Odisha Board Class 10 Maths Part 1 Sample Paper 2014

Roll No.....

MATHEMATICS (REGULAR) (PART - I)

SAMPLE QUESTION PAPER FOR HSC EXAMINATION, 2014

Time : 60 minutes **Total Marks - 50**

INSTRUCTIONS :

1. **50 multiple choice questions (MCQ) are given in part (A). All the questions are compulsory. Each question carries 1 mark.**

2. **For each question select the correct alternative from four given alternatives to answer the question and darken the circle O as ● by ball pen (Blue / Black) against the alphabet corresponding to that alternative in the given OMR sheet.**

[Space for rough work]

1. $2x+3y = 7$ ଏବଂ $3x + 2y = 3$ ସହ ସମୀକରଣଦ୍ୱୟର ସମାଧାନରୁ $x - y$ କେତେ ?

   From the solutions of simultaneous equations $2x+3y = 7$ and $3x + 2y = 3$, what is the value of $x - y$?

   (A) 4 (B) – 4 (C) 2 (D) – 2

2. $x + y - 1 = 0$ ଏବଂ $2x + 2y = 2$ ସହ ସମୀକରଣ ଦ୍ୱୟର ସମାଧାନ ସେଟ୍, ନିମ୍ନୋକ୍ତ ମଧ୍ୟରୁ କେଉଁଟି ?

   Which is the solution set of the simultaneous equations $x+y-1 = 0$ and $2x+2y = 2$ from the following ?

   (A) {(1,0)} (B) {(0,1)} (C) ଶୂନ୍ୟସେଟ୍ (Empty set)(D) ଅସୀମସେଟ୍ (Infinite set)

3. x ଓ y ଯଥାକ୍ରମେ ଗୋଟିଏ ଦୁଇ ଅଙ୍କ ବିଶିଷ୍ଟ ସଂଖ୍ୟାର ଏକକ ଏବଂ ଦଶକ ସ୍ଥାନୀୟ ଅଙ୍କ । ଯଦି ସଂଖ୍ୟାଟି ଅଙ୍କଦ୍ୱୟର ସମଷ୍ଟିର 3 ଗୁଣ ହୋଇଥାଏ, ତେବେ .....

   The unit's and ten's place digit of a two digit number is x and y respectively. If the number is three times the sum of the digits of the number then ..... ।

   (A) $x + 10y = 3x$ (B) $10x + y = 3(x+y)$

   (C) $10y + x = 3(x+y)$ (D) $3(10y + x) = x + y$

4. 'k'ର କେଉଁ ମାନ ପାଇଁ $3x + ky - 9 = 0$ ଏବଂ $x + 2y - 3 = 0$ ସହ-ସମୀକରଣଦ୍ୱୟ ସଂଗତ ଏବଂ ନିର୍ଭରଶୀଳ ହେବେ ?

   For which value of 'k' the simultaneous equations $3x + ky - 9 = 0$ and $x + 2y - 3 = 0$ are consistent and independent ?

   (A) –2 (B) 2 (C) 6 (D) –6

5. $x^2 + ax - 8 = 0$ ଦ୍ୱିଘାତ ସମୀକରଣର ଗୋଟିଏ ବୀଜ '4' ହେଲେ, 'a' ର ମାନ କେତେ ?

If '4' is a root of the quadratic equation $x^2 + ax - 8 = 0$, then the value of 'a' ..... ।

(A) 2 (B) 4 (C) –2 (D) –4

6. $5x^2 - 6x + 1 = 0$ ଦ୍ୱିଘାତ ସମୀକରଣର ବୀଜଦ୍ୱୟର ସ୍ୱରୂପ କ'ଣ ?

(A) ବୀଜଦ୍ୱୟ ବାସ୍ତବ ଏବଂ ସମାନ (B) ବୀଜଦ୍ୱୟ ବାସ୍ତବ ଓ ଅସମାନ

(C) ବୀଜଦ୍ୱୟ ଅବାସ୍ତବ (D) ଏଥିମଧ୍ୟରୁ କୌଣସିଟି ନୁହେଁ ।

What is the nature of the roots of the quadratic equation $5x^2 - 6x + 1 = 0$?

(A) roots are real and equal (B) roots are real and unequal

(C) roots are not real (D) None of the above.

