

# COMPETITIVE ENTRANCE EXAMINATION INTO HTTTC BAMBILI

CYCLE:1<sup>st</sup> CYCLE

LEVEL: 3<sup>rd</sup> YEAR

**SESSION: 2014**

**DURATION: 3 Hours**

## **INSTRUCTIONS**

- In your answer booklet, write only the letter of the answer chosen against the question number.
- This question paper must be summated together with the answer booklet.

Each question carries one (1) mark.

## **PART II: BUSINESS MATHEMATICS**

1. Tanui's is 32000Frs. If a deduction for taxes from his monthly pay is 8,000Frs. What percent of his salary goes to this deduction.  
A. 25%  
B. 25.6%  
C. 40%  
D. 2.5%
2. The cost of an article including 15% for taxes is 138,000frs. What is the cost of the article without taxes  
A. 1173  
B. 1200  
C. 207  
D. 920
3. A delivery rout must include stops at 8 towns. How many different routes are possible?  
A. 36  
B. 8  
C. 5,040  
D. 40,320

4. You need 2,000Fr to buy a new speaker for your home and you have 800Fr to invest at 5% compounded annually. How long will you wait to buy the speaker?
- A. 8.42 years  
B. 18.78 years  
C. 14.58 years  
D. 15.75 years
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
- A.  $\begin{bmatrix} 15 & 15 \\ 25 & 5 \end{bmatrix}$   
B.  $\begin{bmatrix} 25 & 5 \\ 15 & 15 \end{bmatrix}$   
C.  $\begin{bmatrix} 5 & 25 \\ 15 & 15 \end{bmatrix}$   
D.  $\begin{bmatrix} 25 & 15 \\ 5 & 15 \end{bmatrix}$
6. One dozen pears cost 15frs. They are sold at the markup of 12%. The selling is
- A. 17.8frs  
B. 13.2frs  
C. 16.8frs  
D. 15.12frs
7. A project with an initial outlay of 100 000frs has cash flows as follows:
- |        |        |        |        |        |
|--------|--------|--------|--------|--------|
| year   | 1      | 2      | 3      | 4      |
| inflow | 60,000 | 80,000 | 50,000 | 20,000 |
- Pay back period in years is:
- A. 4 years  
B. 1.5 years  
C. 1.6 years  
D. 2 years
8. Demand function for a product is  $P=2-x$  where  $x$  is the quantity. The revenue function is:
- A.  $\frac{2}{x} - 1$

B.  $\frac{2-x}{x}$

C.  $2x-2x$

D.  $2x-x^2$

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 25 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 the data 6,3,2,1,4,2, are:

A. 9,10,12

B. 9,12,18

C. 12,10,9

D. 12,14,15

12. What is the original value of an ordinary borrowing refundable by 10 constant annuities of 699,292,45frs at the rate of 7.55

A. 4,600,000frs

B. 4,800,000frs

C. 5,210,000frs

D. 4,757,250frs

13. What is the duration of an ordinary load whose constant annuity is 116,588.32frs and first amortization is 87,000frs at the rate of 5%

A. 5 years

B. 4 years

C. 6 years

D. 7 years

- 14.** Song borrowed the sum of 3,000,000frs from SGBC bank repayable by constant amortization 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 3,000,000 to his 3 children age 12 years, 13 years and 16 years such that when they all reach 18 years, their future values will be equal. What is the value of the common future value if the shares were invested at a compound interest rate of 7.5%
- A. 1,357,556.5F
  - B. 750,000F
  - C. 843,527.52F
  - D. 756,548.88F
- 16.** The manager of MTN earns 600,000f per month. He gives 40% of his salary to his wife. The wife gives 20% of his amount for their sons pocket allowance. Their sons 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 text book cost 20,000frs in the book shop and the seller allows a 10% trade discount and 5% cash discount. The ratio of the cash price to the cost price is:
- A. 90%
  - B. 84.5%
  - C. 85.5%
  - D. 78.25%
- 18.** A bill of exchange with nominal value 60,000frs is negotiated at 90% for a duration of 60 days. The commission represents 0.5% of the nominal value. The effective rate of discount is
- A. 12%
  - B. 5%

- C. 9.5%
- D. 2%

**19.** Giving the data: 2,3,18,14,5,2. The median is:

- A. 4
- B. 7
- C. 14
- D. 18

**20.** What is the sum of 15 terms of a geometric progression with a ratio of  $\frac{1}{5}$  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

**21.** The 2<sup>nd</sup> term of a geometric progression is 8 and the 5<sup>th</sup> term is 27. The common ratio is:

- A.  $\frac{3}{4}$
- B.  $\frac{2}{3}$
- C.  $\frac{3}{2}$
- D.  $\frac{2}{5}$

**22.** In order to acquire a building in 10 years 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 10 years if she increased her deposit to 750,000frs from the 5<sup>th</sup> year:

- A. 8,334,227.1F
- B. 7,418,796.9F
- C. 6,590,387.47F
- D. 5,466,787.87F

**23.** An allowance was shared to 3 workers inversely proportional to their days of late coming of 3, 2, and 4 days respectively. If the 3<sup>rd</sup> worker received 60,000frs, how was shared?

- A. 135,000frs,
- B. 180,000frs,
- C. 260,000frs,
- D. 240,000frs,

**24.** Given the following data: 2, 3, 4, 4, 5, x, and 7. What is the value of x if the harmonic mean is 3.836

- A. 5
- B. 6
- C. 5.5
- D. 6.25

**25.** A trader allows on the list price of his goods a trade discount of 20% and a cash discount of 5%. The ratio of cash price to list price is:

- A. 1:5
- B. 1:20
- C. 19:25
- D. 19:20

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