General Instructions:-

- All questions are compulsory.
- The question paper consists of 31 questions divided into five sections A, B, C ,Dand E. Section A contains 4 questions of 1 mark each. Section B contains 6 questions of 2 marks each. Section C contains 8 questions of 3 marks each, Section D contains 10 questions of 4 marks each.**Section E is OTBA ,it contains 2 questions of 3 marks and 1 question of 4 marks.**
- Use of calculator is not permitted.

An additional 15 minutes time has been allotted to read this question paper only

Section A

Q1. The lateralsurface area of cubeis1600cm² then finds its edge. $6a^2$

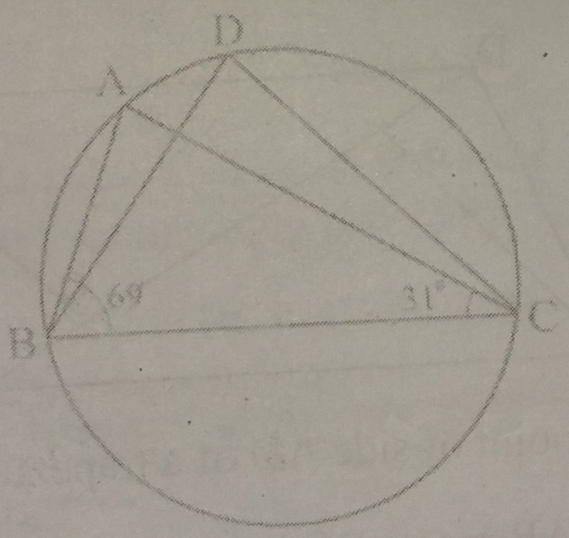
2. If the angles of a quadrilateral are 7x,5x,3x & 3x .Find x.

3. Find the volume of a hemisphere whose radius is 3.5 cm. $\frac{2}{3}\pi r^3$

4. Find the class mark of the class 130-150.

Section B

5. In the given figure, $\angle ABC = 69°$, $\angle ACB = 31°$, find $\angle BDC$.



Q6. . 1500 families with 2 children were selected randomnly, and the following data were recorded;

Number of girls in a family	2	1	0
Number of families	475	814	211

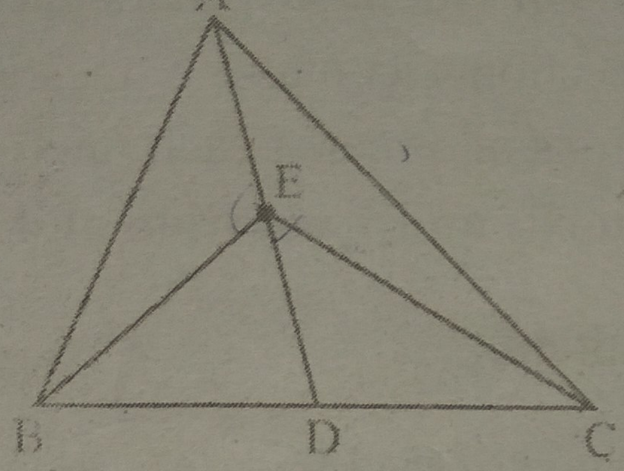
Compute the probability of a family, chosen at random, having

(i) 2 girls (ii) 1 girl

Q7. A cuboidal water tank is 6m long, 5mwide and4.5m deep. How many liters of water can ithold?

Q8. D and E are points on sides AB and AC respectively of triangle ABC such that ar(DBC) = ar(EBC) .Prove that DE is parallel to BC.

Q9. In a triangle ABC, E is any point on median AD .Show that ar(ABE)=ar(ACE).



