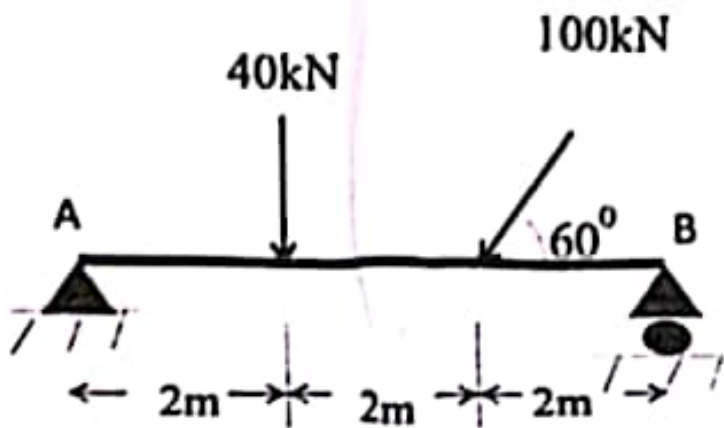




QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH
MID-SEMESTER EXAMINATION SECOND SEMESTER - 2020/2021 SEMESTER, 2020/2021 BE SEMESTER
SUBJECT: THEORY OF STRUCTURES

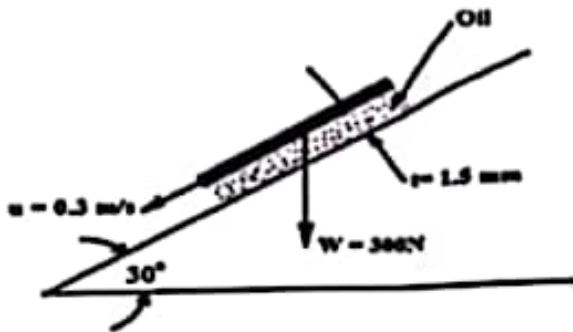
Dated: 24.11.2022 Maximum Marks: 20 Time Allowed: 01 Hour

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.	Question	Cl/Pr	Marks
Q. 01	What are the different types of beams and loadings? Explain Determinate and Indeterminate structure?	1	10
Q. 02	Draw shear force and bending moment diagram of simply supported beam subjected to uniformly distributed load (UDL)?	1	10
Q. 03	Determine the support reaction of following beam. 	1	10

The End



			CLOs	Taxonomy Level	Marks
Q. 01	A.	What do you mean by Fluid and explain its types? Calculate the specific weight, density and specific gravity of one liter of a liquid which weighs 7 N.	1	2	05
	B.	Discuss the importance of "Fluid Mechanics" in the field of civil engineering.	2	2	05
Q. 02		Calculate the dynamic viscosity of oil, which is used for lubrication between a square plate of size 0.8 m x 0.8 m and an inclined plane with angle of inclination 30° as shown in given below. The weight of the square plate is 300 N and it slides down the inclined plane with a uniform velocity of 0.3 m/s. The thickness of oil film is 1.5 mm. 	3	4	10
Q. 03		Define following terms. 1. Surface Tension 2. Density or Mass Density 3. Specific Gravity 4. Viscosity 5. Kinematic and Dynamic Viscosity	3	3	10

GOOD LUCK



QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH
MID-SEMESTER EXAMINATION OF SECOND SEMESTER - SECOND YEAR 14TH SEMESTER, 2022 OF 20 BATCH B.E (CE)

SUBJECT: TRANSPORTATION ENGINEERING

Dated: 23.11.2022

Maximum Marks: 20

Time Allowed: 1 Hour.

