanks and when they are made use in the water supply systems. (7)
- (b) Describe a sedimentation tank with a neat sketch. (8)
8. What is meant by water softening ? Describe any one method of water softening. (15)

UNIT - V

9. In general, there are four types of pipe networks in public water distribution system. Name them and describe any one method. (15)
10. What for distribution reservoirs are used ? Name the types and describe any one with a neat sketch. (15)

Register Number :

Name of the Candidate :

0 3 7 7

B.E. DEGREE EXAMINATION, 2018

(CIVIL ENGINEERING)

(SIXTH SEMESTER)

CLEC- 606/ PCLEC-601. CONSTRUCTION TECHNIQUES AND MANAGEMENT

(Common with Part-Time)

May]

[Time : 3 Hours

Maximum : 75 Marks

Answer any ONE FULL question from each unit.

ALL questions carry EQUAL marks.

UNIT - I

1. Explain in detail about how joints are being dimensional in pre-cast structures. (15)
2. Discuss the important aspects considered during erection and transportation of pre-cast elements. (15)

UNIT - II

3. Explain the factors to be considered in the selection of construction equipment. (15)
4. What are the different types of excavators ? Explain any three in detail. (15)

UNIT - III

5. Define construction planning. Explain in detail about the basic concept involved in the development of construction plan. (15)
6. How will you interpret the database approach to contractor's account and explain it briefly. Mention its advantages and disadvantages, also. (15)

UNIT - IV

7. What are the constraints of scheduling ? Explain how each constraints affects scheduling.(15)
8. The duration activities of a project are as follows : Draw the PERT network diagram. Identify various paths. Identify the critical path. Tabulate the computation. Evaluate the project time.

Activity	1-2	1-3	2-4	2-5	4-7	5-7	7-8	3-6	6-8
Duration in days	5	10	1	6	12	3	4	7	6

(15)

UNIT - V

9. Describe the major causes of unfavourable direct cost variance. Explain two major objectives of budgeted cost analysis. (15)
10. Draw the network and design the critical path and calculate the completion time of the project whose activities are as follows :

Activity	Duration in days	Preceding activity
A-B	7	----
B-C	10	A-B
B-D	15	A-B
C-D	7	B-C
C-E	12	B-C
D-E	3	B-D,C-D
E-F	5	C-E,D-E