MATHS

BOOKS - CAMBRIDGE MATHS (KANNADA ENGLISH)

MODEL QUESTION PAPER 7

Questions

1. If the H.C.F. of 65 and 117 is expressible in the form of 65m - 117, then the value of m is

A. 4

B. 3

C. 11

D. 2

Answer: B

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2. If $\sin x = \sin 60^\circ \cos 30^\circ - \cos 60^\circ \sin 30^\circ$, then the value of x is

A. 0°

B. 30°

C. 45°

D. 60°

Answer: C

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3. The angle between the radius of a circle and the tangent drawn at the point of contact is

A. 0°

B. 60°

C. 90°

D. 30°

Answer:

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4. The T.S.A. of a cuboid of dimension, $l = 30cm, b = 20cm, c = 10cm$, is ____

A. $600cm^2$

B. $60cm^2$

C. $6000cm^2$

D. $2200cm^2$

Answer:

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5. Which of the following is a polynomial

A. $x^2 - 5x + 3\sqrt{x}$

B. $x^{1/2} + x^{1/2} - x + 1$

C. $\sqrt{x} - \frac{1}{\sqrt{x}}$

D. $x^2 - 4x + \sqrt{2}$

Answer: B::D

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6. The value of p is x, $2x + p$ and $3x + 6$ are in A.P.

A. $p = 3$

B. $p = 2$

C. $p = 1$

D. $p = 0$

Answer: C

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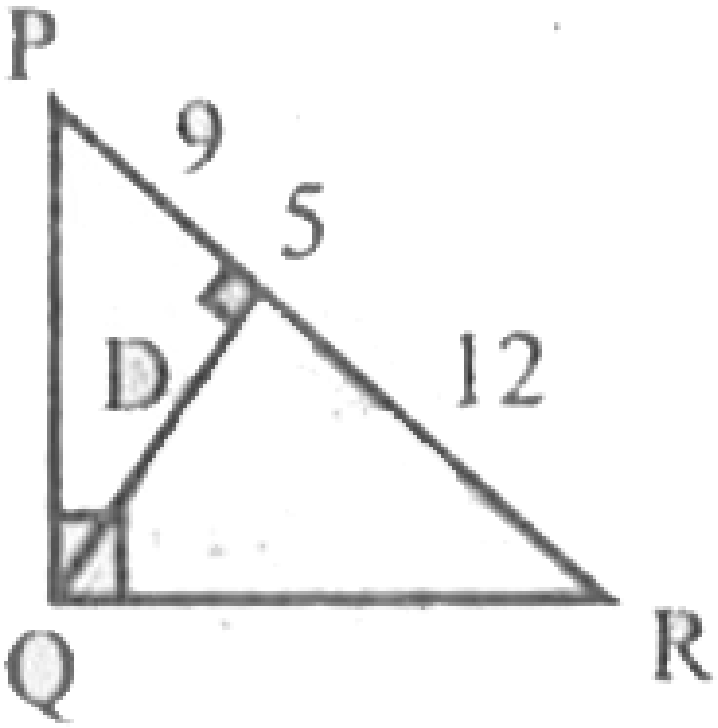
7. In triangle PQR, The value of y is



A. $4\sqrt{3}$

B. $6\sqrt{3}$

C. $5\sqrt{3}$

D. $\sqrt{3}$

Answer: C

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8. When 2 unbiased coins are tossed at a time, the probability of getting 2 heads is _____

A. $\frac{1}{4}$

B. $\frac{1}{2}$

C. 1

D. 0

Answer: A::D

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9. If the product of zeroes of polynomial f(y) $= ay^3 - 6y^2 + 11y - 6$ is 4 then find the value of 'a'.

A.

B.

C.

D.

Answer: $a = \frac{3}{2}$

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10. What is the value of C, if $ax^2 + bx + c = 0$ has equal roots ?

A.

B.

C.

D.

Answer: $c = \frac{b^2}{4a}$

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11. Find the second term if sum of the 'n' tem of an AP is $2n^2 + 1$.

A.

B.

C.

D.

Answer: 6

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12. State converse of Pythagoras Theorem.

A.

B.

C.

D.

Answer:

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13. What is the $\frac{p}{q}(p, q \in z, q \neq 0)$ form of $0.5\bar{7}$?

A.

