Subject: Mathematics for Engineer

Quiz number: 1

Number of question: 15

Structure:

* level 1(knowledge & comprehension): 3;
* level 2 (application & analysis): 9;
* level 3 (synthesis & evaluation): 3.



Time: 30’



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| QN=1 | (Level 2) The funtion  has |
| a. | two different horizontal asymtotes |
| b. | only one horizontal asymtote |
| c. | no horizontal asymptote |
| d. | three different horizontal asymptotes. |
| e. |  |
| f. |  |
| ANS: | A |
| PTS: |  |
| CHAPTER: | 1 |
| MIX CHOICES: | Yes |



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| QN=2 | (Level 2) Let h(x)=f(g(x)) . If f(x)= 2x-4 and g(x)=x-5 then h(x) is |
| a. | -2x+7 |
| b. | -2x-10 |
| c. | -2x+3 |
| d. | 2x-14 |
| e. |  |
| f. |  |
| ANS: | D |
| PTS: |  |
| CHAPTER: | 1 |
| MIX CHOICES: | Yes |

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| QN=3 | (Level 2) Use the table to evaluate the expression.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | *x* | 1 | 2 | 3 | 4 | 5 | 6 | |  | 3 | 4 | 2 | 0 | 1 | 2 | |  | 3 | 6 | 1 | 3 | 4 | 0 | |
| a. | 1 |
| b. | 6 |
| c. | 3 |
| d. | 4 |
| e. | 5 |
| f. | 0 |
| ANS: | B |
| PTS: |  |
| CHAPTER: | 1 |
| MIX CHOICES: | Yes |



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| QN=4 | (Level 2) Find |
| a. | 1 |
| b. | 2 |
| c. | ½ |
| d. | ¼ |
| e. | None of the others. |
| f. | -1 |
| ANS: | F |
| PTS: |  |
| CHAPTER: | 1 |
| MIX CHOICES: | Yes |



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| QN=5 | (Level 1) Which of the following is (are) **even** function(s)? |
| a. | f(x)= x3-1010 |
| b. | f(x)= sin(2x4) |
| c. | f(x)=sin(x-10x5) |
| d. |  |
| e. | f(x)=sinxcosx |
| f. |  |
| ANS: | B |
| PTS: |  |
| CHAPTER: | 1 |
| MIX CHOICES: | Yes |

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| QN=6 | (Level 3) What is |
| a. | -4 |
| b. | ¼ |
| c. | 0 |
| d. |  |
| e. | None of the others. |
| f. |  |
| ANS: | A |
| PTS: |  |
| CHAPTER: | 2 |
| MIX CHOICES: | Yes |



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| QN=7 | (Level 3) Two sides of a triangle are 3 m and 4 m in length and the angle between them is increasing at a rate of 0.02 rad/s. Find the rate at which the area of the triangle is increasing when the angle between the sides of fixed length is . |
| a. | 0.06 |
| b. | 0.12 |
| c. | 0.02 |
| d. | 0.006 |
| e. | None of the others |
| f. |  |
| ANS: | A |
| PTS: |  |
| CHAPTER: | 2 |
| MIX CHOICES: | Yes |



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| QN=8 | (Level 1) Suppose h(x)=f(g(x)) and f(7)=3,g(7)=3,g’(7)= 4, f’(3)=5. Find h’(7). |
| a. | 15 |
| b. | 12 |
| c. | 20 |
| d. | -4 |
| e. | 3 |
| f. |  |
| ANS: | C |
| PTS: |  |
| CHAPTER: | 2 |
| MIX CHOICES: | Yes |

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| QN=9 | (Level 2) Which of the following is the equation of the tangent line to the curve  at the point (1,2) ? |
| a. | y=2 |
| b. | y=-2x+1 |
| c. | y=-2x-1 |
| d. | y=2x+2 |
| e. | y=2x-2 |
| f. | y=-x+3 |
| ANS: | A |
| PTS: |  |



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| QN=10 | (Level 2) If y=x3-3x and dx/dt=3, find dy/dt when x=5. |
| a. | 14 |
| b. | 216 |
| c. | 62 |
| d. | None of the others |
| e. | 70 |
| f. |  |
| ANS: | B |
| PTS: |  |
| CHAPTER: | 2 |
| MIX CHOICES: | Yes |

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| QN=11 | (Level 2) Suppose f(2)=3 and 5≤f’(x) for all x. How small can f(7) possibly be? |
| a. | 31 |
| b. | 28 |
| c. | 4 |
| d. | 25 |
| e. | None of the others |
| f. |  |
| ANS: | B |
| PTS: |  |
| CHAPTER: | 3 |
| MIX CHOICES: | Yes |

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| QN=12 | (Level 1) Find the points of inflection of the function |
| a. | (1,-1) |
| b. | (-1,1) |
| c. | (0,17) |
| d. | (1,-1) and (-1,1) |
| e. |  |
| f. |  |
| ANS: | C |
| PTS: |  |
| CHAPTER: | 3 |
| MIX CHOICES: | Yes |

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| QN=13 | (Level 2) Use Newton’s Method with initial approximation x1= 1 to find x3, the third approximation to the root of the equation x3+2=2x. Which is the result correct to 2 decimal places? |
| a. | 1 |
| b. | -1.62 |
| c. | -1.63 |
| d. | -1.65 |
| e. | -1.7 |
| f. |  |
| ANS: | A |
| PTS: |  |
| CHAPTER: | 3 |
| MIX CHOICES: | Yes |



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| QN=14 | (Level 3) A particle moves in the straight line and has acceleration given by a(t)=-t+2, where t is in seconds. Its initial velocity is v(0)=7 cm/s . Find its velocity after 2 seconds. |
| a. | 10 cm/s |
| b. | 8 cm/s |
| c. | 9 cm/s |
| d. | 3 cm/s |
| e. |  |
| f. |  |
| ANS: | C |
| PTS: |  |
| CHAPTER: | 3 |
| MIX CHOICES: | Yes |



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| QN=15 | (Level 2) Given the function f(x)=2011-6x+2x3 . Choose the correct statements. |
| a. | f(1) is the local minimum value and f(-1) is local maximum value. |
| b. | f(-1) is the local minimum value and f(1) is local maximum value. |
| c. | f(1) is the absolute minimum value and f(-1) is absolute maximum value. |
| d. | f(1) is the absolute minimum value and f(-1) is absolute maximum value. |
| e. | None of the others |
| f. |  |
| ANS: | A |
| PTS: |  |
| CHAPTER: | 3 |
| MIX CHOICES: | Yes |
| Level | 2 |