CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

Technical and Vocational Education Examinations

7020 Business Mathematics 1

JUNE XXXX **ADVANCED LEVEL**

Specialty(Specialty Code)	
Centre No.	
Centre Name	
Candidate No.	
Candidate Name	

Mobile phones are **NOT** allowed in the examination room

7020 Business Mathematics 1: MULTIPLE CHOICE QUESTION PAPER

One and a half hours

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed **Advanced Level** – **7020 Business Mathematics 1**
4. Insert the information required in the spaces above.
5. Insert the information required in the spaces provided on the answer sheet using your HB pencil: **Candidate Name, Exam Session, Subject Code, Centre Number and Candidate Number.** Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.
6. A**nswer ALL questions**
7. Each question has FOUR suggested answers: **A, B, C** and **D**. Decide on which answer is correct. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.
   For example, if **C** is your correct answer, mark **C** as shown below:

   [A] [B] [C] [D]

8. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
9. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
10. Do all rough work in this booklet, using, where necessary, the blank spaces in the question booklet.
11. Texts, notes and pre-prepared materials of any kind are also **NOT** allowed in the examination room.
12. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet after. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT**.

1. The amount of money today which is equal to series of future payments is :

A	Nominal value of annuity
B	Sinking value of annuity
C	Present value of annuity
D	Future value of annuity

2. If the simple interest earned in 5 years by an investment at 5% per annum is 10,000FCFA, the principal invested is:

A	40,000FCFA
B	400,000FCFA
C	4,000FCFA
D	100,000FCFA

3. The compound interest on a loan of 1,000,000FCFA for 5 years if interest is computed semi-annually at 10% per annum is :

A	682,895FCFA
B	638,895FCFA
C	620,895FCFA
D	628,895FCFA

4. An office is rented for 800,000FCFA per year from an agent who took a lease for 10 years. If 10% of the lease is paid on the spot, the amount per instalment interest exclusive is :

A	720,000FCFA
B	72,000FCFA
C	80,000FCFA
D	800,000FCFA

5. One of these is not a secured creditor :

A	Preference shares
B	Cumulative preference shares
C	Ordinary shares
D	Salaries of workers

6. When a loan is repaid through constant amortisations, the annuities are said to be in :

A	Geometric progression
B	Arithmetic progression
C	Constant progression
D	Quadratic progression

7. A debt of 2,000,000FCFA contracted over a period of 4 years at 5% p.a. gives rise to a constant annuity of:

A	620,426.032FCFA
B	510,426.032FCFA
C	110,000FCFA
D	5,500,000FCFA

8. A sum of 250,000FCFA has accrued to 310,000FCFA after 4 years when invested at simple interest. The rate of investment is:

A	6%
B	5%
C	7.5%
D	8%

9. Given that $100,000(1+i)^n = 121,000$,where the interest rate is 0.1, the value of n is:

A	4
B	3
C	2
D	5

10. Given the following extract of an ordinary loan:

Period	Outstanding debt at start	Amoun tisation	Interest	annuity
1			270,000	1,366,749.837
2	4,903,250			

The value of the loan is:

A	6,000,000FCFA
B	10,000,000FCFA
C	5,000,000FCFA
D	4,500,000FCFA

11. $A = \sum X_i - \sum 4X_i$, where X_1, X_2, and X_3 are 3, 2 and 1, respectively. The value of A is:

A	0
B	24
C	-18
D	12

12. The probability table is given as:

X	2	4	7	8	12
P(x)	1/10	3/10	a	1/5	1/20

The value of "a" is:

A	0.65
B	0.35
C	0.71
D	0.45

13. The last amortisation and the constant annuity of an ordinary loan are 191,851.68FCFA and 20,362.79FCFA, respectively. The annual interest rate is:

A	5%
B	6%
C	10%
D	7.5%

14. P is the probability of occurrence, the range of the value of P is :

A	$0<P\leq 1$
B	$P\geq 0$
C	$0\leq P\leq 1$

D	P≤1

15. In a given bivariate distribution (X,Y) the product moment correlation coefficient (r) is 0.83, the coefficient of non-determination is:

A	17%
B	31.1%
C	16%
D	31.12%

16. The range of the following data: 9, 3, 8, 8, 9, 8, 9 and 18, is:

A	11
B	14
C	10
D	15

17. The geometric mean (GM) of 4, 6, 10, 12 and 20, is :

A	8.95
B	240
C	10
D	11,520

18. The letters A, B, C, D and E can be arranged taking all 5 items at a time in:

A	1 way
B	5 ways
C	25 ways
D	120 ways

19. A box contains 6 red, 4 white and 5 blue balls. The probability of drawing a red ball at random is:

A	3/5
B	1/5
C	2/5
D	4/5

20. An asset worth 500,000FCFA depreciates by 4/5 its original at 5% p.a. in:

A	33 years
B	31 years
C	10 years
D	12 years

21. In a class, 25 students offered Economics or Geography or both. 12 students offered Economics and 17 offered Geography, the number of students offering both subject is:

A	2
B	4
C	5
D	6

22. Two mutually exclusive events A and B are such that P(A) = 2/5 and P(B) = 3/7. P(AUB) is:

A	33/35
B	29/35
C	22/35
D	23/35

23. The monthly rate proportional to an annual rate of 9% is :

A	0.75%
B	0.65%
C	0.85%
D	0.55%

24. The mean of a set of 6 observations is 4 and the mean of another set of 4 observations is 6, the mean of the combined set of observations is :

