

संकलित परीक्षा - II (2015-2016)
SUMMATIVE ASSESSMENT – II
MATHEMATICS / गणित
Class – IX / कक्षा - IX

निर्धारित समय : 3 घण्टे
 Time allowed : 3 hours

अधिकतम अंक : 90
 Maximum Marks : 90

खण्ड-अ / SECTION-A

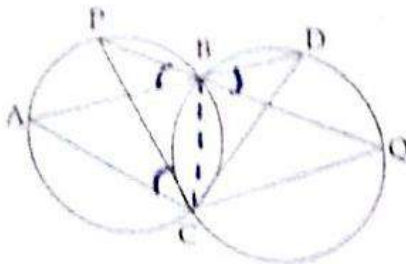
Question numbers 1 to 4 carry one mark each.

- 1 A rectangle and a parallelogram are on same base and between same parallels. If height of parallelogram is 4 cm and length of base of rectangle is 8 cm, find the area of parallelogram. 1
- 2 Find the length of the longest iron rod that can be placed in a room 30 m long, 24 m broad and $12\sqrt{2}$ m high. 1
- 3 If the mean of the observations : $x, x+3, x+5, x+7, x+10$ is 9, find their median. 1
- 4 Find the mode of the data $5, 7, 7, 8, 8, 7, 6, 7, 6$ 1

खण्ड-ब / SECTION-B

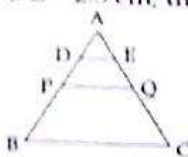
Question numbers 5 to 10 carry two marks each.

- 5 Two circles intersect at two points B and C. Through B, two line segments ABD and PBQ are drawn to intersect the circles at A, D and P, Q respectively as shown in the figure. Prove that $\angle ACP = \angle QCD$. 2



- 6 Draw any acute angle. Name as $\angle XYZ$. Bisect it using compass. 2

In the figure, P and Q are mid-points of the sides AB and AC respectively of $\triangle ABC$. Also, D and E are mid-points of AP and AQ respectively. If $DE = 2.3$ cm, then find the length of BC. 2



- 7 If the circumference of the base of a solid right circular cone is 236 cm and its slant height is 12 cm. Find its curved surface area. 2

9. A die is thrown 100 times and the outcomes are recorded as follows :

Outcome	1	2	3	4	5	6
Frequency	25	20	12	18	15	10

If the die is thrown once again, what is the probability of getting :

- (a) even number.
 (b) prime number.

2

10

Check whether $\frac{7}{6}$ can be an empirical probability or not. Give Reasons.

2

खण्ड-स / SECTION-C

Question numbers 11 to 18 carry three marks each.

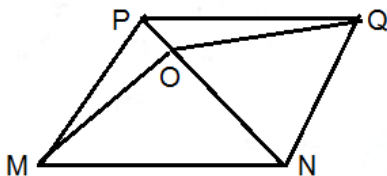
11. The mean of 10 numbers is 55. If one number is excluded, their mean becomes 50. Find the excluded number. 3

12. The following table shows the marks scored by students of a class in a chemistry examination (max. marks 35) 3

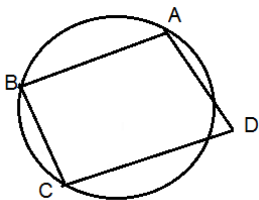
MARKS	0-7	7-14	14-21	21-28	28-35
No. OF STUDENS	4	8	12	2	8

Represent the data using a histogram.

13. MNOP is a llgm , Q is any point on diagonal PN. Show that $ar(\Delta MNQ) = ar(QON)$



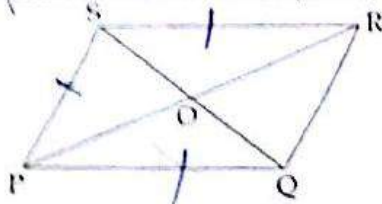
14. The circle passing through the vertices A, B and C of a llgm ANCD intersect side CD at a point P Shown in fig. Prove that $\angle APD = \angle ADP$



15. Construct a right triangle in which one side is 4 cm and sum of other side and hypotenuse is 6.5 cm. write steps of construction

16. ΔXYZ is right angled at Y. P and Q are midpoint of side XY and XZ resp. If $XY = 9\text{cm}$ and $PQ = 6\text{cm}$. Find the length of XZ.

