

**THIS PLACEMENT TEST IS ONLY FOR:**

- ✓ Business majors
- ✓ Design Management major

**INSTRUCTIONS:**

- ✓ The test consists of 30 multiple choice questions.
- ✓ Only Scientific Calculators are allowed.
- ✓ Duration of the exam is 90 minutes (around three minutes per question).

1.  $(5x - 3)(x^3 - 5x - 2) =$
- (a)  $5x^4 - 3x^3 - 25x^2 + 25x - 6$
  - (b)  $5x^4 - 3x^3 + 25x^2 - 5x - 6$
  - (c)  $5x^3 - 3x^3 - 25x^2 + 5x + 6$
  - (d)  $5x^3 - 28x^2 + 25x - 6$
  - (e) None of the above
2.  $\sqrt[4]{\frac{x^8y^2x^{-3}}{xy^2}} =$
- (a)  $x^3y$
  - (b)  $xy$
  - (c)  $x$
  - (d)  $x^4y$
  - (e) None of the above
3. If  $\sqrt{\frac{x}{x^{-7}}} = x^n$ , then the value of  $n$  is
- (a) -4
  - (b) 2
  - (c) 4
  - (d) 8
  - (e) None of the above
4. If  $x < 3$ , then  $|x - 3| =$
- (a)  $x - 3$
  - (b)  $x + 3$
  - (c)  $3 - x$
  - (d) 2
  - (e) None of the above
5. The domain of the function  $f(x) = \frac{16 - x^2}{\sqrt{x + 2}}$  is
- (a) All real numbers except -2
  - (b) All real numbers except 2
  - (c) All real numbers
  - (d) All real numbers larger than -2
  - (e) None of the above
6.  $2x^3 - 4x^2 =$

(a)  $2x^2(x - 2)$

(b)  $2x^2(x + 2)$

(c)  $2x^2(x - 4)$

(d)  $2x^2(x + 4)$

(e) None of the above

7. The domain of  $\ln(3 + x)$  is

(a) all real numbers

(b)  $x > 0$

(c)  $(-3, \infty)$

(d)  $(3, \infty)$

(e) None of the above

8. If  $\frac{x - 4}{x + 2} = 0$ , then  $x =$

(a) 2

(b) -2

(c) 4

(d) -4

(e) None of the above

9. If  $N = 2R$ , then  $2N + R - 2 =$

(a)  $5R$

(b)  $5R + 2$

(c)  $5R - 2$

(d)  $5R + 5$

(e) None of the above

10. If  $4x - 6 = -2x - 4 - x - 9$ , then  $x =$
- (a) 1
  - (b)  $-1$
  - (c)  $-2$
  - (d) 0
  - (e) None of the above
11. If  $h(x) = 2x^2 + 6x - 9$  and  $k(x) = 3x^2 - 8x + 8$ , then  $h(2) - 2k(1) =$
- (a) 5
  - (b)  $-6$
  - (c)  $-5$
  - (d) 6
  - (e) None of the above
12. The  $x$ -intercepts of the parabola  $y = x^2 + 3x + 6$  are
- (a) 6
  - (b)  $-6$
  - (c) 2 and 3
  - (d)  $-2$  and  $-3$
  - (e) None of the above
13. If  $x = 1/2$ , then  $\frac{3}{x+1} =$
- (a) 2.5
  - (b) 5
  - (c) 3
  - (d) 2
  - (e) None of the above
14. If  $a + b = 9$ , then  $3b =$
- (a)  $9 - 3a$
  - (b)  $27 - 3a$
  - (c)  $27 + 3a$
  - (d)  $27 + a$
  - (e) None of the above

15. If the price of a phone is \$200 after 20% discount. The original price of the phone is

- (a) \$240
- (b) \$260
- (c) \$250
- (d) \$270
- (e) None of the above

16. If  $y = 4$ , then  $\frac{-2}{y^{-2}} =$

- (a) 16
- (b) -16
- (c) 32
- (d) -32
- (e) None of the above

17.  $\frac{\frac{2}{x} - \frac{3}{x}}{2x} =$

- (a)  $\frac{-1}{2x}$
- (b)  $\frac{-1}{2x^2}$
- (c)  $\frac{1}{2x^2}$
- (d)  $\frac{2}{x}$
- (e) None of the above