7. $3x^2 - x - 2 = 0$ ସମୀକରଣର ବୀଜଦ୍ୱୟ α ଓ β ହେଲେ $\alpha^{-1} + \beta^{-1}$ ର ମାନ ..... ।

If α and β are the roots of the quadratic equation $3x^2 - x - 2 = 0$ then the value of $\alpha^{-1} + \beta^{-1}$ ..... ।

(A) 1 (B) $\frac{1}{2}$ (C) $-\frac{1}{2}$ (D) – 1

8. 'k' ର କେଉଁ ମାନ ପାଇଁ $kx^2 - 4x - 4 = 0$ ର ପ୍ରଭେଦକ 64 ହେବ ?

For which value of 'k' the discriminant of $kx^2 - 4x - 4 = 0$ is 64 ?

(A) 1 (B) –3 (C) 3 (D) 5

9. ଯଦି $2k + 1$, 13 ଓ $5k - 3$ ଏକ A.P. ର କ୍ରମିକ ପଦ ହୁଅନ୍ତି, ତେବେ k = ... ।

If $2k + 1$, 13 and $5k - 3$ are three consecutive terms of an A.P. then k = ...।

(A) 17 (B) 13 (C) 4 (D) 9

10. ଯଦି 3, 5, 7, 9,..... A.P. ର n ସଂଖ୍ୟକ ପଦର ଯୋଗଫଳ 288 ହୁଏ ତେବେ n = ... ।

If S_n of an A.P. 3, 5, 7, 9,..... is 288 then n = ...।

(A) 16 (B) 15 (C) 12 (D) 17

11. 8, 11, 14, 17....A.P. ର କେଉଁ ପଦଟି 272 ?

Which term of the A.P. 8, 11, 14, 17..... is 272 ?

(A) 72 (B) 73 (C) 70 (D) 89

[Space for rough work]

12. ଯଦି ଗୋଟିଏ A.P. ର $S_n = 2n^2 + 3n$ ହୁଏ ତେବେ A.P. ର ସାଧାରଣ ଅନ୍ତର .....।

If Sn of an A.P. is $2n^2 + 3n$ then the common difference of the A.P. is .....।

(A) 13 (B) 4 (C) 9 (D) – 2

13. 'A' ଏକ ଘଟଣା ପାଇଁ $P(A) : P(\overline{A}) = 3:4$ ହେଲେ P(A) .....।

If 'A' is an event and $P(A) : P(\overline{A}) = 3:4$ the P(A) = ...।

(A) $\frac{1}{3}$ (B) $\frac{3}{7}$ (C) $\frac{3}{4}$ (D) $\frac{4}{7}$

14. k ଏକ ଘଟଣା ହେଲେ, k ର ସମ୍ଭାବ୍ୟତା P(k) ..... ।

The probability of the event k is .....।

(A) $0 \geq P(k) \geq 1$ (B) $0 \leq P(k) \leq 1$

(C) $0 > P(k) > 1$ (D) $0 < P(k) < 1$

15. ଗୋଟିଏ ଅପ୍ରବଣ ମୁଦ୍ରାକୁ ତିନିଥର ଟସ୍ କଲେ ସମ୍ଭାବ୍ୟ ଫଳାଫଳ ସଂଖ୍ୟା ..... ।

An unbiased coin is tossed thrice. Then the number of total outcomes is .....।

(A) 2 (B) 4 (C) 6 (D) 8

16. ଦୁଇଟି ଲୁଡୁଗୋଟିକୁ ଗୋଟିକ ପରେ ଗୋଟିଏ ଗଡ଼ାଇଲେ ଦୁଇ ଲୁଡୁ ଗୋଟିରେ ମୌଳିକ ସଂଖ୍ୟା ଆସିବାର ସମ୍ଭାବ୍ୟତା .....।

Two balanced dice are rolled simultaneously. Then the probability that the numbers coming on both the dice are prime is .....।

(A) $\frac{2}{9}$ (B) $\frac{1}{4}$ (C) $\frac{1}{3}$ (D) $\frac{1}{6}$

17. ଦଶଗୋଟି ଲବ୍‌ଧାଙ୍କର ମାଧ୍ୟମାନ 15.7 । ଯଦି 19 ଲବ୍‌ଧାଙ୍କକୁ ଦତ୍ତ ତଥ୍ୟାବଳୀ ସହ ସାମିଲ କରାଯାଏ ତେବେ ନୂତନ ମାଧ୍ୟମାନ ..... ।

