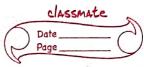
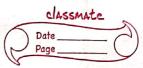
G-20 (1FS 2020 P-2)

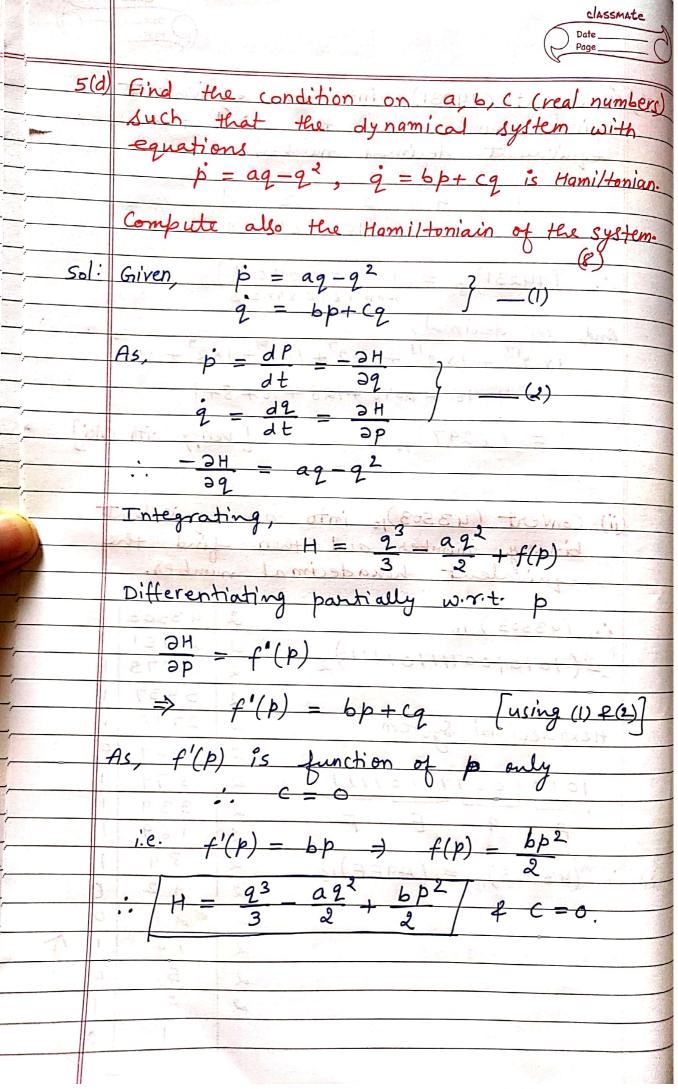


	The state of the s
5(a)	construct a PDE of all surfaces of revolution having the z-axis as the axis of rotation. (8) (1AS 1997)
	having the z-axis at the sais
	(P) (106 1997)
50	From the coordinate gametry of those
	dimensione equation of any
	vevolution having z-avis
	of rotation may be taken as
	From the coordinate geometry of three dimensions, equation of any surface of vevolution having z-axis as the axis of rotation may be taken as
	T((2,18))
	where of is an arbitrary function.
	Differentiating (1) partially wiret x and y,
	$p = \frac{32}{3x} = \phi' \left[\left(x^2 + y^2 \right)^{\frac{1}{2}} \right] \frac{1}{2} \left(x^2 + y^2 \right)^{-\frac{1}{2}} . 2x$
	P3x = 4[(x+1)] 2(11)
	$Q = \frac{\partial Z}{\partial y} = \phi' \left[(n^2 + y^2)^{1/2} \right] \frac{1}{2} (x^2 + y^2)^{-1/2} \frac{2y}{2}$
	7 - 2y - 4 (() + 1) J 2 ()
	ministra House Line
	DIVIAND THE TOO!
	$P = \chi$ $p_y = g \chi$
	9
	which is the required PDF.
,	
	III E L E E ARE LA SER LES ING.
W. C.	25252-8 - 14 25250
	the same of the sa
	merce and the second se

