BUSINESS MATHEMATICS 1
7020

JUNE 2020   **ADVANCED LEVEL**

Specialty(Specialty Code)	ALL COMMERCIAL SPECIALTIES
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.   **Answer 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] [C̶] [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.**

                                                                                         Turn Over

1. A set of elements taken from a larger population according to certain rules is called:
   A Elements
   B Statistics
   C Population
   D Sample

2. An annual rate of 10 % is proportional to :
   A A monthly rate of 5 %
   B A quarterly rate of 5 %
   C A semester rate of 5 %
   D An annual rate of 5 %

3. A number calculated with complete population data quantifies a characteristics of the population is called:
   A A sample
   B A statistics
   C A parameter
   D A population

4. The class mark of the class interval 30-40 is:
   A 10
   B 35
   C 30
   D 40

5. When successive mid-points in a histogram are connected by straight lines, the graph is called:
   A Ogive
   B Frequency curve
   C Histogram
   D Frequency polygon

6. A Company issues 2500 debentures with nominal value of 10,000 FCFA each at a redemption premium of 1,000 FCFA. The value of the loan is:
   A 25,000,000 FCFA
   B 35,000,000 FCFA
   C 10,000,000 FCFA
   D 27,500,000 FCFA

7. A worker earns 250,000 FCFA per month. Given that the general price level of goods and services moved from 100 % to 125 % and that a proportionate increase in price lead to a proportionate increase in salary. His new income per month will be:
   A 312,250 FCFA
   B 312,500 FCFA
   C 350,000 FCFA
   D 12,250 FCFA

8. The cost of producing an item in a manufacturing Company was 300,000 FCFA. A pie diagram was drawn to show the cost. If labour and overhead costs are represented by a sector of 120^0, the amount for other expenses is:
   A 120,000 FCFA
   B 360,000 FCFA

   C 200,000 FCFA
   D 100,000 FCFA

9. The range for a set of number is 121. The largest value is 122, the smallest value is:
   A 121
   B 1
   C 2
   D 122

10. The mode of the following set (17, 16, 18, 17, 19, 18, 17, 19, 115, 33, 10,33) is:
    A 12
    B 115
    C 18
    D 17

11. Which of the following method of capital investment appraisal is unscientific:
    A Internal rate of return
    B Net present value
    C Pay-back method
    D Profitability index

12. In hypothesis testing, a Type II error occurs when:
    A The Null hypothesis is not rejected when the Null hypothesis is true
    B The Null hypothesis is rejected when the Null hypothesis is true
    C The Null hypothesis is not rejected when the alternative hypothesis is true
    D The Null hypothesis is rejected when the alternative hypothesis is true

13. The number of tally sheet count for each value or a group is called:
    A Class interval
    B Class width
    C Class boundary
    D Frequency

14. A Company has an initial cost of investment of 300,000 FCFA in a project that will generate constant annual income of 750,000 FCFA for 8 years. The net present value of the investment at discount rate of 8 % is:
    A 34,479.8 FCFA
    B 30,000 FCFA
    C 430,997.9 FCFA
    D 130,997.9 FCFA

15. In Chi square distribution, the sample data are called:
    A Observed frequencies
    B Expected proportions
    C Observed proportions
    D Expected frequencies

16. The following information is given about a sample drawn from a population. n = 18, $\sum x$ = 360 and $\sum x^2$ = 9000. The population standard deviation is:
    A 100
    B 10
    C 20
    D 200

17. An asset costing 600,000 FCFA is depreciated by constant amount of 40,000 FCFA over a period of 8 years. The residual value of the asset is:
    A 75,000 FCFA
    B 40,000 FCFA
    C 280,000 FCFA
    D 320,000 FCFA

18. A hypothesis of no change is called:
    A Null hypothesis
    B One tailed hypothesis
    C Alternative hypothesis
    D Two tailed hypothesis

19. Graphical method can be used only when the decision variables is:
    A More than three
    B More than one
    C Two
    D One

20. The capital balance at the beginning of the last period of an ordinary loan is equal to:
    A The constant annuity
    B The last amortization
    C The first amortization
    D The last interest

21. CPM stands for :
    A Critical project management
    B Critical path management
    C Critical path method
    D Critical path making

22. If the value of the correlation coefficient is negative, then it takes a value :
    A $-1 \leq r \leq 1$
    B $0 < r \leq 1$
    C $-1 < r \leq 0$
    D $-1 \leq r < 0$

23. The interest earned by the sum of 225,000 FCFA for 2 years at the rate of 6 % per annum, if interest is compounded quarterly is:
    A 253,460.83 FCFA
    B 235,460.83 FCFA
    C 9,159.08 FCFA
    D 28,460.83 FCFA

24. Molyko Limited Produces two products Bowls (B) and Plates(P). The product B uses 3 hours of labour and the product P uses 120 minutes of labour. The minimum labour hours available is 60 hours. The linear programming model per labour can be written as:
    A 3B + 2P = 60
    B 3B – 2P ≥ 60
    C 3B + 2P ≥ 60
    D 3B + 2P ≤ 60