The mean of 10 observations is 15.7. If a new observation 19 is included, then new mean is .....।

(A) 17.6 (B) 16 (C) 13.8 (D) 34.7

18. ଗୋଟିଏ ତଥ୍ୟାବଳୀର ମାଧ୍ୟମାନ = ଗରିଷ୍ଠକ – 3 ଏବଂ ମଧ୍ୟମା = 22 ହେଲେ,

ମାଧ୍ୟମାନ = ... ।

If mean = mode – 3 and median = 22 of given data then mean = ...।

(A) 19 (B) 21 (C) 24 (D) 23

[Space for rough work]

19. ଗୋଟିଏ ବାରମ୍ବାରତା ବିତରଣ ସାରଣୀରେ ଚତୁର୍ଥ ସମ୍ବାଗର ରାଶିକୃତ ବାରମ୍ବାରତା 25 ଏବଂ ଚତୁର୍ଥ ସଂଭାଗର ବାରମ୍ବାରତା 10 ହେଲେ, ତୃତୀୟ ସଂଭାଗର ରାଶିକୃତ ବାରମ୍ବାରତା .....।

For a given frequency distribution, the cumulative frequency of the fourth class is 25 and the frequency of the fourth class is 10. Then the cumulative frequency of the third class is .....।

(A) 32 (B) 22 (C) 20 (D) 15

20. ଗୋଟିଏ ବାରମ୍ବାରତା ବିତରଣ ସାରଣୀରୁ ମିଳିଥିବା ତଥ୍ୟ ଅନୁଯାୟୀ $\Sigma f_i d_i = -50$, $\Sigma f_i = 200$ ଏବଂ ଆରମ୍ଭ ବିନ୍ଦୁ A = 62.5. ହେଲେ ତଥ୍ୟାବଳୀର ମାଧ୍ୟମାନ ..... ।

For a given frequency distribution $\Sigma f_i d_i = -50$, $\Sigma f_i = 200$ and assumed mean A = 62.5. Then the mean of the frequency distribution is .....।

(A) 62.25 (B) 64.45 (C) 61.2 (D) 61.5

21. ΔABC ର ଶୀର୍ଷବିନ୍ଦୁତ୍ରୟର ସ୍ଥାନାଙ୍କ A (3,4), B(0,0) ଏବଂ C(6,0) ହେଲେ ମଧ୍ୟମା $\overline{AD}$ ର ଦୈର୍ଘ୍ୟ .....।

If the vertices of ΔABC are A (3,4), B(0,0), and C(6,0); then the length of median $\overline{AD}$ is .....।

(A) 6 (B) 5 (C) 4 (D) 3

22. A(3,–6) ଓ B(–2, –1) । $\overline{AB}$ କୁ 3 : 2 ଅନୁପାତରେ ଅନ୍ତର୍ବିଭକ୍ତ କରୁଥିବା P ବିନ୍ଦୁର ସ୍ଥାନାଙ୍କ ..... ।

The co-ordinates of point A and B are A(3,–6) and B(–2, –1). The co-ordinates of P dividing $\overline{AB}$ in the ratio 3:2 is .....।

(A) P(4,–5) (B) P(2,–5) (C) P(1,–4) (D) P(0,–3)

23. ΔABC ର ଶୀର୍ଷବିନ୍ଦୁତ୍ରୟର ସ୍ଥାନାଙ୍କ A(3,0), B(0,3) ଓ C(3,3) ହେଲେ ΔABC କ୍ଷେତ୍ରଫଳ ..... ବର୍ଗ ଏକକ ।

What is the Area of the triangle having vertices A(3,0), B(0,3) and C(3,3)..... in square unit ?

(A) 9 (B) 4.5 (C) 6 (D) 3

24. 'a' ର କେଉଁ ମାନ ପାଇଁ P(3,a) ଏବଂ Q(4,1) ବିନ୍ଦୁ ମଧ୍ୟରେ ଦୂରତା $\sqrt{10}$ ଏକକ ହେବ ?