NOTE: ATTEMPT TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.	Question	CLO	Taxonomy Level	PLO	Marks
Q. 01	Discuss briefly the various types of Runway Configuration with the help of sketches. Which runway configuration is more desirable and why? Discuss.	3	C3	3	10
Q. 02	What do you mean by Airport Planning? What is the purpose and objective of airport master plan and airport system plan? Also discussed the factors involved in the selection of site for airport	3	C3	3	10
Q. 03	A turbine-powered aircraft has these runway performance characteristics: For a Normal Take-off, the lift off distance is 6750 ft, and the aircraft reaches a height of 35 ft above the end of runway at a distance of 7250 ft from the runway threshold. For an engine failure take-off, the lift off distance is 7450 ft, and the aircraft reaches a height of 35 ft above the end of runway at a distance of 8150 ft from the runway threshold. For an aborted take-off, the accelerate-stop distance is 9950 ft. For landing, the stop distance is 4850 ft. Determine the minimum FAR runway requirements for this aircraft, if the runway is to be used in both directions.	3	C3	3	10

Good Luck



SUBJECT: STRENGTH OF MATERIALS-II

Date: 22.11.2022

Maximum Marks: 20

Time Allowed: 1 Hour

NOTE: ATTEMPT ANY TWO QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

		CLOs	Taxonomy Level	Marks
Q. 01	Derive an expression for the stresses on an oblique section of a rectangular body, when it is subjected to two direct stresses (σ_x & σ_y) in two mutually perpendicular directions.	1	3	10
Q. 02	A small block is 6 cm long, 4 cm high and 1.5 cm thick. It is subjected to uniformly distributed tensile forces of resultants 1500 N and 800 N as shown in Fig. 1. Compute the normal and shear stresses developed along the diagonal AB.	1	4	10
Q. 03	A. Define the terms 1. Principal Stresses 2. Principal Planes 3. Angle of Obliquity	1	2	5
	B. A rectangular block of material is subjected to a tensile stress of 300 N/mm ² on a plane and a tensile stress of 120 N/mm ² on a plane at right angles, together with a shear stress of 140 N/mm ² on the same planes. Find (i) The direction of the principal planes (ii) The magnitude of the principal stresses (iii) Magnitude of the greatest shear stress.	1	4	5

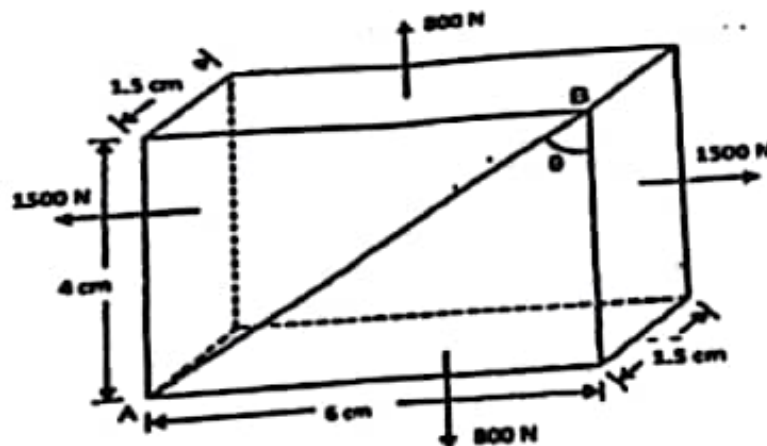


Figure 1

The End



QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH
MID-SEMESTER EXAMINATION OF SECOND SEMESTER - SECOND YEAR (4TH SEMESTER) 2022, 20 BATCH (CE-A+C)

SUBJECT: NUMERICAL METHODS

Dated: 25.11.2022

Maximum Marks: 20

Time Allowed: 1 Hour.

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.	QUESTIONS	PLO	CLO	Taxonomy Level	Marks
01	(a) Define Truncation error. Let $f(x) = \cos x$ and $x_0 = 0$, find the second order Taylor polynomial and their truncation error. (b) Describe the bracketing and open methods.	PLO-2	CLO-1	C2	10
02	(a) Write the advantages and disadvantages of Newton's method. (b) Let $f(x) = -x^3 - \cos x$, with $x_0 = -1$. Use Newton's method to find x_2 . Could $x_0 = 0$ be used?	PLO-2	CLO-1	C2	10
03	Find the first two iterations of the Jacobi method for the following linear systems, using $X^{(0)} = 0$: $\begin{aligned} 10x_1 - x_2 + 2x_3 &= 6 \\ -x_1 + 11x_2 - x_3 + 3x_4 &= 25 \\ 2x_1 - x_2 + 10x_3 - x_4 &= 11 \\ 2x_2 - x_3 + 8x_4 &= 15 \end{aligned}$	PLO-2	CLO-1	C2	10

