**2020 FORM 4 TERM 1 ENTRY EXAMS**

 **PP2 Marking Scheme**

SECTION 1

1. No log Log

4.4497 $\overline{1}$.5650÷2 0.6529+ m1

0.3673 $\overline{1}$. 7825

 0.4354

1-cos 81.53 $ 1-8527 ⇐ $ $\overline{1}$ .9308 m1

3.196 0.5046

$\overline{1}$.5650 - 2 + 1.5650 m1

 2 2 A1

1. a+ 4d + a +5d=300 B1 simultaneous equation formed

2a+9d=300 (i)

a+2d=5 (ii)

2a+9d=30

2a+4d=10 M1 attempt to solve

 5d=20

 d=4

a+2x4=5

a=5-8=-3 A1

1. t2= (2y x 1)2

 2yk+k

t2(2ky +k)= (2y + 1)2 m1

2ky + k= (2y + 1)2 m1

 t2

k(2y + 1)=(2y+1)2

t 2

k=2y+1

 t2 A1

1. let log x be a

2+a2 =3a m1

a2 -3a+2=0

a2-2a –a +2=0

a(a-2)-1(1-2)=0 m1

a=1 a=2.

Log x=1 log x=2

X=10 x=100 A1

1. A.E =(4.5 + 6.25 + 9.505)-(3.5 + 6.15 + 9.495) m1

 2

=20.255-19.145=1.11

 2 2 m1

=0.555

% error=0.555 x100

 19.7

 =2.32% A1

1. QR = 8

Sin 100 sin 350

QR=8 sin 1000= 13.74cm B1

 Sin 35o

Area = ½x13.74 x 8 sin 450 m1

=38.86cm2 A1

1. (a) 1+ 6(2x)1 + 15 (2x)2 + 20(2x)3 m1

1+12x + 60x2 +160 x3 A1

b) 1+2x = 0.98

x=0.01 m1

1+12(0.01 ) + 60(0.01)2+160 (0.01)

1+ 0.12+0.006 + 0.00016

=1.1262(4 d.p) A1

1. AP x BP = CP x DP

9 x 3 = ( 8 + X)X

X2 +8X -27 =0

$$X= \frac{-8 \pm \sqrt{64+108}}{2}$$

$$=\frac{-8 \pm \sqrt{172}}{2}$$

$$=\frac{-8\pm 13.11}{2}$$

=2.557

1. (5-x)4 -6x=0 m1

20-4x – 6x =0

20-10x=10

20=10x

X=2 A1

1. $ 6\sqrt{7}+6\sqrt{2}=3\sqrt{7}+3\sqrt{2}$ 6&7+6&2=3&7+3&2 m1

 $4\sqrt{2}$ +$2\sqrt{7}$ $2\sqrt{2}+\sqrt{7}$

=$3\sqrt{7}+3\sqrt{2}$ ($\sqrt{2}$ – $\sqrt{7 )}$ m1

 $2\sqrt{2+ \sqrt{7}}$ ($\sqrt{2}$ - $\sqrt{7}$)