For what value of 'a', the distance between the points P(3,a) and Q(4,1) is $\sqrt{10}$ unit ?

(A) 4 (B) –3 (C) 2 (D) 0

[Space for rough work]

25. ABCD ଚତୁର୍ଭୁଜର ଶୀର୍ଷବିନ୍ଦୁଗୁଡ଼ିକର ସ୍ଥାନାଙ୍କ A(0,0), B(2,0), C (2,2) ଏବଂ D(0,2) ହେଲେ ଚତୁର୍ଭୁଜଟି ଏକ .....।

(A) ବର୍ଗଚିତ୍ର (B) ରମ୍ବସ୍

(C) ଆୟତଚିତ୍ର (D) ଟ୍ରାପିଜିୟମ୍

If the vertices of ABCD quadrilateral are A(0,0), B(2,0), C (2,2) and D(0,2) then ABCD quadrilateral is a .....।

(A) square (B) Rhombus

(C) Rectangle (D) Trapezium

26. ΔABC ରେ $\angle A$ ର ସମଦ୍ୱିଖଣ୍ଡକ $\overline{BC}$ କୁ D ବିନ୍ଦୁରେ ଛେଦ କରେ । ΔABD ର କ୍ଷେତ୍ରଫଳ ଓ ΔACD ର କ୍ଷେତ୍ରଫଳର ଅନୁପାତ .....।

In ΔABC the bisector of $\angle A$ intersects $\overline{BC}$ at D. Then the ratio of area of ΔABD and area of ΔACD is .....।

(A) AB + AC : AB (B) AB : AC

(C) AC : AB (D) AC + AB : AC

27. ΔABC ରେ $m\angle B = 90^0$, $\overline{BD} \perp \overline{AC}$. ଯଦି AD = 8 ସେ.ମି. ଓ CD = 10 ସେ.ମି. ହୁଏ, ତେବେ $\overline{AB}$ ର ଦୈର୍ଘ୍ୟ .....।

In ΔABC $m\angle B = 90^0$, $\overline{BD} \perp \overline{AC}$. If AD = 8 cm and CD = 10 cm then the length of $\overline{AB}$ = ...।

(A) 14 cm. (B) 16 cm. (C) 12 cm. (D) 9 cm.

28. ଗୋଟିଏ ବୃତ୍ତର ଏକ ଜ୍ୟା, ବୃତ୍ତର ବ୍ୟାସାର୍ଦ୍ଧର $\sqrt{2}$ ଗୁଣ ହେଲେ ବୃତ୍ତର ସଂପୃକ୍ତ କ୍ଷୁଦ୍ରଚାପର ଡିଗ୍ରୀ ପରିମାପ .....।

If the length of chord of a circle is $\sqrt{2}$ times of its radius, then the degree measure of the minor arc is .....।

(A) 30^0 (B) 45^0 (C) 60^0 (D) 90^0

29. 10 ସେ.ମି. ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ ଗୋଟିଏ ବୃତ୍ତରେ ଏକ ଜ୍ୟା ବୃତ୍ତର କେନ୍ଦ୍ରରୁ 6 ସେ.ମି. ଦୂରରେ ଥିଲେ ଜ୍ୟାର ଦୈର୍ଘ୍ୟ.....।

A chord is at a distance of 6 cm from the centre of a circle of radius 10 cm. Then the length of the chord is .....।

(A) 4 cm. (B) 16 cm. (C) 8 cm. (D) 32 cm.

[Space for rough work]

30. ଗୋଟିଏ ବୃତ୍ତର $\overset{\frown}{AXB}$ ର ଡିଗ୍ରୀ ପରିମାପ 140^0 । A ଓ B ଠାରେ ଅଙ୍କିତ ସ୍ପର୍ଶକ ଦ୍ୱୟର ଛେଦବିନ୍ଦୁ P ହେଲେ m∠APB = ...।

The degree measure of $\overset{\frown}{AXB}$ is 140^0 in a circle. If the tangents drawn at A and B intersect at P then m∠APB = ...।

