Semester I - 2013

	WATERFORD INSTITUTE OF TECHNOLOGY	
Course: RS	OUTLINE MODEL ANSWERS AND MARKING SCHEME cAppliedComputing & Computer Forensics Year 1 Page	of 21
	nent Systems	01 21
Question	Subject Discrete Maths	Marks
No.& Part	Examiner Ms. Anne Daly Walsh	Total
10)	U = \(\frac{1}{2}, 2, 3, \dots \dots \) 18. \(\frac{1}{2} \)	
	P= 22,3,5,12,15,18,6	
	P= 3 2,3,5,12,15,186 Q= 2 2,3,4,8,9,10,126	
	R= { 1,2,3,4,5,7,11}	
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~ <u></u>	PCDQ = 9 7.8.9.10}	3
	(2) POR = (PUR) \ (PAR)	
	= { 1,4,7,11,12,15,18}	3
	(3) R \ (PUQ)	
	(3) R\ (PUQ) PUQ = { 2,3,5,7,8,9,10,12,15,18,0 (PUQ) = } 1,4,6,11,13,14,16,17}	
	(PUQ) = 31,4,6,11, 13,14, 16,176	
		

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		30 1			
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	reflexing	e: Yes (0,0)(1,11), (9 2(x,x) & R , Y x	3,2), (3,3)	ļ
	175 TIS	<u>(x,x)∈R, ∀x</u>	eA is	true	-
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	Symmer	fric: Yes (0,3)	(3,0) را		
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(0,0) (0,3) .°. (0,3) → Equivalence relation. 5

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& Entertains	nent Systems	
Question	Subject Discrete Maths	Marks
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<u> </u>	fo Z → Z, fα) = -x+5	
(1)	$g: \mathcal{I} \to \mathcal{I}, g(x) = x^2 - 2x + 1$	
 	fog = f(g(x))	
	$f(x^2-3x+1) = -(x^2-2x+1)+5$	
	$=-x^2+\partial x+4$	
<u> </u>	2/1/2	_ ೩
	gof = g(f(x))	
	9(-x+5) = (-x+5) - 3(-x+5) + 1	·-
	$= x^2 - 10x + 25 + 2x - 10 + 1$	-
	$= \alpha^2 - 8\alpha + 16$	+-
(2)	f has an inverse ass.,	12_
(5)	-x+5 = 4	
!	x = -(y-5)	
	. y= -3	
	$\alpha = -(-3-5) = 8$	
	f(8) = -8+5 = -3	
1-1	$f(a_1) \neq f(a_2)$ and	
011to	all yEZ are used	
	g: has not got an inverse	3
	g: has not got an inverse xa-ax+1	
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	OUTLINE MODEL ANSWERS AND MARKING SCHEME cAppliedComputing & Computer Forensics Year 1 Page 5	of 2 j
Question	Subject Discrete Maths	Marks
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	$X = -2$ $(-2)^2 - 2(-2) + 1 =$	
	4+4+1 =9	
	$4 + 4 + 1 = 9$ $x = -1 (-1)^{2} - \lambda(-1) + 1 = 4$	
	$x = 0 0^{2} - 3(0) + 1 = 1$	
	$\chi = 1 (^{2} - a(t) + 1) = 0$	
	$x = 2 2^2 - 22) + 1 = +1$	
	$x=3$ $3^2-2(3+1)=4$	
	• +9	
	No regative u-values : used	
	No regative y-values : used	
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Question	Subject Discrete Maths	`			Marks
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	X/A		(x\y)U;	2	
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	Lts = RHS				
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	xe(AnB)nA =				
←⇒	x ∈ (AnB) and	$\infty \in \mathcal{F}$			
⟨=>	x e (AC UBC)) and	$x \in A$		
<i>4</i> =>	$\infty \in (A^C \cup B^C)$ $(x \in A^C \cap x)$	€8°)	and x	εA	
2=>	XE (ACUBC				
	a = (1 UB	J11 # *			5,

