JINJA JOINT EXAMINATIONS BOARD

MOCK EXAMINATIONS 2019

MAKING GUIDE 2019 FOR

P425/1PAPER 1 MATHEMATICS

SECTION A (40 MARKS)

M1

M1

M1

M1

A1

05

M1

Critical values ;

B1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
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|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

B1

The solution set isand . A1 A1

05

1. 2

M1

2 =  M1

= ½ M1

0

= ½ M1

= 

 A105

1. (i)

Let () be the centre

Comparing:

But;

either

2t = B1

t = or

But

B1

A1

(ii) Distance between centre and point A

t = B1

t = 10 units

shortest distance , d

d = |t – r| M1

d = |10 – 5|

d = 5 units A1

06

1. Let be the number of committees.

B1 B1

M1

A1

04



y = 

y =

 , 



 M1



y =

y = B1

when

M1

3 =

B1

A1

05

1. Cartesian equation of line:, P (0, 6, 0)

MP = B1

MP =

But MP

M1

2(

8 – 4t + 4 + 4t + 12 – 12t = 0

12 + 12 – 12t = 0

12t = 24

t = B1

t = 2.

MP =

Distance of point C (0, 6, 0) from the line.

| MP| = M1

| MP| = units. A1

05

1. 



 M1 M1

Using:



= 

 B1

But 



 M1



 B1

05

**SECTION B**

1. (a)  (i)

 (ii)

 (iii)

Method: Elimination

1. (ii)



 (iv) M1

1. + (ii)

 M1

 (v)

3 (iv) 5(v)



From (iv):



 M1



From (i)



 M1







A1 A1A1



(b) 

Using:



But 

 M1

1. Let 

 M1





The remainder is 19. A1

1. Let 

 M1





The remainder is 1. A1

12

1. (a) 



Compering:

;

 (i)

;

 (ii)

Value of R

(i)2 + (ii)2

 M1





 B1

Size of angle, 

1. (ii)





 B1





Solving the equation 

 M1



 M1





 A1

(b)

From the sine rule

LHS

 M1



 M1



But A + B + C = 1800

A = 180 – ( B + C)





 B1

Also;



 B1





 M1

 B1

12



 M1



At the point 





Using:  M1



 B1

Equation of normal at the point 

 M1







Coordinates of the point G

 - intercept occurs when y = 0.

 M1



G is the point

y – coordinate of P B1

Let Q be the point .

P is the midpoint of G and Q.

- coordinate of P.

 M1





 (i) B1

 M1

 (ii) B1

Substitute (ii) in (i) for 

 M1

 B1

12

1. (i)



 B1

unit

Also;





 B1





 B1

unit





 B1



Or

 A1

(ii)  M1







 A1

(b) is also a root. A1

Using:

)



is a quadratic factor.

Solving for the roots.

 M1





0

Solving;



 M1







Other roots are;  and  A1 A1

12



Let  M1



Let 

 M1

 B1

Let  M1

 B1



Coefficient of 

 M1



 B1

 M1 B1

 M1  M1

 B1

12

1. (a) 





 B1



Using:



 M1 A1

Or



(b) line :

 B1

Line 

 B1

At the point of intersection



 M1

 (i) B1

 (ii) B1

 (iii) B1

Solving (i) and (ii)

1. (ii) M1





From (i)

 M1





From:







The lines intersect. B1

12

1. 
2. (i) Horizontal asymptote.

A1 A1

is a horizontal asymptote and  are vertical asymptote

Vertical asymptote

For stationary points,

(ii)  B1





or

Stationary points are;

(1, 0) and  A1 A1

Nature of turning point.



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | L | I | R | L | S | R |
| Sign of | + | 0 |  |  | 0 | + |

Max Min

Point (1, 0) is a maximum and (5,) is a minimum. B1

B1

1. Intercepts of the curve and axes

- intercepts occurs for y = 0,  either B1

or

 – intercept occurs when , 

Now As 

As 

y = 1 is a horizontal asymptote.

Intercept of curve and the line y = 1





Point (3, 1) B1

Sketch of the curve.

y

5

4

3

B1 2 B1

1

x

6 5 4 3 2 1 x1 2 3 4 5 6

-1

-2 B1 12

-3

-4



1. (a)

 M1

 M1

 B1



 B1

As 

B1 A1



(b)

 M1



 M1





 B1

Recall that:



 B1

 M1

 B1

12

**E N D**