A	5.0
B	4.8
C	4.6
D	5.2

25. The following data concerns an investment :

Years	0	1	2	3
Cash flow	(700,000)	150,000	300,000	200,000

Using a discount rate of 9.5%, the NPV is:

A	700,000FCFA
B	160,480FCFA
C	-160,480FCFA
D	85,455.73FCFA

26. A discrete random variable ~ Bin(6,P), if E(X) = 18/17, the value of P is:

A	2/7
B	4/7
C	3/7
D	1/7

27. Lucy and Lydia each invested 400,000FCFA at 5% p.a. simple interest and compound interest respectively. The difference in the investments after 3 years is:

A	0FCFA
B	63,050FCFA
C	600,000FCFA
D	3,050FCFA

28. The mean number of buses arriving at a bus stop within an hour is 6. The probability that no bus arrives the bus stop within half an hour is:

A	e^{-6}
B	$e^{-0.5}$
C	e^{-3}
D	e^{-2}

29. The effective annual rate of the semi-annual rate of 6% is :

A	12%
B	12.36%
C	3%
D	3.36%

30. Annuities are sums of money paid :

A	Yearly
B	Quarterly
C	A regular intervals
D	At fixed dates

31. A random variable X follows a normal distribution with mean 4 and standard deviation 2, P(5<X<7) is :

A	P(0.5<Z<1.5)
B	P(-0.5<Z<1.5)
C	P(-1.5<Z<-0.5)
D	P(0.75<Z<1.25)

32. BELT Ltd issued 100 debentures of nominal value 2,000FCFA at 5% redeemable at a premium of 500FCFA per debenture. The interest (coupon) is:

A	500FCFA
B	400FCFA
C	100FCFA
D	50FCFA

33. One of these is **not** a time series component :

A	Cyclical Variation
B	Seasonal variation
C	Residual variation
D	Moving Variation

34. The sum of 14 terms of an AP with 1st term 130 and common difference 10 is :

A	2,307
B	2,073
C	2,730
D	2,370

35. A fair die is rolled once. Given that the score is an even number, the probability that it is a prime number is:

A	1/3
B	2/3
C	½
D	1/6

36. The time that is required for an investment to double at a rate of 11.5% p.a. is:

A	6.9766 years
B	6.367 years
C	6.5667 years
D	3.6677 years

37. The 14th term of a GP whose 1st term is 8 and the common ratio is 2, is :

A	65,536
B	65,365
C	66,553
D	65,635

38. An investment worth 250,000FCFA earned an interest of 24,525FCFA in the second year. The rate of compound interest is:

A	7%
B	9%
C	8%
D	6%

39. Two events A and B are such that P(A') = 2/3, P(B) = 1/2 and P(AUB) = 3/4. P(AnB) is:

A	1/6
B	5/6
C	¼
D	1/12

40. Two numbers A and B are such that :
LogA+LogB = 2.7782, LogB-LogA = 0.1761.
The value of B is :

A	50
B	40
C	20
D	30

41. Two judges ranked 4 contestants as shown in the table below:

1	2	3	4
1	4	3	2

The spearman's rank correlation coefficient:

A	0.29
B	0.20
C	-0.20
D	0.25

42. A committee of 5 can be chosen from 9 people in:

A	125 ways
B	126 ways
C	127 ways
D	123 ways

43. The following information is given in bankruptcy :

Liabilities	2,100,000
Secured creditors	600,000
Gross assets	G
Net asset	950,000
Dividend	D

The value of G is:

A	1,450,000FCFA
B	1,650,000FCFA
C	1,750,000FCFA
D	1,550,000FCFA

44. The fixed cost for dining tables is 100,000FCFA and cost per table is 180FCFA. The number of tables produced for a total cost of 275,500FCFA is:

A	Less than 900
B	Between 900 and 950
C	Between 950 and 1,000
D	Between 1,000 and 1,050

45. If a machine depreciates from 10,000FCFA to 2,000FCFA over a period of 4 years by fixed amount, the annual depreciation is:

A	2,000FCFA
B	2,500FCFA
C	500FCFA
D	3,000FCFA

46. The maximum time required for an activity to be completed without altering the overall project time is :

A	Latest finish time
B	Latest start time
C	Earliest start time
D	Earliest finish time

47. Weighted index computed using base year quantity is :

A	Gross quantity index
B	Paasche quantity index
C	Fischer quantity index
D	Laspeyres quantity index

48. The probability distribution table for a discrete random variable X is :

X	1	2	3
P(X=x)	1/3	½	1/6

The value of E(X) is:

A	1
B	5/3
C	2
D	11/6

49. A distribution is said to be negatively skewed when :

A	$Q_3 - Q_2 = Q_2 - Q_1$
B	$Q_3 - Q_2 < Q_2 - Q_1$
C	$Q_3 - Q_2 > Q_2 - Q_1$
D	$Q_2 + Q_2 + Q_3 = 0$

50. You are given the following data : n = 4, $\tilde{X}$=2.5, $\tilde{Y}$=7.5, ΣXY = 100. The covariance is:

A	50
B	-50
C	100/16
D	100/4

NOW GO BACK AND CHECK YOUR WORK