

Guess Paper – 2014
Class – X
Subject – MATHEMATICS

(A.P, Circles, Construction, Height & Distances and Probability)

Time allowed: 3hrs

marks: 90

Instructions:- 1. All questions are compulsory. 2. This Q.P consists of 34 questions divided into four sections A,B,C,D. 3. section A is of 1 mark each, section B is of 2 marks each, section C is of 3 marks each, section D is of 4 marks each.

Section A(1 mark each)

Choose the correct option:- sol. 100% success sample q. paper Evergreen

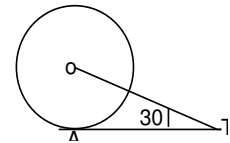
Q1. If 2nd term of an A.P is 13 and the 5th term is 25, what is its 7th term?

- a) 30 b) 33 c) 37 d) 38

Q2. 9th term of the sequence defined by $T_n = (-1)^{n-1} \cdot n^3$ is :

- a) 729 b) - 729 c) 27 d) -27

Q3. In the given fig. **AT** is a tangent to the circle with centre **O** such that **OT = 4cm** and $\angle OTA = 30^\circ$. Then **AT**



is equal to

- a) 4 cm b) 2 cm c) $2\sqrt{3}$ cm d) $4\sqrt{3}$ cm

Q4. A tangent **PQ** at a point **P** of a circle of radius **5cm** meets a line through the centre **O** at a point **Q**, such that **OQ=12cm**. Length of **PQ** is :

- a) 12 cm b) 13 cm c) 8.5 cm d) $\sqrt{119}$

Q5. The distance between the top of two poles **20 m** and **28 m** high is **17 m**. The horizontal distance between the two poles is :

- a) 15 m b) 12 m c) 11 m d) 21 m

Q6. A tree **15 m** tall casts a shadow of **20 m** long. At the same time, a flag pole casts a shadow **100 m** long. Then length of the flag pole is :

- a) 100 m b) 15 m c) 75 m d) 20 m

Q7. Three coins are tossed once. The probability of getting two tails is :

- a) $\frac{5}{8}$ b) $\frac{1}{8}$ c) $\frac{2}{8}$ d) $\frac{3}{8}$

Q8. A card is selected from a deck of **52** cards. The probability of its being a red face card is :

- a) $\frac{1}{2}$ b) $\frac{3}{26}$ c) $\frac{2}{13}$ d) $\frac{3}{13}$

Section B(2 marks each)

Q9. What is the probability, that a leap year selected randomly will have **53** Sundays?

Q10. A kite is flying at a height of **60 m** above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is **60°**. Find the length of the string, assuming that there is no slack in the string.

Q11. The length of a tangent from a point **A** at distances **5 cm** from the centre of the circle is **4 cm**. Find the radius of the circle.

Q12. What is the common difference of an A.P in which **T₁₈ – T₁₄ = 32**?

Q13. What is sum of first **10** terms of the A.P. **2, 7, 12,**?

Q14. Two concentric circles are of radii **5 cm** and **3 cm**. Find the length of the chord of the larger circle which touches the smaller circle.

Section C(3 marks each)

Q15. How many multiples of **4** lie between **10** and **250** ?

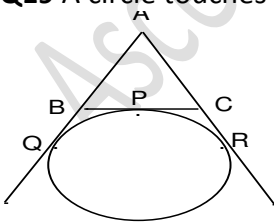
Q16. Find the sum :- **-5 + (-8) + (-11) + ... + (-230)**

Q17. Draw a triangle **ABC** with side **BC = 7 cm**, **AB = 6 cm** and **< ABC = 60°**. Construct a triangle whose

Sides are $\frac{3}{4}$ of the corresponding sides of **ΔABC** .

Q18. Onkar gets pocket money from his father every week and saves **Rs.15** in first week and on each successive week he increases his saving by **Rs. 5**. (i) Find the amount saved by Onkar in one month. (ii) Find the amount saved in one year. (iii) Which quality of Onkar is referred in the given question?