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Question	Subject Discrete Maths	Marks
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Question	Subject	Discrete Maths		<u> </u>		Mark
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Question	Subject	Discrete Maths		•	Mark
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		1 set.	_		
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C(iii) 102 + 1 + 1 + 1 = -	<u>n</u>
N= 1	
true for n=1	
Assume the for n=R	
$\frac{1}{12} + \frac{1}{23} + \frac{1}{3 \cdot 4} + \frac{1}{8(b+1)} = \frac{8}{24}$	
Projetive for n=k+!	
(1.2 2.3 3.4 R(12+1) (12+1) (12+2)	= R+1 R+2
k+1 (2+1 × 12+2)	
k(h+2)+ 1	
(kt) (kt2)	
$\frac{b^2 + 2b + 1}{2} = \frac{b + 1}{2} \frac{b + 1}{2}$	
(k+1)(k+2) (k+1)(k+	15)
= b+1 b+2	
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b)	8		,		:
(1)	$(3x^3 - 3y^2)$				
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	$\binom{8}{0}(3x^3)(-2y^2)^0 + \binom{8}{1}$	<u>(3x³)</u>)(- <u>2</u> y2)'	
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(2)	$\frac{8}{(r-1)} \left(3x^3 \times 2y^2\right)^{7}$	r= 1			
	y^{10} $(-3y^2)^{r-1} = (-3y^2)^{r-1}$		(y²) ^r	- 1	
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ORV assume $(y^2)^2 = y^{10}$

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- . i	3 blue	$1+x+x^2+$	χ ³		:
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	f(x) = 1	$(x+x^2)(x^2+x^3+x$	$^{4}+x^{5})$	1+x+x	+ 7ç)
	·	3/			
	f(x) = 2	$(1+x) + x_1$	+)(3)(+	x+x++	$\overline{\chi_3}$
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	(1) - 1	$\frac{1}{1-2}$)		.
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	$(1-x)^{2}$ =	1+(3)x+(3	(3) + (3))X3+1	·· .
	$(1-x^4)^8$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	X8		
	(1-x3 X1	- 2x + x8 /			
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		Total				
	M (M,J), (M,L) (M,H)	_				
 _	7					
	Domain = & A,C, E,G,I,K,Mp					
	Range = & B, D, F, H, J, Lle					
	0 2 7					
	A graph is bipartite if it can					
	be written in such a way that	_				
_	the obnown a range howe no					
	common letters.	_				
Lo						
(<u>p)(i)</u>	$A = 3 \qquad L = 3$	_				
	8 = 3 $M = 3$					
·	C = 3. $N = 3$					
-	D = 3					
	E=3. $P=3$					
	F = 3 $Q = 3$					
	G=3 R=3					
	H=3, $S=3$					
7.	I=3, I=,3	2/				
†	J = 3					
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	This is not a Tailor on circuit as all work	70A (II				
(18)	This is not a Eulerian arout as all ver	(2)6				
(11)	Hamiltonian coeaut & all vertices					
!	must have degree a - + you					
	must use all vertices in the graph a boguns a Gids at the	2				

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	WATERFORD INSTITUTE OF TECHNOLOGY OUTLINE MODEL ANSWERS AND MARKING SCHEME	
Course: BS &Entertains	cAppliedComputing & Computer Forensics Year 1 Page A	of 2)
Question	Subject Discrete Maths	Mark
No.& Part	Examiner Ms. Anne Daly Walsh	Total
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	1,4, 12, 32, 80,	3
		
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Question	Subject Discrete Maths	Marks
No.& Part	Examiner Ms. Anne Daly Walsh	Total
(11)	3, 4, B, 16	
		
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(iii)	1 0 0	<u> </u>
	$\frac{A}{(n+1)(n+3)} = \frac{A}{n+1} + \frac{B}{n+3}$	
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OUTLINE MODEL ANSWERS AND MARKING SCHEME Course: BScAppliedComputing & Computer Forensics Year 1 Page of 9.4							
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Question	Subject	Discrete Maths		Marks			
No.& Part	Examiner	Ms. Anne Daly Walsh		Total			
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