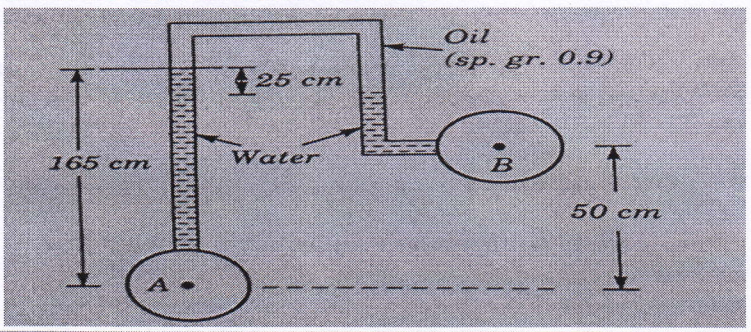
Shri Shankaracharya Institute of Professional Management & Technology
Department of Civil Engineering
Online Class Test – I Session: July-December, 2021 Month – November
Semester – 3rd (B-Tech) Subject – IFM Code – B000312(020)
Time Allowed: 2 hrs. Max Marks: 40
Note: - In Part I & II, Question A is compulsory and attempt any two from B, C & D.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	CO's
	Part I			
A.	Discuss in brief the rheology of fluids with certain examples	[4]	Understand	CO1
B.	Explain in detail about Newton's Law of Viscosity. Also discuss about its linearization.	[8]	Understand	CO1
C.	A space 25mm wide between two large plane surfaces is filled with glycerine. What force is required to drag a very thin plate 0.75 square metre in area between the surfaces at a speed of 0.5m/s (I) If the plate is equidistant from the two surfaces. (II) If it is at a distance of 10 mm from one of the surfaces. Take $\mu = 0.785$ N-s/m^2.	[8]	Apply	CO1
D.	A thin plate of large area is placed midway in a gap of height "h" filled with oil of viscosity μ_0 and the plate is pulled at a constant velocity V. If a lighter oil having viscosity μ_1 is then filled in the gap, it is found that for the same velocity V, the force on the plate will be the same for both the cases (plate is placed parallel to the both surfaces). Find the expression of μ_1 in terms of μ_0 and the distance of the plate from the surfaces.	[8]	Apply	CO1
	Part II			
A.	State Hydrostatic Law. Explain in brief about the calculation of pressure at any point in a static fluid.	[4]	Understand	CO1
B.	Calculate the pressure difference between the pipes A and B for the inverted U-Tube manometer as shown. 	[8]	Apply	CO1
C.	An iceberg of specific weight 8976 N/m^3 extends above the surface of sea water of specific weight 10104 N/m^3. What percentage of the total volume of iceberg is visible to an observer?	[8]	Analyze	CO1
D.	Describe in detail the following: - 1) Steady and Unsteady flow 2) Uniform and Non-Uniform flow 3) Laminar and Turbulent flow	[8]	Understand	CO2

SSIPMT RAIPUR

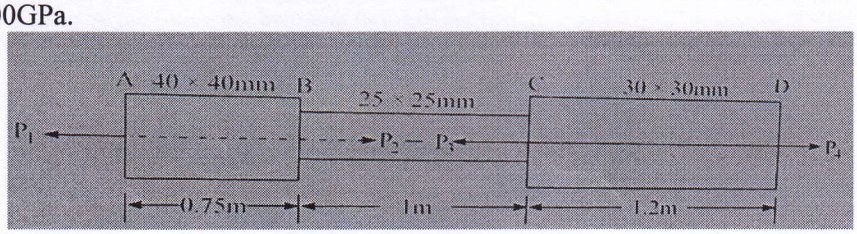
Shri Shankaracharya Institute of Professional Management & Technology
Department of Civil Engineering

