

**Applied Mathematics for Biomedical Technology**

**King Saud University**

College of Applied Medical Sciences

Biomedical Technology Department

**Second Midterm**

Course Instructor: Dr. Widad Babiker

Course No. 222

Second Semester 1442-1442

Date Time: Thursday 26/8/1442 h

 **م 8/4/2021 الموافق**

**Time: 120 Minutes**

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| --- | --- |
| **Student’s Name** |  |
| **Student’s** ID |  |

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| --- | --- | --- | --- | --- | --- |
| Question No. | 1 | 2 | 3 | 4 | Total |
| Maximum Marks | 2.5 | 7 | 7 | 3.5 | 20 |
| Marks Obtained |  |  |  |  |  |

**Q. No. 1. Choose the correct answer: (7)**

1. is equal to

 (a)  (b) (c) (d) None of the previous

1. The exact value of where y is given by:at is equal to

(a) (b) (c) (d) None of the previous

1. Given that , and in , then is equal to

(a) (b) (c) (d) None of the previous

1. is equal to

(a) (b) (c) (d) None of the previous

1. is equal to

 (a) (b) (c) (d) None of the previous

**Q. No. 2.** (**All details are required**) **(7)**

1. Find the value of where y is given by:at

 Solution: **(1.5)**

 at

1. Prove the given identity

Solution: **(1.5)**

1. R.H.S=
2. R.H.S=
3. R.H.S=
4. Given , and in . Find the value of .

 Solution: **(2)**

A

 Using the Sine Rule

6.82

31.5

B

 no solution

C

13.3

 since

1. Given , where is in quadrant III. Find

 Solution: **(2)**

-3

1.

7

**Q. No. 3.** (**All details are required**) **(7)**

1. Find The rate of change of at .

Solution: **(1.5)**

1. **⇒**
2. **⇒**
3. Find the value of where y is given by:

 Solution: **(2)**

1. **⇒**

 =

 **⇒**

1. Find the value of where y is given by: at .

 Solution: **(1.5)**

 at

1.

 at

1. Use implicit differentiation to find if at

 Solution: **(2)**

 Differentiate both sides: **⇒**

 **⇒**  **⇒**

 at ,

 hence, ,

**Q. No. 4**. (**All details are required**) **(3.5)**

1. Prove the given identity

 Solution: **(1.5)**

1. R.H.S = = = = =
2. R.H.S = = = = =

A

1. Find in the given triangle , where , and .

 Solution: **(2)**

30.3

Using the Sine Rule: A=  =

25.7

 = =

C

B

20.1