18.  $\frac{3x}{x-1} \div \frac{x}{x-1} =$

- (a)  $\frac{3}{x+1}$
- (b) 3
- (c)  $\frac{3}{x^2+1}$
- (d)  $3x$
- (e) None of the above

19. The solution for  $x(x + 1) = 2$  is  $x =$

- (a) 2, 1
- (b) 2, -1
- (c) -2, -1
- (d) 5
- (e) None of the above

20. The domain for  $f(x) = 2e^{-x}$  is

- (a) all real numbers
- (b)  $(0, \infty)$
- (c)  $(-\infty, 0)$
- (d)  $(2, \infty)$
- (e) None of the above

21. The solution set for  $3x + 2 \leq 5x + 10$  is

- (a)  $x \geq 4$
- (b)  $x \leq 4$
- (c)  $x \leq -4$
- (d)  $x \geq -4$
- (e) None of the above

22. The solution set for  $x^3 + 2x = 0$  is

- (a)  $\{0, -2\}$
- (b)  $\{0\}$
- (c)  $\{-2\}$
- (d)  $\{0, 2\}$
- (e) None of the above

23. The slope of the line  $3y = -x + 7$  is

- (a) 3
- (b) -3
- (c)  $1/3$
- (d)  $-1/3$
- (e) None of the above

24. The solution set for  $x^2 + \pi = 0$  is
- (a)  $\{-\pi, \pi\}$
  - (b)  $\{-\pi\}$
  - (c)  $\{\pi\}$
  - (d) The equation has no real solution
  - (e) None of the above

25. The solution for  $|x + 2| = 1$  is  $x =$
- (a) 1 only
  - (b) -1 only
  - (c)  $\{1, -1\}$
  - (d)  $\{-1, -3\}$
  - (e) None of the above

26. If  $y = e^{3x-2}$  then  $x =$

- (a)  $\frac{\ln(y) + 2}{3}$
- (b)  $\frac{\ln(y) - 2}{3}$
- (c)  $\frac{2 - \ln(y)}{3}$
- (d)  $\frac{2 \ln(y)}{3}$
- (e) None of the above

27. If  $x, y > 0$  then  $\ln\left(\frac{x^2}{5y^3}\right) =$

- (a)  $2 \ln x + 5 \ln y$
- (b)  $2 \ln x + 3 \ln y$
- (c)  $2 \ln x + 5 \ln y - 3 \ln y$
- (d)  $2 \ln x - \ln 5 - 3 \ln y$
- (e) None of the above

28. If  $3^{0.5x} = 2$ , then  $x =$

- (a)  $20/3$
- (b)  $2 \log_3 2$
- (c)  $0.5 \log_3 2$
- (d)  $2 \log_5 2$
- (e) None of the above

29. If  $y = \ln(x - 4)$ , then  $x =$

- (a)  $e^y - 4$
- (b)  $e^y + 4$
- (c)  $e^{4y}$
- (d)  $4 - e^y$
- (e) None of the above

30. If  $5x = 20$ , then  $\log_4(16x) =$

- (a) 4
- (b) 3
- (c) 40
- (d) 5
- (e) None of the above



**Solution:**

**Business-MPT-Sample-2**

<b>Question Number</b>	<b>Solution</b>
<b>1</b>	<b>C</b>
<b>2</b>	<b>C</b>
<b>3</b>	<b>C</b>
<b>4</b>	<b>C</b>
<b>5</b>	<b>D</b>
<b>6</b>	<b>A</b>
<b>7</b>	<b>C</b>
<b>8</b>	<b>C</b>
<b>9</b>	<b>C</b>
<b>10</b>	<b>B</b>
<b>11</b>	<b>A</b>
<b>12</b>	<b>E</b>
<b>13</b>	<b>D</b>
<b>14</b>	<b>B</b>
<b>15</b>	<b>C</b>
<b>16</b>	<b>D</b>
<b>17</b>	<b>B</b>
<b>18</b>	<b>B</b>
<b>19</b>	<b>E</b>
<b>20</b>	<b>A</b>
<b>21</b>	<b>D</b>
<b>22</b>	<b>B</b>
<b>23</b>	<b>D</b>
<b>24</b>	<b>D</b>
<b>25</b>	<b>D</b>
<b>26</b>	<b>A</b>
<b>27</b>	<b>D</b>
<b>28</b>	<b>B</b>
<b>29</b>	<b>B</b>
<b>30</b>	<b>B</b>