	18/ENG04/008
	Name Aigedun Olattiewa Egitago
	Défartment: Eléctrical/Eléctronics
	Mat. No: 18/ENC704/008
	COURSE: ENG214
	Assignment - Marie
	NO 2
	Actual flowrate - lodnis/min
	= tox10-3
	60
	= 1.67 × 10 M3 min.
	Change in Pressure of = 12 bar
	Speed of rotation, N = 1500 rev Imin
	= 1500
	Frank 25 revis
	= 250.05
	Norminal displacement = 10cm3/rev
	= 10 m3 lev
	106
	= 1×10-5 m3/rev
	Torque input, T = 1245MM 12.5 Nm
1	Volumetric Efficiency - Actual flowrate x100%
	Idlal flowrate
	Actual flowrate = 1.67 × 10-4 m3/mm.
	Fdeal flowrate = Speed of votation & normal disp
	25 × 1×10 <sup>-5</sup>
	= 2.5 × 10-4 ms/sxg.
	: Volumetrie Efficiency = 1.67 x15-4 x 13090
	2.5 x 13-4
	= 0.668 × 100°C
	- 66.890
	Conned by

11 -Fluid Power, PF = QXOP -4 12×105
11 - Huid Power, 17 = 0,67×10-4 x 12×105
= 200.4 WastIS-
III- Shaft Power = T. W
111- Shaft Power = T. W T- WANM 12.5 NM.
W= RTN rad B
= 2 × 22 × 25
= 157.08 rad/see
: Shaft Power: 12.5 x 157.08
- 1965.5 Wasts
14 Overall PHicrency.
= -fluid power x 10006
Shaft power
= R0014 ×100
19635
- 0.102 x 100
- 10.21%
AL CONTRACTOR OF THE PROPERTY
No. 2. 4 100.2
- Actual flow rate, Q = 85 dms/min.
= 85 x10-3
60
= 5.83 ×10-4 m3/sce.
change in pressure, op= 100 bar
Overall change to acres = 100 x 105 MIm3.
Overall change in efficiency: 87 %.  Shaft power = ?
Overall efficiency = Third power x 100%
Shaft power x 100%
Canno

Fluid power Qx0P
= 5.83 x10-4 x 100 x 10 5
- 5830 Watts.
: Shaft power = fluid power x 100°6
Overall efficiency
- 5830 X 100 M
7 19 19 18 7
= 6701.15 Watts-
The Property of the second sec
NO 3
Norminal displacement = 50cm3/rev
= 50
106
E = 5 K Lo m3/rev.
enang in pressure, op = 100 bar
= luoxios Nim²
Shaft Dower = 15 Kilowatts
= 15,000 watts.
Actual Flow rak, Q= 35dm3/min
= 35 × 10 - 3   1 = 35 × 10 - 4 m 3 / 5 m
Speed of rotation = 850 vev / min.
= <u>850</u> 60
= 14-17 revisee
a volumetric efficiency: Actual flowrate x 100%
Actual flow rate = 5.83 x10-4 milsecs.
Feloat flowroot = stomment displacement & Changing in proper
Ideal flowrate: speed of rotation & Norminal disp.  = 14.17 × 5 × 10.5
= 7.083 x 10-4 m3/scc

	2000 x 100 %
	Fffirencel 5005
	4,082,
	2 0.823 X100%
	2 82.39
	19 5939 Up 3930
11.	Overall Efficiency: Fluid power x100%
	Shaft power
	Fluid power, Pf = Q. JP
	= 5.83 ×10-4 × 100×105
	- 5830 Watts. 2014
	Shaft power = 15,000 watts.
	-: Overall Efficiency: 5830 x 100
	15,000
	- 0.389 x100%
	141/2018 = 2 38.99h.

	No. 4.
	Z = 24, 300 CM
	= 24,000
	= 240m.
	Ra-4 of flow, 9 = 13 litres /see
	= 13 m3/sec
	1000
	= 1.3×10-2 m31sec.
	The velocity of the jet = 66 mls.
12	Power of Jet:
D	At others pressure, P=0
	At datum level, z=0
	P=PQ + PQv2 + PgQ2
	DE DESERVE ON FREE FOR FREE F
	P= 0.0 + 10 v2 + 1900
	2-3
	P= fQv2
	2
	= 1000 x 1.3 x 10-2 x 663
	2 Partie of the state of the st
	= 56628
	= 28314 Watts
	-: 122 2 8 3 1 4 Werts
	P= 28.314 KW.
	APERT SET DE
i	Power Suppired from reservoir
	At almospheric pressure, P=0 \$ v=0.
	P= PQ + JQV2 + JQg2.
-	
	= 00 + fa(0)2 + 10gz
	2
	P= JQgz
	Scanned by

PZ JgQZ = 1000 × 9.81 ×1.3 ×10-2 × 240 3060 71-2 watts. - 30.6072 KW. MARKET - P 2-19- 30 12-118 Head used to overcome losses. 111 4 = power jost in transmission f99 THE PARTY OF THE P Power 10st in transmission: Power supplied from reservoir - power of jet = 180407701-= 30607.2 - 28314 = 22932 Watts · h= 2293.2 1000 x 9.81 x 1.3×10-2 h = 17.98 m ND Efficiency of the pipeline and nossile in transmitting operation. Efficience = power of 304 2000LX power supplied from reservoir - 28314 × 10096 30607-2 2 0.925 4100% = 92.5 %.

