



Shri Shankaracharya Institute of Professional Management & Technology
Department of Civil Engineering

Online Class Test – I Session: Jan – June, 2023 Month – April

Semester – 4th Subject – Hydraulic Engineering Code – B020412(020)

Time Allowed: 2 hrs. Max Marks: 40

Note: - In Part I & II, Question A is compulsory and attempt any two from B, C & D.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	CO's
Part I				
A.	Explain the mechanism of development of boundary layer on a thin, smooth flat plate. Also discuss about Laminar Sublayer.	[4]	Understand	CO2
B.	Assuming that the shear stress distribution in a laminar boundary layer is such that $\tau = \tau_0 (1-y/\delta)$. Calculate the displacement and momentum thickness of this boundary layer in terms of δ .	[8]	Apply	CO2
C.	Discuss in detail about all the geometrical parameters associated with open channel flow through suitable diagrams. Also write the equations used for calculating velocity	[8]	Understand	CO3
D.	Prove that Specific Energy is minimum and Discharge is maximum when the flow is critical. Draw specific energy curve also.	[8]	Analyze	CO3
Part II				
A.	Explain the terms: - 1) Minimum Specific Energy 2) Critical Depth 3) Critical Velocity	[4]	Understand	CO3
B.	Derive the equation for steady GVF in open channel.	[8]	Analyze	CO3
C.	A rectangular channel 15m wide has a normal depth of 0.8m. The discharge carried is $10\text{m}^3/\text{s}$. Calculate: - 1) Alternate depth 2) Velocity of flow ($n=0.015, S=1/6500$) 3) Critical depth 4) Maximum Height of Hump without causing afflux 5) Possible Contracted width without causing afflux.	[8]	Apply	CO3
D.	Prove that for a wide rectangular channel for a bed slope S_0 1) For mild slope – $S_0 < n^2 g^{10/9}/q^{1/9}$ 2) For steep slope – $S_0 > n^2 g^{10/9}/q^{1/9}$ Where n = Manning's constant & q = Discharge per unit width.	[8]	Apply	CO3



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Department of Civil Engineering

Class Test – I Session: Jan – July, 2023

SUBJECT - BUILDING CONSTRUCTION

Semester – 4th

Time Allowed: 2 hrs

Code – B020414(020)

Maximum Marks: 40

Note: - Part (a) is compulsory of each unit carries 4 marks. Attempt any 2 questions from b, c & d carries 8 marks each.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	COs
Unit- I				
(a)	Describe the purpose of foundation with neat sketch.	[4]	Understand	CO1
(b)	Explain with the help of sketches various types of shallow foundation.	[8]	Understand	CO1
(c)	What types of foundation are used in black cotton soil? Explain any one with neat sketches.	[8]	Understand	CO1
(d)	Discuss the causes of foundation failure and their rectification?	[8]	Understand	CO1
Unit- II				
(a)	Define masonry. Discuss the different types of brick and stone masonry.	[4]	Understand	CO2
(b)	Explain the various types of stone masonry with neat sketch.	[8]	Understand	CO2
(c)	Discuss various types of bonds used in brick masonry. Explain any one with the help of neat sketches.	[8]	Understand	CO2
(d)	Explain the following: (a) Course (b) Header (c) Stretcher (d) Quoins (e) Closer (any four)	[8]	Understand	CO2

Shri Shankaracharya Institute of Professional Management & Technology

Department of Civil Engineering

Online Class Test – I Session: Jan – June, 2023 Month –April

Semester – 4th Subject –Surveying and Geomatics SurveyingCode –B020413(020)

Time Allowed: 2 hrs. Max Marks: 40

Note: - In Part I & II, Question A is compulsory and attempt any two from B, C & D.