GOOD LUCK


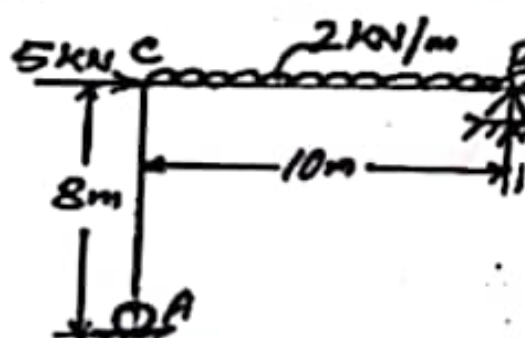
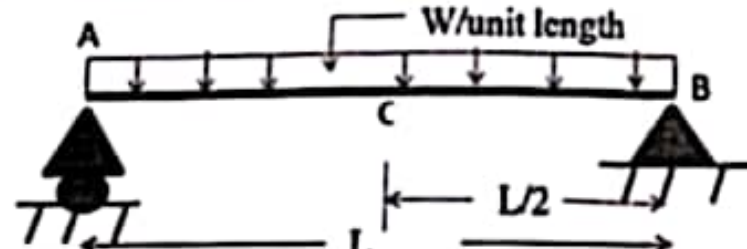


Dated: 19.01.2023

Maximum Marks: 60

Time Allowed: 3 Hours

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.	QUESTION	CLD	Proficiency Level	PLD	Marks
Q. 01	<p>Calculate the forces in all the members of following truss. It is carrying a load of 60KN tons point E.</p> 	2	C4	2	12
Q. 02	<p>A parabolic three-hinged arch has a span of 20 m and central rise of 5m carries a point load of 20 ton at 5m from the left end support. Draw the bending moment diagram and indicate the position and magnitude of maximum bending moment.</p>	2	C4	2	12
Q. 03	<p>Draw shear force and bending moment diagram of following framed structure.</p> 	2	C4	2	12
Q. 04	<p>Calculate the slope at point A and deflection at point C of the following simply supported beam using conjugate beam method.</p> 	1	C5	2	12
Q. 05	<p>Write short note on any three of the following</p> <ol style="list-style-type: none"> Arch and its types Influence line diagram and its advantages Truss and its types Types of supports and loads on beams 	1	C5	2	12

Good Luck



QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH
FINAL SEMESTER REGULAR EXAMINATION OF SECOND SEMESTER - SECOND YEAR 2022 OF 20 BATCH (BE/CE-A/G)

SUBJECT: NUMERICAL METHODS

Dated: 23.01.2023

Maximum Marks: 60

Time Allowed: 3 Hours

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.	QUESTIONS	PLO	CLO	Taxonomy Level	Marks														
01	For the function $f(x) = \ln(x + 1)$, let $x_0 = 0$, $x_1 = 0.6$ and $x_2 = 0.9$. Construct interpolation polynomial using any method of your choice. Also evaluate $f(0.45)$.	2	2	C2	12														
02	The deflection of a beam $f(x)$ measured at various distances x from one end of cantilever beam is given in the following table: <table><tr><td>x</td><td>0</td><td>0.2</td><td>0.4</td><td>0.6</td><td>0.8</td><td>1</td></tr><tr><td>$f(x)$</td><td>0</td><td>0.0456</td><td>0.1278</td><td>0.3494</td><td>0.4027</td><td>0.4825</td></tr></table> Find the deflection at $x = 0.85$.	x	0	0.2	0.4	0.6	0.8	1	$f(x)$	0	0.0456	0.1278	0.3494	0.4027	0.4825	2	2	C2	12
x	0	0.2	0.4	0.6	0.8	1													
$f(x)$	0	0.0456	0.1278	0.3494	0.4027	0.4825													
03	Use Trapezoidal and Simpson's rule to evaluate $\int_0^4 \frac{1}{1+x} dx$ with $n = 4$, and compare the result with exact solution.	3	2	C2	12														
04	Derive numerical scheme for Euler's method to obtain an approximation to the well-posed initial value problem.	3	3	C3	12														
05	Solve the initial-value problem $y' = y - t^2 + 1$, $0 \leq t \leq 2$, $y(0) = 0.5$, $h = 0.5$, by using Euler's method. Compare the computed results with exact solution $y(t) = (1 + t)^2 - 0.5e^t$ with same step size.	3	3	C3	12														