B.

C.

D.

Answer: $\frac{26}{45}$

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14. If $\sin\theta = \frac{1}{3}$, then find the value of $\left(2\cot^2\theta + 2\right)$

A.

B.

C.

D.

Answer: 18

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15. In $\sin(A+B) = \frac{\sqrt{3}}{2}$ and $\cos(A-B) = 1, 0 < A+B < 90^\circ, A \geq B.$

A.

B.

C.

D.

Answer: $A = 30^\circ, B = 30^\circ$

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16. The surface area of a sphere is same as the C.S.A of a right circular cylinder whose height and diameter are 4 cm each. Find the radius of the sphere.

A.

B.

C.

D.

Answer: $\therefore$ **Radius of the sphere** $= 2$**cm.**

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17. By Euclid's division lemma, show that the square of any positive integer is either of the form 3m or $3m + 1$ for some integer m.

A.

B.

C.

D.

Answer: $3m + 1$**, where** $m = 3q^2 + 4q + 1$

Hence, it is proved.

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18. Solve: $\frac{x+y}{xy} = 2$ and $\frac{x-y}{xy} = 6$

A.

B.

C.

D.

Answer: $\therefore \ = \frac{-1}{2}$ and $y = \frac{1}{4}$

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19. Solve : $y^2 - (\sqrt{3}+1)y + \sqrt{3} = 0$

A.

B.

C.

D.

Answer: $y = \sqrt{3}$ **and** $y = 1$

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20. Show that the points (3, 2) (-2, -3) and (2, 3) are collinear or non-collinear.

A.

B.

C.

D.

Answer: $\therefore$ **They are non - collinear.**

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21. In the given fig $\Delta DGH \sim \Delta DEF, DH = 8cm, DF = 12cm, DG = (3x - 1)$ cm and $DE = (4x + 2)$cm, Find the lengths of DG and DE.

OR

D is a point on the side BC of ΔABC such that $\lfloor ADC = \lfloor BAC$. Prove that $\frac{CA}{CD} = \frac{CB}{CA}$.

A.

B.

C.

D.

Answer: $\therefore DG = 3x - 1 = 3 \times 7 - 1 = 21 - 1 = 20$

$DE = 4x + 2 = 4 \times 7 + 2 = 28 + 2 = 30$

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22. A card is drawn at random from a box containing 21 cards numbered 1 to 21. Find the probability that the card drawn is

a) Prime number

b) Divisible by 3.

A.

B.

C.

D.

Answer: a) $\frac{8}{21}$

b) $\frac{2}{7}$

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23. Draw a circle of radius 3cms. Construct a pair of tangents to it, from a point 5cm away from the circle.

A.

B.

C.

D.

Answer: $r = 3cm \quad d = 3 + 5 = 8cm$

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24. Express sinA and sec A in terms of cot A.

OR

If $\tan\theta + \sin\theta = m$ and $\tan\theta - \sin\theta = n,$ S.T $m^2 - n^2 = 4\sqrt{mn}$

A.

B.

C.

D.

Answer: $\sec A = \dfrac{\sqrt{1+\cot^2 A}}{\cot A}$

OR

$= 4\sqrt{mn}$

$=$ **RHS.**

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25. The sum of the numerator and decominator of a fraction is 24. If 4 is subtracted from the numerator and 5 from its denominator, then it reduces to $\frac{1}{4}$. Find the fraction.

OR

The women and five men can together finish an embroidary work in 4 days. While three women and 6 men can finish in 3 days. Find the time taken by one women alone and also that taken by one man alone.

A.

B.

C.

D.

Answer: $\therefore$ **The fraction is** $\frac{x}{y} = \frac{7}{17}$

OR

Thus, 1 woman alone can finish the embroidery in 18 days and 1 man alone can finish it in 36 days.

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26. If the zeroes of the polynomial $x^4 - 6x^3 - 26x^2 + 138x - 35$ are $2 \pm \sqrt{3}$ Find other zeroes.

A.

B.

C.

D.

Answer: $\therefore$ **The other two zeroes are 7, -5.**

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27. A two digit number is such that the product of its digits is 18. when 63 is subtracted from the number, the digits interchange their places. Find the number.

OR

A plane left 30 minutes later than the scheduled time and in order to reach its destination 1500 km away in time it has to

increase its spedd by 250 km/hr from its usual speed. Find its usual speed.

