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**JINJA JOINT EXAMINATIONS BOARD**

**MARKING GUIDE 2019**

**P425/2 FOR PAPER 2 MATHEMATICS**

SECTION A (40 MARKS)

1. P(2R, 1G) = p(RRG) + P(RGR) + p(GRR)

B1 B1 B1

= M1

= A1

05

1. 90kmh-1 = 90 x

= 25ms-1  B1

R

B1

500g

500g

300

1000g

At maxm speed, tractive force = resistance

Resistance = 500g B1

But max speed =

25 = M1

Power = 28 x 500g

= 122500 warts A1

05

|  |  |  |
| --- | --- | --- |
| 5.4 | 5.56 | 5.7 |
| 1.686 | y | 1.740 |

B1

M1

Y = 1.7148 A1

M1

X = 4.83 A1

05

1. P = 0.25, q = 0.75, n = 80

= np =

= 80 x 0.025 =

= 20 = 3.873 or B1

B1 M1 M1

P(14 x 18) = P

= P(-1.42

= 0.4222 0.1971

= 0.2251 A1

05

VRA

70.5

B1

400

800

B

M1

VR = 393.92 kmh-1 B1

 M1



direction is S90.150 w A1

05

1. But P = 

Pmin = 

= 0.05534 M1

Pmax = 

= 0.04747 M1

Max possible error = ½ [ 0.04747 + 0.05634] M1

= 0.003935 B1

0.0514 P 0.04354 A1

05

B1

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ry | 7 | 9 | 2.5 | 8 | 5.5 | 4 | 2.5 | 1 | 5.5 |
| Rx | 8 | 7.5 | 7.5 | 1 | 5.5 | 5.5 | 3.5 | 3.5 | 2 |
| d | 1 | 1.5 | 5 | 7 | 0 | 1.5 | 1 | 2.5 | 3.5 |
| d2 | 1 | 2.25 | 25 | 49 | 0 | 2.25 | 1 | 6.25 | 12.25 |

 2 = 99 B1

rs = 1 M1

= 0.175 A1

Comment: there is a positive partial correlation A1

05

R 

F 600 B1

10g

: R +  M1

R = 49

: F =  M1

Since particle does not move; F R

 M1

Minimum value of µ = 1/or A1

05

*SECTION B (60 MARKS)*

1. (a) µ = 55, = 8, n = 1000

P(x = P M1

P = (Z

= 0.5 – 0.4772 M1

= 0.0228 B1

No of A - passes awarded = 0.0228 x 1000 M1

= 22.8 A1

(b) (i) P(x = 0.15

M1

P(x = P(Z )= 0.15

But Z0.35 = 1.03 B1

 M1

 A1

(ii) P = 0.85, q = 0.15, n = 2 B1

P(x = 2) = M1

= 0.7225 A1

12

1. (a)

B1

T T

3

4

Pick 4k : 4 – T = 4-----------(i) M1

Pick 3k : T – 3 = 3-----------(ii)

(I) + (II) M1

1. = 9.8/7

= 1.4ms-2  A1

1. 

= 33.6N A1

(b) when 3kg picks up 2 kg, the total momentum of the whole system is

conserved,

if V is the speed after total pick up

4V + 3V = (4 + 5) V1 M1

7 x 9 = 9V1

V1 = 7ms-1 A1

(ii) let the 5kg mass rise a distance h from A

V1

T1 B1

T1

V1

5g

4g

Equations of T2 – 4 = 41-----------(iii) M1

Motion :

5 – T2 = 51------------(iv)

(III) + (IV)

= 91

1 = 9.8/9

= 1.0889 ms-2, retardation B1

Using V2 = u2 + 2s,

O2 = 72 2x h M1

9

h = 22.5m A1

12

1. (b) Let

M1

B1

= 0.922 M1

A1 B1

= 0.9175 e = 0.0045

 root = 0.92 A1

12

P (x =

 B1

B1

 M1

A1

A1

(ii) P(

= M1

= A1

1. M1

A1

1. E(x) = 

= M1

= M1

= 3.3727 A1

12

1. (a) ,

Fˈ( M1

M1

=

= B1

n = 0

Read : x0

Is

?

Print

n = n+1

(b) (i)

B1

B1

B1

B1

No

B1

Yes

B1

(ii)

|  |  |  |  |
| --- | --- | --- | --- |
| n |  |  | ( |
| 0  1  2 | 0.5  0.5299  0.5293 | 0.5299  0.5293  0.5293 | 0.0299  0.0006  0.0000 |

B1

B1

root = 0.53 A1

12

1. (a)

D 3N C

1200 300

B1

1N 2 N 5N

300

300 600 X Rx

A 6N B Q

Ry R

Rx = M1

= 3N B1

Ry = M1

= N B1

R = M1 and

= 3.4641N A1 = 300

Resultant = 3.4641N at 300 with AB ie 300 to AB on opposite side to D

and C A1

M1 M1

(b) M(A) : 3 Ry AX M1

3 AX

AX = 6.5m A1

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Distance | f | X | Xf | X2F | F |
| 31 – 40  41 – 45  46 – 50  51 – 55  56 – 57  58 – 60  61 – 70  71 – 90 | 10  15  20  70  64  24  20  10 | 35.5  43  48  53  56.5  59  65.5  80.5 | 355  645  960  3710  3616  1416  1310  805 | 12,602.5  27,735  46,080  196,630  204,304  83,544  85,805  64,802.5 | 10  25  45  115  179  203  223  233 |
| sum | 233 |  | 12817 | 721,503 |  |

B1 B1 B1

1. S.D = M1

= 8.4044 A1

1. (a) y v

450

2m 4m

1m

B1

= =

------

When

B1

From equation

M1

B1

(b) (i) when

M1

= 4.5933 or 1.39333

hence ball strikes ground 0.59m beyond the wall

A1

(ii) using

B1

From equation

= M1

B1

velocity = 8.5ms-1 , direction is 61.90 below the horizontal A1

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