Egypt-Japan University of Science and Technology		
Entrance Exam Sample (Undergraduate)		
FIBH	Subject: Mathematics	
Academic Year: 2022/2023	No. of Pages: 3	E-JUST الجامعة المصرية اليابانية للعلوم والتكنولوجيا
Exam Duration: 45 minutes	Exam Version:	Egypt-Japan University of Science and Technology エジプト日本科学技術大学
Student Name:	Student ID:	

Choose the correct answer:

Question ① Find the number that makes the ratio $\dfrac{\quad}{90} = \dfrac{4}{16}$

    a) 22.5
    b) 16.5
    c) 0.25
    d) 25.5

Question ② Ahmed learned to sing a total of 8 pieces over the course of 4 weeks of voice lessons. How many weeks of lessons will Ahmed need to be able to sing a total of 10 pieces? Assume the relationship is directly proportional.

    a) 8 weeks
    b) 4 weeks
    c) 5 weeks
    d) 10 *weeks*

Question ③ Find the *x*- and *y*-intercepts of the line $4x + 10y = 20$

    a) $x - \text{intercept} = 4, y - \text{intercept} = 10$
    b) $x - \text{intercept} = -5, y - \text{intercept} = 2$
    c) $x - \text{intercept} = 2, y - \text{intercept} = 5$
    d) $x - \text{intercept} = 5, y - \text{intercept} = 2$

Question ④ What is the missing number?

$$4 \begin{pmatrix} 0 & 1 \\ 2 & 7 \end{pmatrix} = \begin{pmatrix} 0 & 4 \\ 8 & \end{pmatrix}$$

    a) 7
    b) 28
    c) 14
    d) 40

Question ⑤ If $x = -4$, then $15x - 10 =$

    a) 70
    b) 50
    c) -70
    d) 5

Question ⑥ A rectangular mirror has an area of 10 cm square. Its perimeter is 14 cm. What are the dimensions of the mirror?

   a) 5 cm by 2 cm
   b) 14 cm by 10 cm
   c) 7 cm by 2 cm
   d) 5 cm by 2.5 cm

Question ⑦ Solve for y

$$-26 - 18y = 54 + 2y$$

   a) $y = 2$
   b) $y = -2$
   c) $y = 4$
   d) $y = -4$

Question ⑧ Sameh bought an oil painting originally priced at 1000 L.E. but on sale for 50% off. After 10% sales tax, what was the total cost?

   a) 990
   b) 450
   c) 500
   d) 550

Question ⑨ Mohamed who lovers roller coasters, looked up which regions have the most roller coasters.

Roller coasters around the world	
Region	Roller coasters
Europe	600
North America	750
Other	450

What percent of roller coasters are located in North America or Europe?
   a) 33%
   b) 75%
   c) 80%
   d) 42%

Question ⑩ Green point Auto Repair originally paid its mechanics 40 L.E. per hour. Now there is a new owner, the mechanics make 15% more. How much do the mechanics make per hour now?
   a) 15
   b) 40
   c) 55
   d) 46

Question ⑪ Which of the following is equivalent to

$$90 + x = 48$$

a) $\frac{90+x}{16} = 3$

b) $\frac{90+x}{-24} = 2$

c) $\frac{90+x}{6} = 19$

d) $\frac{90+x}{10} = 34$

Question ⑫ Solve using substitution. $20x + 16y = -280$
$$x = -10$$

a) $(-10, 16)$
b) $(-10, -5)$
c) $(-10, 28)$
d) $(-10, 5)$

Question ⑬ The expression $5\log x + 6\log y - 2\log z$ simplifies to:

a) $log(xy^{30} - 2z)$
b) $log(5x6y - 2z)$
c) $log\frac{x^5 y^6}{z^2}$
d) $log\frac{xy^{30}}{z^2}$

Question ⑭ Choose the missing number in this sequence:

5, -25, 125, -625, ……

a) 1250
b) −3125
c) −1250
d) 3125

Question ⑮ Which of the following satisfy the following system of inequalities?

$$y \geq 9$$
$$2x + y \geq 21$$

a) $(6, 9)$

b) $(9, 19)$

c) $(9, 9)$

d) $(21, 9)$

Best Wishes for all