=$6\sqrt{14}$ - 2+12-3$\sqrt{14}$

 8 - 7

=3$\sqrt{14}$ - 9 A1

1. X2 + y2 – 4x+6y-3=0

X2-4x+4 + y2+6y +9=3+4+9 m1

(x-2)2 +(y+3)2=16 m1

Centre (2,-3) radius=4 A1

1. 0.92x x 0.88x = 121,440 m1

X90.92 x 0.88)= 121,440

 0.92x0.88 m1

X=sh.150,000 A1

1. C=hA+KA2

20=2h+4k m1

21=3h+9k

K=-3 h=16

C=16a-3a2

64-48

=16 A1

1. X+6 ½ X=180O m1

X + $\frac{13}{2}X$ =180O

2X + 13X =360O m1

X =24O

$\frac{360}{24}=15 Sides$ A1

1. X:y=2:3

(5x-2y) :(x-y) m

(5(2) – 2(3): (2+3) m1

(10-6):(5) m1

4:5 A1

 **SECTION II**

1. Without profit

Cost = 150= sh 120 m1

 1.25

112x +132 y=120

 X+y

112x + 132 y = 120

 X+y

112x + 132 y=120 x+120 y m1

12y = 8x

12 = x

8 y

x:y=3:2 A1

1. a)38300 + 1200 + 3600 m1

 53900 x 12 = k£ 32,340 pa A1

 20

b) 32,340

8800 x2=17600 m1

8000 x 3= 24,000

8000 x 5= 40,000

6540 x 7= 45,780 m1

 127,380 m1

Monthly = 127,380 = 10,615 m1

 12

Less ……. 1172

 9443 m1

c) 3/100 x 4600 = 198 m1

 = 9,245

Total deduction (9245 + 776 + 4600 + 4200) m1

Sh.28,821

Net pay = 53900-28821 m1

=sh.25079 A1

1. (a)



(b)(i) P(both red) 5/12x 4/11=5/33 M1 A1

(ii)P(same colour) m1

5/12 x 4/11 or 4/12 x 2/11 or 4/12 x 3/11 m1

=19 /66 A1

(iii) P(no red)

3/12 x 2/11 or 3/12 x 4/11 or 4/12 3/11 or 4/12 3/11 m1

=7/22 A1

1. (a)(i) OS =2/5 q

(ii) PQ=q-p B1

(iii) OR = 3/4p + ¼ q B1

(b) OT=h (3/4p + 1/4q) B1

OT=p +k (2/5 q – p) B1

3/4hp + 1/4hq = 1/4hq=p+2/5kq –kp B1

3/4h = 1-k h/4=2/5k B1

3/4h (8k/5) (1-k)

6k/5 = 5-5k B1

11k=5

K=5/11  B1

11=8/11

PT:T=5/11:6/11

5:6 A1

1. (a)(i)$<$ORS = 400

(ii) $<$USP=800(50+30)0

(iii)$ <$<QR= 180-50=1300

(b)(ST)2=PT:RT

(9)2=PT=7cm

PT=81/7=11.6(3s.f)

11.6-7=4.6 A1

c)4.6=2R m1

Sin 500 m1

=3.00 A1

1. (a) nth= arn-1

a x ar x ar2=64 m1

a3r3=64

r3 =64/a3 m1

r=4/a A1

(b)a + ar + ar2=14 B1

a+a(4/a) + a(4/a)2=14 m1

a+ 4+16/a=14

a2 + 4a + 16 =149 a=2 r=2 B1

a2-10a + 16 =0 a=8 r=½ B1

a2 -8a -2a + 16=0

a(a-8) -2(a-8)=0

a=2 or 8

r=4/8 or 4/2 ½or2

r=½=8,4,2,1,or A1

r=2=2,4,8,18

(c)S50= a(1-rn) r$<1$1

 1-r m1

 a(rn-1) r$>$ 1

 1-r

 2(ss-1) = 62 A1

 2-1

1. a) 150,000 m1

 120,000

270,000cm3/min 270 c/min m1

 = 18,900 70min A1

 270

b) (i) 270 l/min x 25

=6,750 litres by one m1

He opened to his custom m1

18,900- 6750 = 12,150 litres m1

Rate of filling = 270-20=250 m1

483/5min A1

ii) 542 x 25= 13,550 m1

 + 6300

 19,850 A1

1. $P=\frac{kQ}{r^{2}}$ m1

$9= \frac{12k}{2^{2}}$= 12k/2^2

$k=\frac{9}{3} =3$ A1

$P= \frac{3(15)}{25}$ M1

$P=1.8$ A1

$P=\frac{KQ}{r^{2}}$

$$\frac{pr^{2}}{3}=q$$

New P = 1.2 p

1. 