=	
5(6)	Using Newton-Raphson method, find
. 100	the value of (37) 13, correct to four
(FPR)	the value of (37) 13, correct to four decimal places. (8)
	Let x = (37) 3
	We consider the function,
	$f(K) \equiv x^3 - 37 = 0$
	$T(r) \equiv x - 3 = 0$
	By Newton-Raphson Method,
	There is no some more than the second
	$\chi_{n+1} = \chi_n = \frac{f(\chi_n)}{f'(\chi_n)}$
	+ (xn) in wicholasting
	3
*	$= \frac{x_{n} - 37}{3x_{n}^{2}} = \frac{2x_{n} + 37}{3x_{n}^{2}}$
	$3\chi_n^2$ $3\chi_n^2$
	We note that,
	f(3) = -10 + f(4) = 27
	Let $\chi_0 = 3$, then
11 -	
-, 1) Fo	$x = 2x_0 + 37 = 237027 $ [we calcil
	$x_1 = \frac{2^{2} - 3^{2}}{3x_0^{2}} = 3.37037$ [use Calci]
	5 X.
.:)	The sound of the reasured Prince
ii)	for $n=1$, 3 $2\times 1+37$
	for $n = 2$, $x_3 = 3.33222$
	for $n = 2$, $\chi_3 = 3.33222$ $\Rightarrow Same$
i.\	For n = 3, xy = 3.33222 who 5 plates
	TUY
	: Value of (37) 3, correct to four
	decimal places is
	. Va
	$\frac{(37)^{1/3} = 3.3322}{}$
	Scanned with CamScanner



		3	
5(4)	(1) Convert (14231) e into	. 1	
	(i) Convert (14231) g into an ex binary number and then fin equivalent decimal number.	quivalen	F Aud
	equivalent decimal in	d the	A United States
	number.	me call	N and
	4 2 3		
, , , , ,	00/ 100/100		
	001 100 100 10 10 10 0	0	At I
	(14231) ₈ = (1100010011001 12110 9876 543 210	1	
	1211 10 9876 543 216	12 151	
	And, for decimal, $1 \times 2^{12} + 1 \times 2^{11} + 1 \times 2^{7} + 1 \times 2^{4} + 1$		
	1x 312 + 1 × 911 + 1x 97 + 1x 3	3	-0
	TIAL TIAL TIAL TI	<u> </u>	2
	= 4096 + 2048 + 128 + 16 + 8	;+1	
	= (6297) ₁₀ = [v	erify with	[Colci]
	111 C-m/est (1,2502) 11		
	(ii) Convert (43503), into an	equivale	nt .
	binary number and then - equivalent hexadecimal n	find +	he
	equivaient nexageumai n	umber.	
	·· (43503) 10	113502	
	$\frac{1}{2} = \frac{(1010100111101111)}{2}$	9 1751	
	=(1010100111101111)2	10875	
	2	5 4 3 7	
	Hexadecimal System 2	27 18	111
	Hexadecimial system	1359	0
	1010100111101111 2	679	
		339	
	A 9 E F 2	169)
		84	1
	$(43503)_{10} = (A9EF)_{16}$	42	0
	5 32	21	0
	2	10	11
	2	5	0
	2	2	
			0
			100 1213 1000



+	
<u>e</u>)	Find the general solution of the PDE ptanx + q tany = tanz
\parallel	ptanx + 9 tany - 10
\parallel	Ca)
2	id: Logrange's auxiliary equations are
	$\frac{dx}{\tan x} = \frac{d^{9}}{\tan y} = \frac{dz}{\tan z} = (1)$
	tanx tany (1)
	tan 2
	Taking livet two boats 1 (1)
	Taking first two parts of (1) Cotx dx - Coty dy = 0
	Cotx dx - Coty ay = 0
	Integrating. les sinx - las sinx - Las.
	Integrating, log sinx - log siny = log C,
	$\frac{\delta r}{\delta in \gamma} = \frac{\delta in \chi}{\delta in \gamma} = \frac{1}{2}$
	Acad Company
-	Taking lost two parts of (1)
	J (W) pours of (1)
	Cotydy - Cotzdz = 0
	Integrating, log siny - log sin z = log C2
-	integrating, log siny - log sin z = log C2
	J 107 2 11 2 2
	Sin y = C
	$\frac{1}{5/mZ} = \frac{1}{2}$
	from (2) and (3), the required general
11	solution ic
'	301411711
	sin x 1/sin y
	$\frac{\sin x}{\sin y} = \left(\frac{\sin y}{\sin z}\right)$
	& being an arbitrary function.
	The state of
-	