25. A candidate at the 2018 legislative election had a score of 10 votes. His score with the same population of voters in the same election in 2020 is 15 votes. Taking 2018 as reference year, his simple index referring to his performance is:
    A 0.666
    B 1.5
    C 0.25
    D 0.05

26. If the simple index number of price of a commodity in a current year is 1.2 and the price of that commodity during the basic year was 800 CFAF, the price of the commodity during the current year is:
    A 960
    B 666.66
    C 690
    D 906

27. In Chi square test for goodness of fit, the value of the degree of freedom for a test with five categories and sample of size n = 50 is:
    A 45
    B 10
    C 4
    D 3

28. If the common ratio of a geometric progression is more than 1, the progression is:
    A Increasing
    B Constant
    C More than one
    D Decreasing

29. It divides a distribution into 100 equal parts:
    A Median
    B Percentile
    C Quartile
    D Decile

30. A card is chosen at random from a pack of 52 playing cards. The probability of it being a red card is:
    A ½
    B 12/13
    C ¼
    D 1/13

31. The accumulated series of deposits as future sum of money is classified as:
   A   Marginal fund
   B   Nominal fund
   C   Sinking fund
   D   Annuity fund

32. For a parameter whose value is unknown, the belief or claim for that parameter is classified as:
   A   Parameter claim testing
   B   Exposed belief testing
   C   Hypothesis testing
   D   Primary limit testing

33. If the standard deviation of population1 is 3 with sample size 8 and the population 2 standard deviation is 5 with sample size 7, then the standard deviation of sampling distribution is :
   A   4.044
   B   3.044
   C   1.044
   D   2.044

34. TRADEX Plc issued debentures at 10 % p.a of face value the same as the redemption value of 10,500 FCFA redeemed at 15 constant annuities. The total loan redeemed after the eighth draw is 21,000;000 FCFA The number of debentures redeemed after the eighth drawn is:
   A   10,500
   B   200
   C   2000
   D   125

35. Redemption of debenture is said to be at par when
   A   Nominal value is equal to redemption price
   B   Nominal value is greater than or equal to redemption price
   C   Nominal value is less than redemption price
   D   Nominal value is greater than redemption price.

36. In linear programming problems, the function whose maxima or minima are to be found is called:
   A   Determination function
   B   Selection function
   C   Subjective function
   D   Objective function

37. Contribution/Sales ratio is expressed as :
   A $\dfrac{selling\ price - variable\ cost}{Contribution\ margin}$
   B $\dfrac{selling\ price - variable\ cost}{2}$

   C $\dfrac{selling\ price - variable\ cost}{Selling\ Price}$
   D $\dfrac{selling\ price - variable\ cost}{Fixed\ Cost}$

38. Individuals or group of individuals who buy stocks and shares when prices are low and sells them when prices rise are :
   A   Brokers
   B   Investors
   C   Speculators
   D   Consideration

39. The analysis of labour turnover rates, performance appraisal, training programs and planning of incentives are examples of role of :
   A   Statistics in personnel management
   B   Statistics in finance
   C   Statistics in marketing
   D   Statistics in production

40. In the two units of a company, the employees in unit one are 650 and monthly salary is 2750 FCFA, the employees in unit two are 700 and monthly salary is 2500 FCFA then the combined arithmetic mean is :
   A   2,620 FCFA
   B   2,520 FCFA
   C   2,420 FCFA
   D   2,320 FCFA

41. The following table contains the number of complaints received in a department store for the last 6 months of year 2017 by a manufacturing Company.

Months	July	Aug	Sept	Oct	Nov	Dec
complaints	36	45	81	90	108	144

If a 3-term moving average is used to smooth this series, the last calculated term is:
   A   342
   B   144
   C   104
   D   114

42. The largest value is 60 and the smallest value is 40 and the number of classes desired is 5 then the class interval is :
   A   20
   B   4
   C   25
   D   15

43. The probability of second event in a situation if the first event has occurred is classified as :
   A   Series probability
   B   Conditional probability
   C   Joint probability
   D   Dependent probability

44. The probability which is based on the self-beliefs of the persons involved in the experiment is classified as :

A Subjective approach
B Objective approach
C Intuitive approach
D Sample approach

45. The focus groups, individual respondents and panels of respondents are classified as :
A Pointed data sources
B Itemized data sources
C Primary data sources
D Secondary data sources

46. The number of observations are 30 and the value of arithmetic mean is 15 then sum of all values is :
A 15
B 450
C 200
D 45

47. If mean absolute deviation of set of observations is 8.5 then value of quartile deviation is :
A 7.08
B 9.08
C 10.2
D 11.2

48. The mean of binomial probability distribution is 857.6 and the probability is 64 %, then the number of values of binomial distribution is :
A 1040
B 1340
C 1240
D 1140

49. The data based on workers salary is as 2500, 2700, 2600, 2800, 2200, 2100, 2000, 2900, 3000, 2800, 2200, 2500, 2700, 2800, 2600 and number of classes desired is 10 then width of class interval is :
A 400
B 300
C 100
D 200

50. The 3rd and 5th amortization of an ordinary loan of constant annuities are respectively 530, and 551.42 and the fourth annuity is 556.5. The rate of interest is :
A 6 %
B 5.5 %
C 4 %
D 5 %

GO BACK AND CHECK YOUR WORK