Q. No	Questions	Marks	Levels of Bloom's taxonomy	CO's
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Part I

A.	Explain the term Mistakes ,systematic error and accidental error.	[4]	Remember	CO2												
B.	<p>Angle were measured on a station and the observations were recorded as follows</p> <table border="1"> <thead> <tr> <th>Angle</th> <th>Value</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>45⁰30'10"</td> <td>2</td> </tr> <tr> <td>B</td> <td>40⁰20'20"</td> <td>3</td> </tr> <tr> <td>A + B</td> <td>45⁰30'10"</td> <td>1</td> </tr> </tbody> </table> <p>Find the most probable values of the angles A & B. (a)Direct Method (b) Method of difference</p>	Angle	Value	Weight	A	45 ⁰ 30'10"	2	B	40 ⁰ 20'20"	3	A + B	45 ⁰ 30'10"	1	[8]	Apply	CO2
Angle	Value	Weight														
A	45 ⁰ 30'10"	2														
B	40 ⁰ 20'20"	3														
A + B	45 ⁰ 30'10"	1														
C.	<p>The following observations of three angles A,B& C were taken at one station.</p> <p>∠A = 55⁰45'25.33" weight 3 ∠B = 38⁰35'27.75" weight 3 ∠C = 105⁰39'7.2" weight 3 ∠A + ∠B = 94⁰20'52" weight 2 ∠B + ∠C = 144⁰14'34.5" weight 2 ∠A + ∠B + ∠C = 200⁰0'0" weight 1</p> <p>Determine the most probable value of each angle.</p>	[8]	Apply	CO2												
D.	<p>The following observations of three angles A,B& C were taken at one station.</p> <p>A = 75⁰40'20" weight 4 A + B = 137⁰25'45" weight 3 B + C = 182⁰57'50" weight 2 A + B + C = 258⁰38'15" weight 1</p> <p>Determine the most probable value of each angle.</p>	[8]	Apply	CO2												

Part II

A.	Explain tacheometry and it s constants.	[4]	Remember	CO3
B.	Two points A and B are opposite sides of a summit. The tacheometer was set up at P on the top of the summit, and the following readings were taken. The tacheometer is fitted with an Anallactic lens, the multiplying constant being 100. The staff was held normal to the line of sight.	[8]	Apply	CO3

Calculate:

- (a) The distance between A and B
- (b) The gradient of lines PA and PB

Instrument station	Height of instrument	Staff station	Vertical angle	Hair readings			remarks
P	1.5	A	10°30'	1.15	2.05	2.95	RLoF P= 450.5 m
P	1.5	B	12°30'	0.85 5	1.60 5	2.35 5	

A tacheometer was set up at station A and following observations were taken with vertically held staff:

Station	Staff station	Vertical angle	Hair readings	Remarks
A	B.M	-1°50'	3.105, 3.450, 3.870	R.L. of B.M. = 248.75m
	B	+6°35'	1.45, 2.315, 3.35	

C.

[8]

Apply

CO3

Calculate reduced level of B if instrument constants are 100 and 0.4.

Derive the expression for horizontal and vertical distance and the reduced level of the staff station in the tangential method when:

D.

- a. Both angles are angles of elevation.
- b. Both angles are angles of depression.
- c. One is of elevation and other is of depression.

[8]

Analyze

CO3



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Class Test – I Session- Jan-June, 2023 Month-April

Sem- 4th Subject- Engineering Geology Code-B020415(020)

Time Allowed: 2 hrs

Max Marks: 40

Note: - Question Q1 is compulsory. Attempt any 2 questions from Q2, Q3 and Q4.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
PART-I				
Q1	Fill in the blanks The lowest layer of the atmosphere is _____ Meteors burn in this layer _____	[4]	Remember	CO1
Q2	Describe role of geological investigations in engineering practice.	[8]	Understand	CO1
Q3	Describe the radioactive method of determination of age of the earth.	[8]	Understand	CO1
Q4	Explain the constitution and properties of Mantle and core of earth as explicitly as possible.	[8]	Understand	CO1
PART-II				
Q1	Define Moho's scale of hardness.	[4]	Remember	CO2
Q2	Distinguish between the following: Colour and streak of minerals Ore forming minerals with examples Differentiate rock, mineral and ore.	[8]	Understand	CO2
Q3	Discuss physical (megascopic) properties of silica, graphite, asbestos and feldspar.	[8]	Understand	CO2
Q4	Describe various physical properties of minerals used in the megascopic identification of minerals.	[8]	Understand	CO2