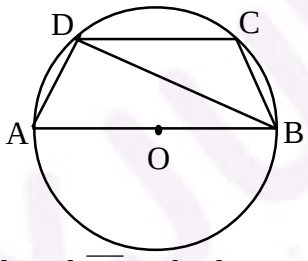
(A) 40^0 (B) 50^0 (C) 20^0 (D) 30^0

31. ଏକ ବୃତ୍ତରେ ପରିଲିଖିତ ଚତୁର୍ଭୁଜର ଦୁଇ ବିପରୀତ ବାହୁର ଦୈର୍ଘ୍ୟର ସମଷ୍ଟି 12 ସେ.ମି. ହେଲେ ଚତୁର୍ଭୁଜର ପରିସୀମା .....।

The sum of the lengths of the two opposite sides of circumscribing quadrilateral of a circle is 12 cm. Then the perimeter of the quadrilateral is .....।

(A) 48 cm. (B) 24 cm. (C) 12 cm. (D) 36 cm.

32. ପାର୍ଶ୍ୱସ୍ଥ ଚିତ୍ରରେ $\overline{AB}$ ବ୍ୟାସ ଏବଂ O ବୃତ୍ତର କେନ୍ଦ୍ର ।



ଯଦି m∠ADC = 118^0 ହୁଏ

ତେବେ, m∠BDC = ... ।

In the given figure 'O' is the centre of the circle and $\overline{AB}$ is the diameter. If m∠ADC = 118^0 then m∠BDC = ... ।

(A) 38^0 (B) 56^0 (C) 28^0 (D) 18^0

33. 'r' ସେ.ମି. ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ ଏକ ବୃତ୍ତରେ ଅନ୍ତର୍ଲିଖିତ ସମବାହୁ ତ୍ରିଭୁଜର ବାହୁର ଦୈର୍ଘ୍ୟ କେତେ ?

The length of the side of an equilateral triangle inscribed in a circle of radius r is .....।

(A) r cm. (B) $\sqrt{2}r$ cm. (C) 2r cm. (D) $\sqrt{3}r$ cm.

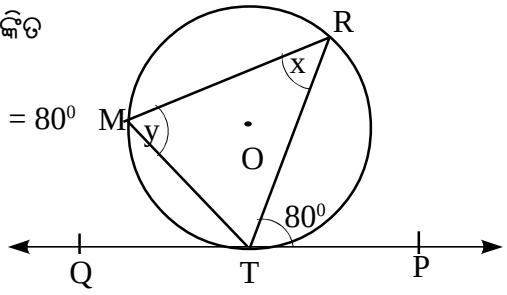
34. 3 ସେ.ମି. ବ୍ୟାସାର୍ଦ୍ଧ ବିଶିଷ୍ଟ ବୃତ୍ତ ପ୍ରତି ବହିଃସ୍ଥ P ବିନ୍ଦୁରୁ ବୃତ୍ତ ପ୍ରତି ଅଙ୍କିତ ସ୍ପର୍ଶକ ଖଣ୍ଡ ଦ୍ୱୟ $\overline{PA}$ ଏବଂ $\overline{PB}$ । m∠APB = 60^0 ହେଲେ $\overline{PA}$ ର ଦୈର୍ଘ୍ୟ ..... ।

$\overline{PA}$ and $\overline{PB}$ are the two tangents segments drawn from an external point 'P' to a circle of radius 3 cm. If m∠APB = 60^0 then the length of $\overline{PA}$ is .....।

(A) 3 cm. (B) $3\sqrt{3}$ cm. (C) $12\sqrt{3}$ cm. (D) 2 cm.

[Space for rough work]

35. ପାର୍ଶ୍ୱସ୍ଥ ଚିତ୍ରରେ ବୃତ୍ତ ପ୍ରତି T ବିନ୍ଦୁରେ ଅଙ୍କିତ ସ୍ପର୍ଶକ $\overleftrightarrow{PQ}$ । $y = 2x$ ଏବଂ $m\angle RTP = 80^0$ ହେଲେ, $m\angle MTR$ = ...।



In the given figure $\overleftrightarrow{PQ}$ is a tangent to the circle at T. If $y = 2x$ and $m\angle RTP = 80^0$ then $m\angle MTR$ = ...।

(A) 60^0 (B) 80^0 (C) 20^0 (D) 40^0

36. ଦୁଇଟି ପରସ୍ପରଚ୍ଛେଦୀ ବୃତ୍ତ ପ୍ରତି ସର୍ବାଧିକ ଅଙ୍କିତ ସ୍ପର୍ଶକ ସଂଖ୍ୟା କେତେ ?

