Shiksha Mandal's

G. S. College of Commerce & Economics, Nagpur

An Autonomous Institution

(Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

First Semester Bachelor of Commerce (Computer Application) Examination (CBCS)

MATHEMATICS

(BCCASFC 1.0)

Time: 3 Hours | Maximum Marks: 80

N. B: 1) All the questions are compulsory.
2) Draw well-labelled diagrams whenever necessary.

Q.1 Solve the following question. 10

A) Do as directed

i) $(101101101)_2 = (?)_{10}$

ii) $(ACF)_{16} = (?)_{10}$

iii) $(77)_8 = (?)_2$

iv) $(246)_{10} = (?)_{16}$

v) $(363)_{10} = (?)_{16}$

OR

B) Do as directed

i) $(100011110011)_2 = (?)_{10}$

ii) $(187)_{10} = (?)_2$

iii) $(197)_{10} = (?)_8$

iv) $(2EF)_8 = (?)_{16}$

v) $(2A0F)_{16} = (?)_{10}$

Q.2 Solve the following question. 10

A) Find the mean deviation from the mode and its co-efficient.

Height in inches	60	61	62	63	64	65	66	67	68	69	70
No. of Workers	10	12	15	20	21	23	20	15	10	5	2

OR

B) Calculate the compound interest of ₹ 5000 at 8% p.a. for 2 years, if the interest is calculated half yearly. What difference will it make if interest is calculated quarterly?

Q.3 Solve the following question. 10

A) A businessman earns a profit of 25% by selling his goods at ₹ 2300. Find out the purchase price of goods.

OR

B) A die is tossed and the number of points appearing on the uppermost face is observed. What is the probability of obtaining?

a) an even number

b) an odd number

c) less than 3

d) a 'six'

e) greater than 2

Q.4 Solve the following question. 10

A) A train meets with an accident and moves at $^{3}/_{4}$ its original speed. Due to this, it is 20 minutes late. Find the original time for the journey beyond the point of an accident.

OR

B) Find the number of arrangements of the letters of the 'STATISTICS' if

a) The vowels appear together and

b) Order of the vowel remains unchanged.

Q.5 Answer the following questions. (Any two) 08

A) Explain number system. Give base of Binary, Octal and Hexadecimal number system.

B) Explain any two number systems. Explain the method of converting Decimal number to Hexadecimal and Binary System with suitable examples.

C) Explain Octal number system in detail.

Q.6 Answer the following questions. (Any two) 08

A) What is Arithmetic Mean? Write advantages and disadvantages of Arithmetic Mean.

B) What is Compound Interest? Explain with example.

C) Explain Median with advantages and disadvantages.

Q.7 Answer the following questions. (Any two) 08

A) Explain Profit, Loss and Discount with example.

B) What is Probability? Explain with example.

C) What is Proportion? Explain Types of Proportion with example.

Q.8 Answer the following questions. (Any two) 08

A) What is Permutation? Explain fundamental rule of counting.

B) Prove the following:

The number of Permutation of n distinct objects taken r(<=n) at a time is given by

$$^{n}p_{r} = n(n-1)(n-2).....(n-r+1) = \frac{n!}{(n-r)!}$$

C) Explain circular motion with example.

Q.9 Answer the following questions. 08

A) Convert the Hexadecimal number 5CD to its equivalent Binary number.

B) Calculate mean from the following data:

20 28 34 39 42 50 53 54 59 64 72 74 76 84 90

C) Define Discount with example.

D) Define Combination.

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