Class Test – I **Session: July – Dec, 2021 Month – November**

Semester – 3rd (B.Tech) **Subject –Mechanics of solid Code – B000313(020)**

Time Allowed: 2 hrs. Max Marks: 40

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

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	COs
	Part-1			
A.	Define stress and strain. Also explain its types.	[4]	Understand	1
B.	A member ABCD is subjected to point loads P 1, P 2, P 3 and P 4 as shown in fig. Calculate the force P 3 necessary for equilibrium if P 1 =120KN,P 2 =220KN and P 4 =160KN. Determine also the net change in length of the member. Take E=200GPa. 	[8]	Analyze	1
C.	Derive the expression E=2G (1+μ)	[8]	Create	1
D.	A bar of steel is 60mm x 60mm in section and 180mm long. It is subjected to a tensile load of 300kN along the longitudinal axis and tensile loads of 750kN and 600kN on the lateral faces. Find the change in the dimensions of the bar and the change in volume. E = 200GN/m^2 and 1/m =0.3	[8]	Evaluate	1
	Part- II			
	Define principal stress and principal planes.	[4]	Understand	2
B.	At a point in a stressed body the principal stresses are 100MN/m^2 (tensile) and 60 MN/m^2 (Compressive). Determine the normal stress and the shear stress on a plane inclined at 50° to axis of major principal stress. Also calculate the maximum shear stress at the point.	[8]	Create	2
C.	Derive the expression for normal stress and shear stress due to biaxial stress.	[8]	Create	2
D.	At a point in a bracket the stresses on two mutually perpendicular planes are 50MN/m^2 (tensile) and 30MN/m^2 (compressive). The shear stress across these planes is 30 MN/m^2 Determine the principal stresses and maximum shear stress and its inclination.	[8]	Evaluate	2

Shri Shankaracharya Institute of Professional Management & Technology,Raipur
Department of Civil Engineering
Online Class Test – I Session: JULY – DEC, 2021 Month – NOVEMBER
Semester – 3rd Subject – Building Material, Subject Code – B020315(020)
Time Allowed: 2 hrs. Max Marks: 40
Note: - All Questions are compulsory.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	CO's
	SECTION- I			
A.	What do you understand by soundness of cement?	[4]	Understand	CO1
B.	Write down the short notes on: ❖ Hydration of cement ❖ Compressive Strength	[8]	Understand	CO1
C.	Discuss the following below in terms of cement: ❖ Standard Consistency ❖ Setting Time	[8]	Understand	CO1
	SECTION -II			
A.	How we can differentiate coarse aggregate and fine aggregate	[4]	Understand	CO1
B.	What is mean by aggregate? Briefly describe their classification.	[8]	Understand	CO1
C.	Discuss the wet and dry process of manufacturing of cement.	[8]	Understand	CO1

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Department of Civil Engineering
Online Class Test – I Session: JULY – DEC, 2021 Month – NOVEMBER
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Time Allowed: 2 hrs. Max Marks: 40
Note: - All Questions are compulsory.

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	CO's
	SECTION- I			
A.	What do you understand by soundness of cement?	[4]	Understand	CO1
B.	Write down the short notes on: ❖ Hydration of cement ❖ Compressive Strength	[8]	Understand	CO1
C.	Discuss the following below in terms of cement: ❖ Standard Consistency ❖ Setting Time	[8]	Understand	CO1
	SECTION -II			
A.	How we can differentiate coarse aggregate and fine aggregate	[4]	Understand	CO1
B.	What is mean by aggregate? Briefly describe their classification.	[8]	Understand	CO1
C.	Discuss the wet and dry process of manufacturing of cement.	[8]	Understand	CO1

Department of Civil Engineering

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Class Test – I Session: Jul – Dec, 2021 Month – NOVEMBER

Semester – 3rd **Subject – Plane Surveying-I** **Code – B020314(020)**

Time Allowed: 2 hrs Max Marks: 40

*Question 1 of each unit is compulsory. Attempt any **two** Questions from (b) (c) and (d).*

Q. No.	Questions	Marks	Levels of Bloom's taxonomy	COs
	UNIT-1			
A.	I. Discuss the following: (Any Four) (a) Types of Bench mark (b) Use of inverted staff (c) Sensitivity of Bubble tube (d) Barometric levelling	[10]	Understand	CO1 CO2
B	Following notes refer to reciprocal level taken with a level. Inst. station | Staff reading (On A | On B) | Remarks A | 1.03 | 1.630 | AB=800m B | 0.95 | 1.540 | RL of A=450m. Find (a) true RL of B (b) combined correction for curvature and refraction? (c) Error in collimation adjustment of the instrument.?	[10]	Analyse	CO1
C	Discuss the effect of curvature and refraction applied to levelling and deduce expression for each of them along with the combined correction. An observer standing on the deck of ship just see a light house. The top of the light house is 42 m above sea level and the height of the observer's eye is 6 m above the sea level. Find the distance of the observer from the light house.	[10]	Apply	CO1
D	The following observation were made in running fly level from a bench mark of R.L. 60.65 m. Back Sight: 0.964, 1.632, 1.105, 0.850 Fore Sight: 0.948, 1.153, 1.984. Five pegs at 20m intervals are to be set on a falling gradient of 1 in 100 m from the last position of the instrument. The first peg is to be R.L. 60 m. Work out the staff readings required for setting the pegs and prepare the page of the level book.	[10]	ANALYSE	CO1
	UNIT-2			
F	Discuss the following: I. Uses of contouring II. Different method of locating contours.	[10]	Understand	CO2