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PAPER :BUSINESS MATHS

FINAL TERM EXAM

PAPER SUMMER SEMESTER

BBA

QUESTION NO 1 MCQs

1- e

2- b

3- b

4- e

5- d

6- e

7- d

8- e

9- e

10- d

Question No 2 a

(Q.2) (a)

Let: s and $4s$ be the son and father. Then

$$2(s+24) = 4s+24$$

$$2s + 48 = 4s + 24$$

$$2s - 4s = 48 - 24$$

$$\frac{2s}{2} = \frac{24}{2}$$

$$s = 12$$

$$\text{and } 4s = 48$$

So the son is 12 and father is 48

Question No 2 b

b. Solve the following simultaneous equations for x and y.

$$x + 3y = -1/3$$

$$4x - 1/5 = 2/2$$

From equation 1

$$x + 3y - 3y = -\frac{1}{3} - 3y$$

$$x = -\frac{1}{3} - 3y$$

Put this in equation 2

$$4\left(-\frac{1}{3} - 3y\right) - \frac{1}{5} = 1$$

$$-\frac{4}{3} - 12y - \frac{1}{5} = 1$$

$$-\frac{23}{15} - 1 = 12y$$

$$y = -\frac{19}{90}$$

From equation 2

$$4x = 1 + \frac{1}{5}$$

$$x = \frac{3}{10}$$

Question No 3 a

Question No.3

a. Simplify by using exponential laws $\frac{x^{-3}}{x^{-3/2}} \div \frac{x}{x^{3/4}y^{-2}} \times \frac{x^2y^{-3}}{y^{1/3}}$

Solution:

$$(x^{-3}x^{\frac{3}{2}}) \div (x x^{-\frac{3}{4}}y^2) \times (x^2y^{-3}y^{-\frac{1}{3}})$$

Arranging by variable

$$x^{-3+\frac{3}{2}} \div (x^{1-\frac{3}{4}}x^2)(y^2y^{-3-\frac{1}{3}})$$

$$x^{-\frac{3}{2}}$$

$$\frac{1}{x^{\frac{3}{2}+2}} \times y^{2-\frac{10}{3}}$$

$$x^{-\frac{7}{2}}$$

$$\frac{9}{x^{\frac{7}{2}} \times y^{-\frac{4}{3}}}$$

$$x^{-\frac{3}{2}} \times x^{-\frac{9}{4}} \times y^{\frac{4}{3}}$$

$$x^{-\frac{3}{2}-\frac{9}{4}} \times y^{\frac{4}{3}}$$

$$\frac{15}{x^{\frac{15}{4}} \times y^{\frac{4}{3}}}$$

Question No 3 b

b. Find the value of x by using logarithmic laws $x^3 = \frac{7^3 \times (0.4500)^2}{0.0004 \times (0.0205)^4}$

Taking log on BS:

$$\log(x^3) = \log(7^3 \times 0.45^2) - \log(4 \times 10^{-4} \times 0.0205^4)$$

$$3 \log(x) = \log(7^3) + \log(0.45^2) - [\log(4) + \log(10^{-4}) + \log(0.0205^4)]$$

$$3 \log(x) = 3 \log(7) + 2 \log(0.45) - \log(4) + 4 \log(10) - 4 \log(0.0205)$$

$$3 \log(x) = 11.992644$$

$$\log(x) = 3.997548$$

$$x = 9943.7$$

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Question No 4 a

Translating descriptive to set notation

$$U = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22\}$$

$$A = \{4, 8, 12, 16\}$$

$$B = \{4, 8, 12\}$$

$$C = \{2, 4, 6, 8, 10, 12, 14, 16, 18\}$$

a. Show that $(A \cup B)^c = (A^c \cap B^c)$ and

LHS:

$$A \cup B = \{4, 8, 12, 16\}$$

$$(A \cup B)^c = U - (A \cup B) = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22\} - \{4, 8, 12, 16\}$$

$$(A \cup B)^c = \{2, 6, 10, 14, 18, 20, 22\}$$

RHS

$$A^c = U - A = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22\} - \{4, 8, 12, 16\}$$

$$A^c = \{2, 6, 10, 14, 18, 20, 22\}$$

$$B^c = U - B = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22\} - \{4, 8, 12\}$$

$$B^c = \{2, 6, 10, 14, 16, 18, 20, 22\}$$

$$A^c \cap B^c = \{2, 6, 10, 14, 18, 20, 22\} \cap \{2, 6, 10, 14, 16, 18, 20, 22\}$$

$$A^c \cap B^c = \{2, 6, 10, 14, 18, 20, 22\}$$

$\therefore LHS = RHS$

Question No 4 b

$$b. A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$$

LHS

$$A \cap (B \cup C)$$

$$B \cup C = \{4,8,12\} \cup \{2,4,6,8,10,12,14,16,18\}$$

$$B \cup C = \{2,4,6,8,10,12,14,16,18\}$$

$$A \cap (B \cup C) = \{4,8,12,16\} \cap \{2,4,6,8,10,12,14,16,18\}$$

$$A \cap (B \cup C) = \{4,8,12,16\}$$

RHS

$$(A \cap B) \cup (A \cap C)$$

$$A \cap B = \{4,8,12,16\} \cap \{4,8,12\}$$

$$A \cap B = \{4,8,12\}$$

$$A \cap C = \{4,8,12,16\} \cap \{2,4,6,8,10,12,14,16,18\}$$

$$A \cap C = \{4,8,12,16\}$$

$$(A \cap B) \cup (A \cap C) = \{4,8,12\} \cup \{4,8,12,16\}$$

$$(A \cap B) \cup (A \cap C) = \{4,8,12,16\}$$

$$\therefore LHS = RHS$$

Question 5 a

Question No.5

a. List price = \$150

Trade discount = 20%, Find the net cost.

$$20\% \text{ of list price} = \frac{20}{100} \times 150$$

$$20\% \text{ of list price} = \$30$$

$$\text{Net Cost} = \text{List Price} - \text{Trade Discount}$$

$$\text{Net Cost} = 150 - 30$$

$$\text{Net Cost} = \$120$$

Question No 5 b

c. Cost price = \$10

Markup = \$6.20

Find markup percent on cost, also find Selling price

Selling Price

Selling Price = Markup + Cost Price

Selling Price = $10 + 6.20 = \$16.20$

Markup percent on cost $\frac{6.20}{10} \times 100$
 $= 62\%$