Arga Nar Roll number-16010421063 Somanya Batch-AZ



Batch: A2 Roll No.: 16010 4210 63 Experiment / assignment / tutorial No. 2 Grade: AA/AB/BB/BC/CC/CD/DD

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91)	Encode the nersage CAFFEINE using shangon fancon coding calculate the efficiency of the code.
	compress the message HEART BEAT using i) Huffman coding ii) Shannon Eans coding calculate and comprese the code efficiency in both the cases
? 3)	before Kraft's inequality theorem check aether it is satisfied in Q1 and Q2
Ans.	P(4)

×,°	Pxi	011	(0/2	1013	ishe
E	0.25	0	0		00
F	0.25	D	1		01
A	0.125	1	0	0	100
C	0.725	i	0	1	101
N	0.125	1	i	0	110
t	0.125		1	1	111
	- V. (6)				
- Px	Ar Walana				
		2+0125-7	1 +0 125. 3	+0 125.2	+ 0,125 x 3
	2.5 bits		1 11/4/8	(, ())	(14) (3)
	2.2.4.41	17 11 201			
H- 0	25/09/1)	- 0.25 has/	1 \ . 0.12	5:12.//	×4
	(0.25)	(a)	20	5 x log (1)	X /
				(())	
	tox 1,25				
5		bits / symbo	1		
	- 1.51	1 1 19mg .	1		
	= 2.5				
→	2,5	=			
700	7 = 100%	h o/			
t+	ideny 17	1000/0			
				Diss.	- N. W. S. S.
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			,		
		-			
		,			
		•			



Batch: 12 Roll No.: 140/042/063
Experiment / assignment / tutorial No.
Grade: AAV AB / BB / BC / CC / CD / DD

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- 92)	a) Vi Pai code
	F 0.22 01 3 0.221 7 0.33 - 0.55
	A 822 10 0.22 10,22
	t 0.22 - 9 0,27 - 109 0.22 - 1 8.44
	B 0.117 70.227 10.22
	H 0,112 70112
	R 0.11
	Hufforga Encoding
	E 0.22 01 7 0.22 01 7 0.33 00 0.44 7 - 0.55
	E 0.22 01 7 0.22 01 7 0.33 00 0,44 7 0.55
	A 0.22 10 7 0.22 2 7 0.22 21 7 0.3300 9 0,44
	B 2011 200 200 200 200 201
	7 0.22 11 7 0.22 11 0.22 1 0.2
	R 0.11
	0001
	nj Pri lode
	E 0.27 01 A 0.27 10
	+ 0.27, 11
	B 0,11 00)
	4 211 0000
	R 0.11 2001
	H(n) = & Pniloy2(1)
	i=1 Pri
	= 0,22 log/1 + 0,22 log2/1 + 0,22 log2/1 + 0,11, log2(1) + 3
	(0.22) (0.22) (0.22)
	= 2.49

	D. Walter and Co. Co.						
	r_ a :	22.2 4.22	1 2 + 0 22.	x) +0,11x	2,0,11,	4 +0.11-4	
	- 2	,53	X L. V. NE	7 . 0.1.7	76-110		
	n =	2.49				MARKET	
		2.53					
-		- Car h			TANK TO SERVICE STATE OF THE S		
	5 %	2.984 = 98.47.			- And - A		
	6	10.71.			1		
		()) (THE PARTY				
				A Commence	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
ii)	N;	Pxi	(6)1	1012	10/3	code	length
		9,2)	9	0	0	00	2
-	E	0,27	0	0	0	100	7
	B	0.27	1	a a	1	121	3
	14	0.11		1	0	110	3
	R	0:11				1/1	3
	1= ac	12x2+0,2	202 40.22	x3 + 0.11x	3 +0.1123	+0.1123	+0.11x3
	- 5	r7		080			
	= 2.))					
	4 -	& Pri 1091	11)		1		
		& Prilog	(Pxi)				
	COLOR SECTION	2.49					
		- 1.01	> 90%				
	7 =	2,53	2.984)				- 6
		18% eff	illenia				
	PARTIE AND DESCRIPTION OF THE PARTIES AND DESCRIPTION OF THE P		bserve t	hat both	have	donat	Jame effic
	Hence	8.41%	bserve t	that both	have	almost	sume effic



Hatch: 47 Roll No.: //6/6/2/067 Experiment/ assignment / luterial No. Grade: AAAB / BB / BC / GC / CD / DD

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(3)	traft's inquality condition
	truff's inequality is a necessary and sufficient condition to prove existence of prefix code give in symbol and is are normally of hits used to represent a symbol for all ist to ish
	dis roderord length
	In Q1 χ_{1} $\forall \chi_{1}$ $ e_{1} b$ $E = 0.25$
	Hence condition is satisfied in Q1

In 029) Ai 1ºxi tempth code length F 0,27 01 2 A 0,27 10 2 T 0,22 11 2 B 0,11 001 3
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
-1 Hence (2)a) satisfies Kraft) inequality condition
,



Batch: 4) Roll No.: 166042063 Experiment / assignment / tutorial No. Grade: AA/AB/BB/BC/CC/CD/DD

			TRI	J. S. T.	Signature of the Faculty In-Charge with date
	In Q	2) 5)			
(Sep	b) ni	code	length		
	A	00	2		
	E	01	2		
	T	100			
	H	110	3		
	R	111	}		
	1= 5	2-11			
	1=				
			A CAR		
	$=\frac{1}{2^2}$	+ 1 7 1	7 +1 +	171	
	2"	22 2	2,5	23 23	
	- 1				
	Hence	027 2	a. Ko	Sakir fier	traft's inequality
	equation	10,			march mending
	1				
			\$1.		