A.

B.

C.

D.

Answer: 92

OR

Hence, the usual speed of the plane $= 750$ **km/hr.**

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28. If the co - ordinates of the mid points of ΔABC are $D(1, 2)E(0, -1)$ and F(2, -1). Find the respective co -

ordinates of ΔABC.

OR

Find the length of the median through the vertex A(5, 1) drawn to the triangle ABC where other two vertices are B(1, 5) and $C(-3, -1)$

A.

B.

C.

D.

Answer: $\therefore A(x_1y_1) = A(4, -1)$

$B(x_2y_2) = B(0, -1)$

$C(x_3y_3) = C(0, -1)$

OR

$\therefore$ **Length of median** $= \sqrt{37}$

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29. Prove that the tangents drawn from an external point are equal.

A.

B.

C.

D.

Answer:

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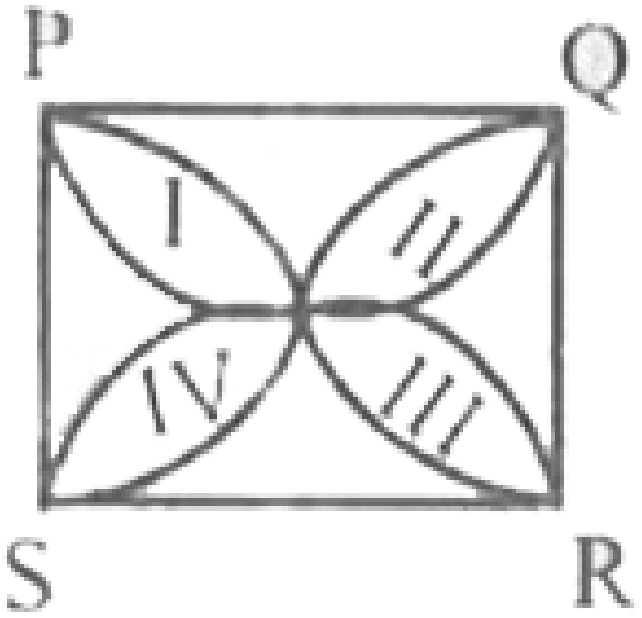
30. If a chord of circle of radius 10cm subtend an angle of 60° at the centre of the circle. Find the area of the

corresponding segment of the circle. (Take $p = 3.14, \sqrt{3} = 1.7$)

OR

Find the area of the shaded region where PQRS is a square of side 10cms and semicircles are drawn with each side of square as diameter.



A.

B.

C.

D.

Answer: $9.83cm^2$

OR

$43cm^2$

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31. Find the mean of the following frequency distribution.

Classes :	$0-20$	$20-40$	$40-60$	$60-80$	$80-100$
Frequency :	15	18	21	29	17

A.

B.

C.

D.

Answer: Mean $= 50 + 3 = 53$

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32. Construct a triangle of sides 4 cm, 5 cm and 6 cm and then a triangle similar to it whose sides are $\frac{2}{3}$ of the corresponding sides of the first triangle.

A.

B.

C.

D.

Answer:

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33. Solve the pair of equations graphically.

$4x - 3y + 4 = 0$

$4x + 3y - 20 = 0$

A.

B.

C.

D.

Answer:

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34. How many terms of the series 93 + 90 + 87 + ... amounts to 975. Find also the last term.

OR

If m times the m^{th} term of an A.P is equal to n times its n^{th} term, show that $(m+n)^{th}$ term is zero.

A.

B.

C.

D.

Answer: $T_{13} = 57$

OR

$m = n, T_{m+n} = 0$

But $m \neq n$

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35. A tower is 50cm high. Its shadow is x mtrs shorter when the suns altitude is 45° than when it is 30°. Find the value of x.

A.

B.

C.

D.

Answer: $36.6m$

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36. In a right angled triangle , square on the hypotenuse is equal to sum of the squares on the other sides. Prove the statement.

A.

B.

C.

D.

Answer:

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37. The height of cone is 20m. A small cone is cut off from it at its top by the plane parallel to the base. If the volume of

small cone is $\frac{1}{1000}$ th of the volume of given conc, at what height above the base the section is made.

A.

B.

C.

D.

Answer: 18 m

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