Q19 A circle touches the side **BC** of a **ΔABC** at **P** and **AB** and **AC** when produced at **Q** and **R** respectively



As shown fig. Show that: **AQ = $\frac{1}{2}$ (Perimeter of ΔABC)**

Q20. Prove that the length of the tangents drawn from an external point to a circle are equal.

Q21. The angle of elevation of the top of a vertical tower from a point on the ground is 60° . At a point **40 m** vertically above the first point of observation, the angle of elevation is 30° . Find the height of the tower and the distance between the tower and the first point of observation.

Q22. A card is drawn at random from a well shuffled deck of **52** cards. Find the probability of getting:
(i) a king (ii) a king of red suit.

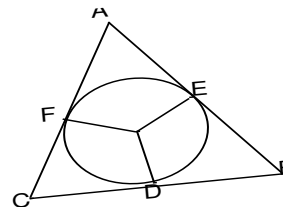
Q23. How many terms of the A.P **3, 5, 7, 9,** must be added to get the sum **120**?

Q24. The angles of elevation of the top of a tower from two points on the ground at distance **a** metres and **b** metres from the base of the tower and in the same straight line are complementary. Prove that the height of the tower is \sqrt{ab}

Section D (4 marks each)

Q25. A **1.5 m** tall boy is standing at some distance from a **30 m** tall building. The angle of elevation from his eyes to the top of the building increases from 30° to 60° as he walks towards the building. Find the distance he walked towards the building.

Q26. A triangle **ABC** is drawn to circumscribe a circle of radius **4 cm**, such that the segments **BD** and **DC** into which **BC** is divided by the point of contact **D** are of lengths **8 cm** and **6 cm** respectively. Find the sides **AB** and **AC**.



Q27. Draw a circle of radius **6 cm**. From a point **10 cm** away from its centre, construct a pair of tangents to the circle and measure their lengths. Write its steps of construction

Q28. Two ships are sailing in the sea on the either side of the lighthouse, the angles of depression of two ships as observed from the top of the lighthouse are 60° and 45° respectively. If the distance between the ship is $200 \left(\frac{\sqrt{3} + 1}{\sqrt{3}} \right)$ metres, find the height of the lighthouse.

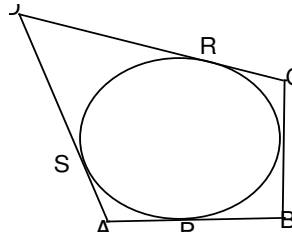
Q29. Cards marked with the numbers 2 to 101 are placed in a box and mixed thoroughly. One card is drawn from this box. Find the probability that the number of the card is: (i) an even number (ii) a number less than 14 (iii) a number which is perfect square (iv) a prime number less than 20

Q30. In a given A.P if p^{th} term is **q** and the q^{th} term is **p**, then show that the n^{th} term is **(p + q - n)**.

Q31. If S_n , the sum of first n terms of an A.P is given by $S_n = (3n^2 - 4n)$, then find its n^{th} term.

Q32. From a pack of 52 playing cards **jacks, queens, kings, and aces** of red colour are removed. From the remaining, a card is drawn at random. Find the probability that the card drawn is: (i) a **black queen** (ii) a **red card** (iii) a **ten**

Q33. A quadrilateral **ABCD** is drawn to circumscribe a circle, as shown in the fig. Prove that **AB+CD=AD+BC**.



Q34. The angle of elevation of a Jet plane from a point **P** on the ground is 60° . After a flight of **15** seconds, the angle of elevation changes to 30° . If the Jet plane is flying at constant height of $1500\sqrt{3}$ m. Find the speed of Jet plane in **km/h**.



 from

S.A-II

Mob:-9934086854

ASCENT COACHING & SPOKEN ENGLISH POINT
Cinema chowk PATORY, (SAMASTIPUR)

Paper Submitted by:

Name **Ashok kumar**
Email **ashokpatory@gmail.com**
Phone No. **9934086854**