In the given figure, PQRS is a parallelogram in which diagonals PR and SQ intersect each other at O. Show that $ar(\DeltaSOR) = ar(\DeltaPOQ)$.



13. The radius and height of a cylinder are in the ratio 5 : 7. If its volume is 4400 cm^3 , find the radius of the cylinder. 3

खण्ड-द / SECTION-D

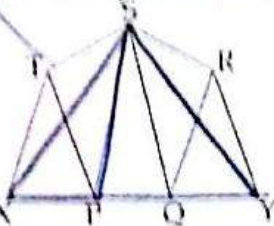
Question numbers 19 to 28 carry four marks each.

19. The lengths of 70 leaves of a plant are measured in millimetres and the data is represented in the following table: 4

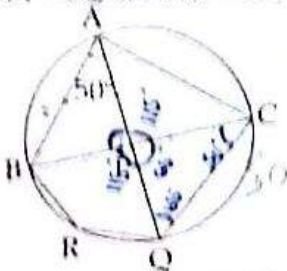
Length (in mm)	118-126	127-135	136-144	145-153	154-162	163-171	172-180
No. of Leaves	9	12	15	18	7	5	4

Draw a histogram to represent the given data. Is it correct to conclude that maximum number of leaves are 153 mm long? Why?

20. In the figure, PQRST is a pentagon. TX is drawn parallel to SP which meets PQ produced at X. RY drawn parallel to SQ meets PQ produced at Y. Show that $ar(PQRST) = ar(\Delta SXY)$.



21. In the given figure, P is any point on the chord BC of a circle such that $AB = AP$. Prove that $CP = CQ$. If $\angle BAP = 50^\circ$, find $\angle CQP$ and $\angle BRQ$. 4



22. Construct a ΔPQR in which $\angle Q = 60^\circ$, $\angle R = 75^\circ$ and sum of the three sides is 12 cm.

23. Show that a quadrilateral formed by joining the mid-points of the consecutive sides of any quadrilateral is a parallelogram. 4

24. The students of a school decided to make and sell 2000 cylindrical penholders of radius 3.5 cm and height 10 cm, and donate the collected amount to Prime minister's relief fund for helping the people of Uttarakhand. The school supported the action of the students by supplying the cardboard for making pen holders. 4

- (a) How much cardboard was required?
 (b) What value is depicted in this work? (Use $\pi = \frac{22}{7}$)

25. A cylindrical bucket 32 cm high and with base diameter 36 cm is filled with wheat. This bucket is emptied on the ground and a conical heap is formed. If the height of the conical heap is 24 cm, find the radius and slant height of the heap. 4
26. The radius and height of a cone are in the ratio 4 : 3. The volume of the cone is $269\frac{1}{2}$ cm³. Find its curved surface area. 4
27. Find the number of cylindrical glasses of diameter 6 cm and height 80 mm that can be filled with juice from a cylindrical vessel of base diameter 30 cm, given that the vessel is filled with juice up to a height of 32 cm. 4

28. A recent survey found that the ages of workers in a factory is distributed as follows: 4

Ages (in years)	20 - 29	30 - 39	40 - 49	50 - 59	60 and above
No. of Workers	38	27	86	46	3

If a person is selected at random, find the probability that the age of person is :

- (i) 40 years or more
- (ii) under 40 years
- (iii) 40 - 49 years
- (iv) under 60 but over 39 years.

खण्ड-ए / SECTION-E

Open Text)

(* Please ensure that open text of the given theme is supplied with this question paper.)

Theme : Childhood Obesity in India

29. BMI is a person's weight in kilograms divided by the square of height in meters. Suppose Aman's BMI is 24 and height is 165 cm. Take x as weight write a linear equation and calculate his weights. Express it in one variable graphical form. 3
30. Reena realized that she is getting overweight so she planned a physical regime for herself. She wants to burn 300 kilocalories in a day. She chooses jogging and home activities for the same and plans to spend 't' in ~~running~~ ^{max jogging} and 'h' minutes for home activities. Write the linear equation for the same and draw the graph. 3
31. A person takes 2000 calories in a party, he eats 'x' pastries and 'y' samosa. Write a linear equation for the same and draw the graph. 4