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	COMPETITIVE ENTRANCE EXAMINAT <u>CYCLE</u> : 1 <sup>ST</sup> CYCLE <u>LEVEL</u> : 1 <sup>ST</sup> YEAR <u>OPTION</u> : ALL	TION INTO HTTTC BAMBILI Session: 2013	
	DURATION: 3hrs		
In yo	ur answer booklet, write only the letter of the	e answer chosen against the question number.	Thi
quest mark	ion paper must be submitted together with	the answer booklet. Each question carries or	ne (1

## PART II: BUSINESS MATHEMATICS

1.) Tanui's salary is 32,000 FRS. If a deduction for taxes from his monthly pay is 8,000 FRS. What percent of his salary goes to this deduction? c) 40% a) 25% b) 25.6% d) 2.5% 2.) The cost of an article including 15% for taxes is 138,000 FRS. What is the cost of the article without taxes? b) 1200 a) 1173 c) 207 d) 920 3.) A delivery rout must include stops at 8 towns. How many different routes are possible? b) 8 a) 36 c) 5.040 d) 40,320 4.) You need 2,000 FRS to buy a new speaker for your home and you have 800 FRS to invest at 5% compounded annually. How long will you wait to buy the speaker? a) 8.42years b) 18.72years c) 14.58years d) 15.75years 5.) (M - 1). If you want to multiply a number 5 to matrix  $B = \begin{bmatrix} 3 & 3 \\ 5 & 1 \end{bmatrix}$ , the result is:

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a) $\begin{bmatrix} 15 & 15\\ 25 & 5\\ \end{bmatrix}$ $\begin{bmatrix} 25 & 15\\ 5 & 15\\ \end{bmatrix}$	[] []	b) [25 15	5 15] c)	5 25 15 15	d)
6.) One dozen	pars cost 15 FRS	. They are	sold at the marku	up of 12%. T	he selling
price is:					
a) 17.8FRS	b) 1	3.2FRS	c) 16.	8FRS	d)
15.12FR	S				
7.) A project w	ith an initial outla	ay of 100,0	00FRS has cash f	lows as follo	ws:
Yea	r 1	2	3	4	
Infl	60,000	80,000	50,000	20,0	00
Payback per	riod in years is:				
a) 4years	b) 1.:	ōyears	<b>c</b> ) 1	l.6years	d)
2 years					
8.) Demand function for a product is $P = 2 - x$ , where x is the quantity. The					
revenue function is:					
a) $\frac{2}{r} - 1$	b) <del>2</del>	$\frac{-x}{x}$	c) $2x - 2x$	С	d)
$2x-x^2$		λ			
9.) The coefficient of skewness when the mode, mean, and median are all equal is:					
a) 1	b) 0		c) >1		d) <1
10.) A set of scores are such that the mean of the first 10 scores is 16 and the					
mean of the rest is 6. What is the mean of all the scores?					
a) 11	b) 24		c) 10	,	d) 22
11.) The 4 – point moving total of data 6, 3, 1, 4, 2 are:					

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a) 9, 10, 12 b) 9, 12, 18 c) 12, 10, 9 d) 12, 14, 16

12.) What is the original value of an ordinary borrowing refundable by 10 constant annuities of 699,92FRS at the rate of 7.5%.

- a) 4,600,000FRS b) 4,800,000FRS c) 5,210,000FRS d) 4,757,250FRS
- 13.) What is the duration of an ordinary loan whose constant annuity is 116,588.32FRS and the first amortization is 87,000 FRS at the rate of 5%.
- a) 5years
  b) 4years
  c) 6years d)
  7years
  14.) Song borrowed the sum of 3,000,000FRS from SGBC bank repayable by constant amortizations during 5 years. The value of the 4<sup>th</sup> annuity if the interest rate is 4.25% is:
  - a) 727,500FRS b) 702,000FRS c) 651,000FRS d) 676,500FRS
- 15.) Don decided to share the sum of 3,000,000FRS to his 3 children age 12years, 13years, and 16years such that when they all reach 18years, their features value will be equal. What is the value of the common feature value if the shares were invested at a compound interest rate of 7.5%?
  - a) 1,357,556FRS b) 750,000FRS c) 843,527,52FRS d) 756,548.88FRS
- 16.) The manager of MTN earns 600,000FRS per month. He gives 40% of his salary to his wife. The wife gives 20% of his amount for their son's pocket allowance. Their son spend 30% of his allowance on video clubs. What is the percentage of the manager's salary spent by their son on video club?
  - a) 30% b) 10% c) 3% d) 20%

17.) A tax book cost	20,000FRS in the	bookshop and the saller	allows a 10%		
trade discount and	5% cash discount.	The % of the cash price to	the cost price		
is:					
a) 90%	b) 84.5%	c) 85.5%	d) 78.5%		
18.) A bill of exchang	e with nominal val	ue 60,000FRS is negotiate	d at 90% for a		
duration of 60days	. The commission	represents 0.5% of the r	nominal value.		
The effective rate o	f discount is:				
a) 12%	b)5%	c) 9.5%	d)		
2%					
19.) Given the data: 2,	3, 18, 14, 5, 2. The	e median is			
a) 4	b) 7	c) 14	d)		
18			)		
20.) What is the sum	of 15 terms of a g	eometric progression with	a ratio of 1/5		
and whose 1 <sup>st</sup> term	is 1,250.				
a) 2,657.75	b) 1,562.5	c) 1,652.5	d)		
2,453.5	$\langle \rangle \rangle$				
21.) The $2^{nd}$ term of a geometric progression is 8 and the 5 <sup>th</sup> term is 27. The					
common ratio is:					
a) <sup>3</sup> ⁄ <sub>4</sub>	b) 2/3	c) 3/2	d) 2/5		
22.) In order to acquire a building in 10years time, madam Fifi engages to make					
regular deposits of 500,000FRS at the end of each year at the rate of 6% p.a.					
how much would she withdraw at the end of 10years if she increased her					
deposit to 750,000 frs from the 5 <sup>th</sup> year.					
a) 8,334,227.1F	b) 7,418,796.9	9F c) 6,590,397.	47F d)		
5,466,787.87F\					

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23.) An allowance was	shared to three w	vorkers inv	versely proportion	al to their	
days of late coming	of 3, 2, and 4 days	respective	ly. If the 3 <sup>rd</sup> worke	er received	
60,000FRS, how was	s shared?				
a) 135,000FRS	b) 180,000F	RS	c) 260,000FRS	d)	
240,000FRS					
24.) Given the following	ng data: 2, 3, 4, 5,	x, and 7.	what is the value	of x if the	
harmonic mean is 3.8	836?				
a) 5	b) 6	c) 5.5		d) 6.25	
25.) A trader allows on	the list price of his	s goods a	trade discount of 2	20% and a	
cash of 5%. The ratio	o of cash price to lis	st price is:			
a) 1:5	b) 1:20	c)	19:25	d)	
19:20					
19:20					