No.5
500 000 = 0.59.
z = 30,000 cm
= 30000 100 100 100 100 100 100 100 100 1
100 11447597575
= 300M.
Rate of flow, Q = 220Litres 1818
PRE 220 MSISECT WOOD TO
1000
- 0.22m3/sci
verseity of the jet = 7 mls "
Dance at 264
At atmospheric proposeure P=0
. Al abduni level, 220
P= PQ + SQV2 + SQVZ
ANTE-PEST
P: 0.Q+ fqv2 + fgv(a)
The state of the s
P=JQV2
P=0.89×1000×0.22× 42
2
75942
- 47 97.1 Walls
TTTT-I Wans
117 Power Suppired from reservoir
At atmosphere pressure p=0\$ v=0
P= pq + Jov2 + Jag2
P- 00 + 8000 + 8002
2 2
P- Page
Scanned

12 CM 12 12 2 2 2 3 3 3 P-- a or P= 39 QZ P= 0.89×1000×9.81 ×300 ×0.22 = 576239.4 Watts 2 546.6239 KW. IID Head used to overcome losses h= power lost in transmission 190 Power lost in transmission: power supplied from reservoir - Power of jet. = 576239.4 - 4797.1 - 571442.5 Watts. - My Bereit My Charles Her -'. h= 571442.3 0.89 x 1000 x 9.81 x 0.55 - 297.5 m Car volte - xpt + xpt - + W) Efficiency of the Pipeline and nossie in fransmitting Operation x 10006 Efficiency: Power of 11t power supplied from reservoir = 4797.1 × 100% 576239.4 THOU WE FO = 0.00838 x100%. 0.832 %

	No.6
0	
0	h= 20m
	d= 10 cm = 10
	- O.I.M.
1	:. A = 7d2 = 0.00785m2
	$=7.85\times10^{-5}m^2$
	P= 990h.
1	Q = VA
1	The final speed of the water is 0, before i
1	· Ve = O
-	V2 = V2 - 294
	7 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -
-	Vi = Vp + 29h
1	Vi = 102 + 2 x 9.81 x 20
-	2 40 + 2 x 4 · 6 · 1 × - 0
-	7: = 1392.4
-	. V; = 19.81mls.
-	
-	: Q = 19.81 x 7.85 x 10-5
	- 0.1555 misec
	The power required, P
	P- 3g.Q4
	= 1000× 9.81 × 0.1555 × 20
	= 30509.36 Walls
	30.51KW
	The state of the s

	No.7.
	d = 0.3m
	d2 = 0.2 m.
	A. = 71d2 = 71x (0.5)
	4
	- 0.0707m <sup>2</sup>
	1/2 = Td2 = Tx(0'2)2
	4
	= 0.6314m <sup>2</sup>
	Coefficient of discharge, (d= 0.96
	Specific weigh of the gas, gg= 19.62 N/m²
	: Q = A V.
	V = Q
	A
	: V, = 0
	0.0407
	No - 0
	0.0514
	F
	For the manometer.
-	P, + Lg Z = P2 + Lg (Zz - Rp) + SwgRp
	P1-P2 = 19.62 (22-21) +587.423
	For the venturinete
	P1 + V12 +21 = P2 + Y2 + Z2
	39 29 2g 7 2
	P1 - P2 = V22 - V,2 + (22-2)
	300 40 20 20

(P,-P2) = 422 - V,2 + (22-21) 19.62 · P1-P2=19.62(Z2-Z1)+ 0.803V2 - 1.(2) STUTE equici) & equicul 0.80342 = 587.423 V2 7 - 587.423 0.8.03 V22 - 720.3280 119100 11100 V2 = 1720.328 V2 = 26.84 mls. FIRE STATE OF THE STATE To get Q Q= A2 V2 = 13 + V V2 - 0.0314 Ideal flow rak, Q= 26.84 x 0.0314 - 0.843m31sec , 5 + 3 SV = 15 + 3 4 -: Q = Cdx Q 1dee 1 - 0.96 K 0-843 - 0.809 m31 see = 0.81m3 | Sec. 4