The number of tangents can be drawn to two intersecting circles at most is .....।

(A) 1 (B) 2 (C) 3 (D) ଏଥିରୁ କୌଣସିଟି ନୁହେଁ (None of these)

37. $\Delta ABC \sim \Delta DEF$ ଏବଂ $EF = \frac{1}{3} BC$ ହେଲେ,

ΔABC ର କ୍ଷେତ୍ରଫଳ : ΔDEF ର କ୍ଷେତ୍ରଫଳ = ...।

If $\Delta ABC \sim \Delta DEF$ and $EF = \frac{1}{3} BC$, then

Area of ΔABC : Area of ΔDEF = ...।

(A) 1:9 (B) 1:3 (C) 9:1 (D) 3:1

38. ପାର୍ଶ୍ୱସ୍ଥ ଚିତ୍ରରେ $m\angle PQR = m\angle PRS$ ।

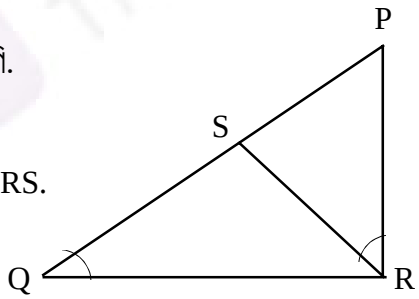
ଯଦି PR = 8 ସେ.ମି. ଏବଂ PS = 4 ସେ.ମି.

ତେବେ PQ = ...।

In the given figure $m\angle PQR = m\angle PRS$.

If PR = 8 cm and PS = 4 cm

then PQ = ...।



(A) 12 cm. (B) 16 cm.

(C) 32 cm. (D) 24 cm.

[Space for rough work]

[Space for rough work]

39. ଗୋଟିଏ କୋନ୍‌ର ଭୂମିର ବ୍ୟାସାର୍ଦ୍ଧ ଏବଂ ବକ୍ର ଉଚ୍ଚତା ଯଥାକ୍ରମେ $\frac{r}{2}$ ସେ.ମି. ଏବଂ ℓ ସେ.ମି. ହେଲେ, ଏହାର ସମଗ୍ର ପୃଷ୍ଠତଳର କ୍ଷେତ୍ରଫଳ କେତେ ବର୍ଗ ସେ.ମି. ?

If the radius of the base and slant height of a cone is $\frac{r}{2}$ cm and ℓ cm respectively, then the total surface area of the cone in square cm. is .....।

(A) $2\pi r\ell$ (B) $\pi r(\ell+r)$ (C) $\pi r\left(\frac{\ell}{2}+\frac{r}{4}\right)$ (D) $2\pi r(\ell + r)$

40. ଦୁଇଟି ଗୋଲକର ଆୟତନର ଅନୁପାତ 64:27 ହେଲେ, ସେମାନଙ୍କର ବ୍ୟାସର ଅନୁପାତ ..... ।

If the ratio of the volumes of two spheres is 64:27 then the ratio of their diameters is .....।

(A) 16:9 (B) 8 :3 (C) 10 : 7 (D) 4 : 3

41. ଯଦି ଗୋଟିଏ ବୃତ୍ତରେ ଏକ ଚାପର ଡିଗ୍ରୀ ପରିମାପ 90^0 ହୁଏ, ତେବେ ଚାପ ଏବଂ ବୃତ୍ତର ପରିଧିର ଅନୁପାତ .....।

If the degree measure of an arc of a circle is 90^0, then the ratio of the arc to its circumference is .....।

(A) 3 : 4 (B) 1:3 (C) 1:4 (D) 2 : 3

42. ଗୋଟିଏ ତ୍ରିଭୁଜାକୃତି ଭୂମି ବିଶିଷ୍ଟ ପ୍ରିଜମ୍‌ର ଭୂମିର କ୍ଷେତ୍ରଫଳ 30 ବର୍ଗ ସେ.ମି. ଏବଂ ଆୟତନ 150 ଘନ ସେ.ମି ହେଲେ ପ୍ରିଜମ୍‌ର ଉଚ୍ଚତା..... ।

The triangular base area of a prism is $30cm^2$. If the volume of the prism is 150 cm^3, then its height is ..... ।