GOOD LUCK



QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, HAWABSHAH
 FINAL SEMESTER EXAMINATION OF SECOND SEMESTER - SECOND YEAR 1st SEMESTER, 2022 OF 20 DATOL BEGEO
 SUBJECT: TRANSPORTATION ENGINEERING

Dated: 16-01-2023

Maximum Marks: 60

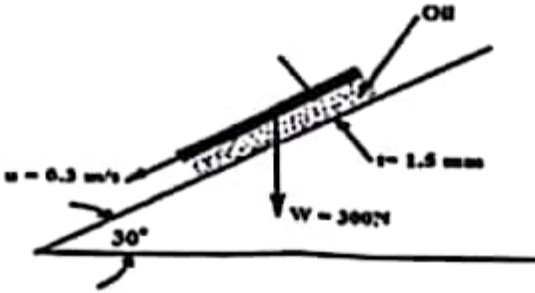
Time Allowed: 3 Hour.

NOTE: ATTEMPT ALL QUESTIONS. ASSUME SUITABLE DATA WHEREAS NECESSARY.

Q. No.	Question	CLO	Taxonomy Level	PLO	Marks
Q. 01	What is Railway and Railway Engineering? Why are Railways built? Discuss the points to be considered while acquiring Right of Way. Also compare the modes of Transportation (Freight Transport).	1	C2	2	12
Q. 02	What are the functions of sleepers? Write down in brief the advantages and disadvantages of various types of sleepers. What is the future scope of concrete sleepers in Pakistan? Discuss. Also explain how the spacing of sleepers is determined.	2	C3	3	12
Q. 03 (a)	Why super-elevation is necessary on a curved alignment? Explain. In a period of 24 hours the following number of trains are observed to pass over a 4 degree curve on a B.G track: 10 trains at 55 kmph, 8 trains at 65 kmph and 5 trains at 85 kmph. Calculate: a. Equilibrium super-elevation b. Actual amount of super-elevation c. Maximum permissible speed on this curve when a cant deficiency is 7.5 cm.	2	C3	3	08
(b)	A 6° curve diverges from a main curve of 4° in an opposite direction in the layout of a B.G yard. If the speed restriction on branch line is 30 kmph, what would be the speed restriction on main line?	2	C3	3	04
Q. 04 (a)	Distinguish between: 1. Suspended Joint and Supported Joint 2. Cant Deficiency and Cant Excess 3. Double Headed Rail and Bull Headed Rail 4. Momentum Gradient and Pusher Gradient 5. Halt Station and Flag Station	2	C3	3	10
(b)	Calculate the expansion gap to be provided for rail of 13 m length at 30 degree centigrade, when the maximum rail temperature is 65 degree centigrade.	2	C3	3	02
Q. 05	Define Breakwater. What is the main purpose of Breakwater? Discuss briefly the types of Breakwater with their neat sketches.	3	C3	3	12