No 8.
di= 0.152m
22=0.
d2 = 0.076M.
A1 = 742
4 = TCO.152) <sup>2</sup>
4
= 0.0181m2
A2 = 77d2 = 77 (0-076)
4
$= 0.00454 \text{ m}^2$
Relative density: 0.8
Coefficient of met , cd = 0.97
Applying Bernoullis.
$\frac{P_1 + V_1^2 + Z_1 = P_2 + V_2^2 + Z_2}{P_0 + Q_0}$
39 39
9) Pressure grage reads the same
$\frac{1}{23}$ $\frac{1}{29}$ $\frac{1}{29}$ $\frac{1}{29}$ $\frac{1}{29}$
from Continuity Egyation.
Q = A, V1 = A2 Y2
$A_1V_1 = A_2V_2$
Y2 = A1 V1
12.
12 = Q.0181 x VI
0.0045
$v_2 = 4v$
Y12 +0-914 = C4V1)2 +0
23
Scanned

V2 + 0.914 = 16V,2
23
164,2 - V,2 = 0.914
20 20
154, 2 0-914
23
15V,2 = 0.914 x 2 x 9.81
V12 = 0.914 1x 2 x 9.81
15
V13 = 1.1955.
V = 11.1955
V, = 11. 6734 m1s.
2)600 -
DECALANA -
flow rate Qided = A VI
121 1012 = 0.01C1 X1.0934
= 0.01949m3/sec.
Pient
Discharge, Q = Cd. Qrdeal
= 0.96× 0.01977 = 2
= 0.019 m <sup>2</sup> /sec
2321 FIN FOUR
6.
MOIN.
P,-02=15170.
P1-P2 - 422-42 - 0:914
39
15170 = 42 2 V12 - 0.9141
1000x 9.81 20
Recall V2 - 4V1.

1.55 2 164,2 - V,2 - 0.914
23
15V12 = 2.46
29
$15\sqrt{12} = 2.46 \times 2 \times 9.81$ $15\sqrt{12} = 48.27$
12-48.27
TERS ENTITE OF THE
V. 2 - 3 - 3 - 2 T 4 - 3 - 3 - 2 T 4 - 3 - 2 T 4 - 3 - 2 T 4 - 3 - 2 T 4 -
Y, = 13.218
Y = 1-79m1s.
Flow raw, Q = AIVI
5 0.0181 × 1.79
2 0.0324 m <sup>3</sup> /5.
: Discharge, Q = 0.96 x 0.0324
2000
= 0.031 m3/sccs.
THE PERSON FRANCES
No. 9
Q = 40 litres 1 acc
Q = 40
(000)
= 0.04 m3 1 sec
d, = 300 mm
= 300
1000
= D3m.
do = 150mm
= 150 - 18 - 91131
1000
= 0.12W
:. A, = Td2 = Tx(0.5)2
4
= D-0707m²

	A2 = Td2
	24
	2 Tx (0.15) 3
	# FINISH FEET NEW 7
	= 0.01767 m3
	Z = 10 m V = ?
	Z2 = 6 M V2 = ?
	0 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	1 = 400 x 10 d lm
	P2 = ?
	TO EIRO - E
	Q = A, Vq = A2 Y2.
	V = Q
	SEDA STREET NEED DE FOR
	Y <sub>1</sub> = 0 = 0.04
	0.0407
	= 0.566 M   Sec.
	= 0.566mls
	$V_2 = Q = 0.04$ $+A_2 = 0.01767$
	= 2.264m/s
	Applying Bernaulik Fallation
	P1 + V12 + Z1 = P2 + V22 + Z2 W 20 + V2 + Z2
	w 23
	ECHE ZILFRE
	$\frac{P_2}{w} = \frac{P_1}{w} + \frac{V_1^2}{30} + \frac{Z_1 - \frac{V_2^2}{20}}{20} - \frac{Z_2}{20}$
	$= \frac{400 \times 10^{3}}{1000 \times 9.81} + 0.566^{2} + 10 - 2.204^{2} - 6$
	2 x 9 - 8 (
1	Pa = 44.529
The second second	Scanned

P2 - 44.529
W
P2 = 4+529 C (000 x 9.81)
P2 2 456.834.33 M/m2
P2 = 436.83 KN/m3
No. 10.
Difference cop mercury level = 170mm
2 170 18 19 01 20 1
100
y = o. Am
Sica of mercuny = 13.6
S.C7 of Sea water: 1.026
h= y ( s.c. at +10 = 1)
30 al water
= 4/13.6 - 17100
1.026
= 4 (12.255)
= 0.19(12.255)
= 2008m.
velocity = Jagor
= \$294
= J2 x 9.81 x 2.08
Y= 8.39ms + 1
V= 6.39 x 60x60
10001 A 10001
2 23km1hr,
A less than the same of the sa