(A) 10 cm (B) 15 cm (C) 5 cm. (D) 20 cm

43. ଗୋଟିଏ ବୃତ୍ତକଳାର କ୍ଷେତ୍ରଫଳ, ସଂପୂର୍ଣ୍ଣ ବୃତ୍ତର କ୍ଷେତ୍ରଫଳର $\frac{5}{18}$ ଅଂଶ ହେଲେ ବୃତ୍ତକଳାର ଚାପର ଡିଗ୍ରୀ ପରିମାପ ..... ।

If the area of a sector of a circle is $\frac{5}{18}$ parts of the area of the circle then, the degree measure of the arc of the sector is .....।

(A) 120^0 (B) 90^0 (C) 60^0 (D) 100^0

44. ଗୋଟିଏ ଗୋଲକର ପୃଷ୍ଠତଳର କ୍ଷେତ୍ରଫଳ 154 ବ.ସେ.ମି. ହେଲେ ଏହାର ବ୍ୟାସାର୍ଦ୍ଧ ସେ.ମି.ରେ ..... । $(\pi \simeq \frac{22}{7})$

If the surface area of a sphere is 154 cm^2 then, the radius of the sphere ..... cm । $(\pi \simeq \frac{22}{7})$

(A) 15 (B) 7.5 (C) 7 (D) 3.5

45. ଗୋଟିଏ ସିଲିଣ୍ଡରାକୃତି ସ୍ତମ୍ଭର ପୃଷ୍ଠତଳର କ୍ଷେତ୍ରଫଳ 264 ବ.ମି. ଏବଂ ଆୟତନ 924 ଘ.ମି. ହେଲେ, ସ୍ତମ୍ଭର ଭୂମିର ବ୍ୟାସ .....।

The curved surface area of a cylindrical pillar is 264 m^2. If the volume of the pillar is 924 m^3 then, diameter of the base is .....।

(A) 14 m. (B) 7 m. (C) 21 m. (D) 10.5 m.

46. $(1+\tan 15^0)(1+\tan 30^0)$ ର ମାନ .....।

The value of $(1+\tan 15^0)(1+\tan 30^0)$ is .....।

(A) 1 (B) 0 (C) –1 (D) 2

47. $\cos(48^0+\theta) \cdot \cos(12^0-\theta) - \sin 48^0+\theta) \cdot \sin(12^0-\theta)$ ର ମାନ .....।

The value of $\cos(48^0+\theta) \cdot \cos(12^0-\theta) - \sin 48^0+\theta) \cdot \sin(12^0-\theta)$ is .....।

(A) $\frac{1}{2}$ (B) $-\frac{1}{2}$ (C) $\frac{\sqrt{3}}{2}$ (D) $-\frac{\sqrt{3}}{2}$

48. $\frac{\sin 162^0 + \cos 153^0}{\cos 72^0 - \cos 27^0}$ ର ମାନ .....।

The value of $\frac{\sin 162^0 + \cos 153^0}{\cos 72^0 - \cos 27^0}$ is .....।

(A) 0 (B) 1 (C) –1 (D) ଏଥିରୁ କୌଣସିଟି ନୁହେଁ (None of these)

49. $\text{cosec}^2(97^0+\alpha) - \cot^2(83^0-\alpha)$ ର ମାନ .....।

The value of $\text{cosec}^2(97^0+\alpha) - \cot^2(83^0-\alpha)$ is .....।

(A) 0 (B) –1 (C) 2 (D)1

50. ଗୋଟିଏ ଅଟ୍ଟାଳିକାର ପାଦଦେଶରୁ x ମି. ଦୂରରେ ଏକ ବିନ୍ଦୁରୁ ଅଟ୍ଟାଳିକାର ଶୀର୍ଷର କୌଣିକ ଉନ୍ନତିର ପରିମାଣ 30^0 ହେଲେ ଅଟ୍ଟାଳିକାର ଉଚ୍ଚତା .....।

The angle of the elevation of the top of the tower from a point x m. away from the tower is 30^0. Then the height of the tower is .....।

(A) x m. (B) $\sqrt{3}$ x m. (C) $\frac{1}{\sqrt{3}}$ x m. (D) $\frac{1}{\sqrt{2}}$ x m.

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[Space for rough work]