Good Luck



Q. No.	QUESTION	CLOs	Proficiency Level	Marks
Q. 01	(a) What do you mean by Fluid and explain its types? Calculate the specific weight, density and specific gravity of one liter of a liquid which weighs 7 N.	1	2	06
	(b) Discuss the importance of "Fluid Mechanics" in the field of civil engineering.	2	2	06
Q. 02	Calculate the dynamic viscosity of oil, which is used for lubrication between a square plate of size 0.8 m x 0.8 m and an inclined plane with angle of inclination 30° as shown in given below. The weight of the square plate is 300 N and it slides down the inclined plane with a uniform velocity of 0.3 m/s. The thickness of oil film is 1.5 mm. 	3		12
Q. 03	The space between two square flat parallel plates is filled with oil. Each side of the plate is 60 cm. The thickness of the oil film is 12.5 mm. The upper plate, which moves at 2.5 m/s requires a force of 98.1 N to maintain the speed. Determine: i. The dynamic viscosity of the oil, and ii. The kinematic viscosity of the oil if the specific gravity of the oil is 0.95.	2	3	12
Q. 04	(a) Draw the layout of Hydro-electric power plant. (b) Find the surface tension in a soap bubble of 40 mm diameter when the inside pressure is 2.5 N/m^2 above atmospheric pressure.	3	4	12
Q. 05	Define following terms: ✓ 1. Types of Water Turbines. ✓ 2. Density or Mass Density ✓ 3. Define Surface Tension and Capillarity	3	4	12

Good Luck

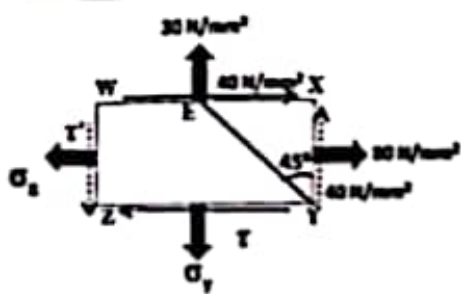
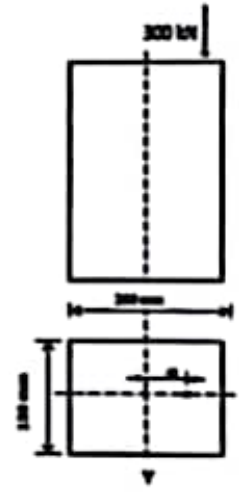
SUBJECT: STRENGTH OF MATERIALS-II

Dated: 12.01.2023

Maximum Marks: 60

Time Allowed: 3 h

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

	Questions	CLOs	Taxonomy Level
Q. 01	<p>Define the thin cylinder. Also, explain the stresses generated in a thin cylindrical shell due to an Internal Pressure.</p> <p>A cylindrical boiler is 1200 mm in diameter and 2 m length. It is required to withstand a pressure of 100 m of water. If the permissible tensile stress is 30 N/mm^2 and permissible shear stress is 10 N/mm^2, find the minimum thickness of the metal required.</p>	1	4
✓ Q. 02	<p>The principal tensile stresses at a point across two perpendicular planes are 100 MPa and 50 MPa. Find the normal stresses, tangential stresses, resultant stress and its angle of obliquity on a plane at 20° with the major principal plane using Mohr's Circle method.</p>	2	3
✓ Q. 03	<p>A point in a strained material is subjected to stresses as shown in figure. Using Mohr's circle method, determine graphically the normal and tangential stresses across the oblique plane. Also determine the maximum shear stress.</p> 	2	3
Q. 04	<p>A rectangular column of width 200 mm and of thickness 150 mm carries a point load of 300 kN at an eccentric distance "e" as shown in figure. If minimum stress on the section is given zero, then find the eccentricity of the point load of 300 kN acting on the rectangular column. Also calculate the corresponding maximum Stress on the section. In addition, show the stress distribution along the width of column.</p> 	2	3
Q. 05	<p>Enlist five important theories of failure.</p> <p>At a point in a stressed material, the three principal stresses are 120 N/mm^2 (tensile), 90 N/mm^2 (tensile) and 60 N/mm^2 (compressive). Find the factor of safety if the yield stress is 260 N/mm^2 and $\nu = 0.3$ by the principal stress, shear stress, and principal strain theories.</p>	2	3

Good Luck