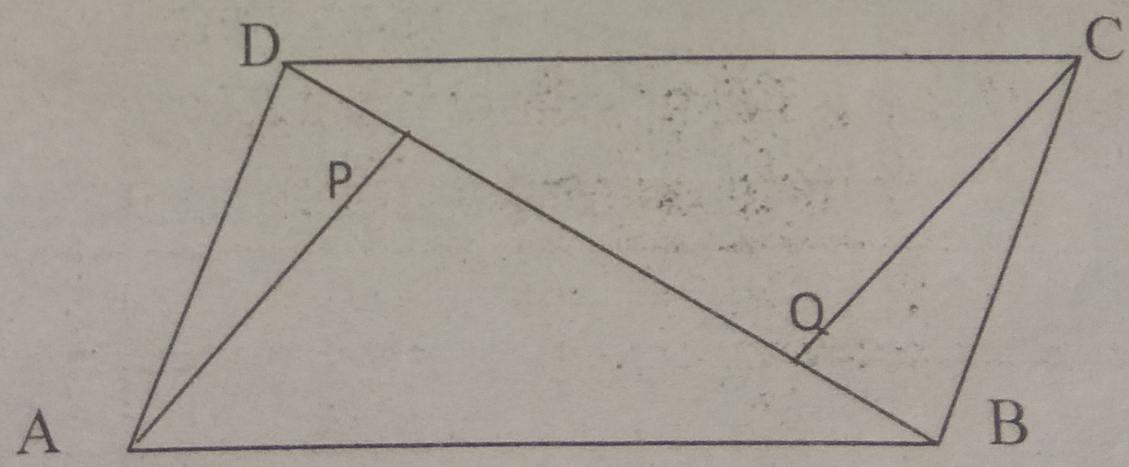
Q10 A coin is tossed 1000 times with the following frequencies:
Head: 455, Tail : 545
Compute the probability for each event.

Section-C

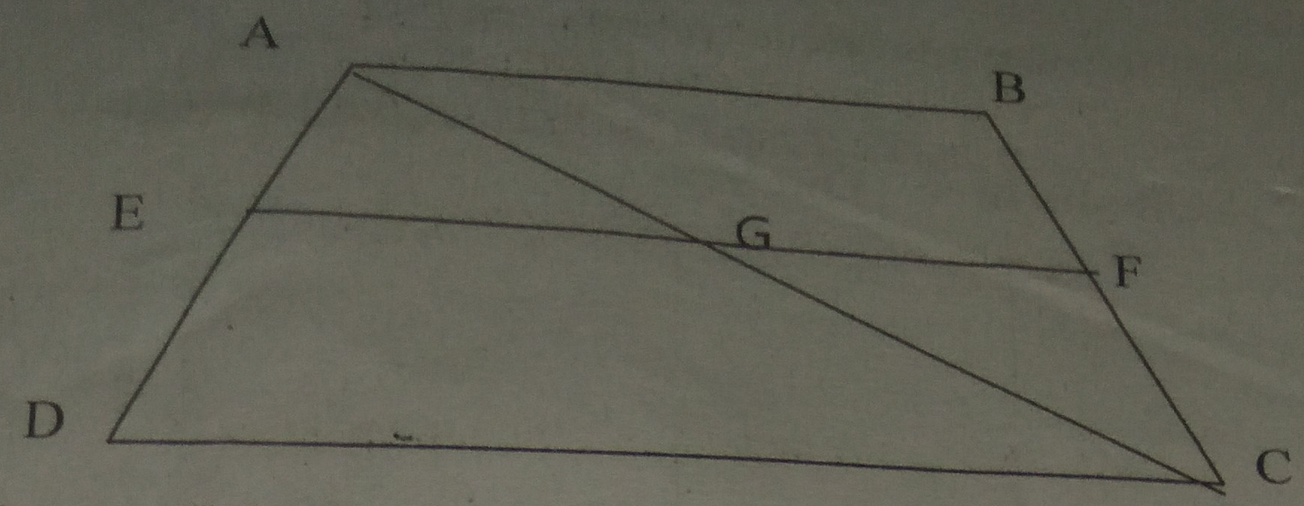
Q 11 The following observations are arranged in ascending order. If the median of the data is 63 .find the value of x

29,32,48,50,x,x+2,72,78,84,95

Q12. ABCD is a parallelogram and AP and CQ are perpendiculars from A to C on the diagonal BD. Show that AP = CQ.



Q13. In a given figure, E is the mid-point of side AD of a trapezium ABCD with AB ‖ CD. A line through E parallel to AB meets BC in F. Show that F is the mid-point of BC.



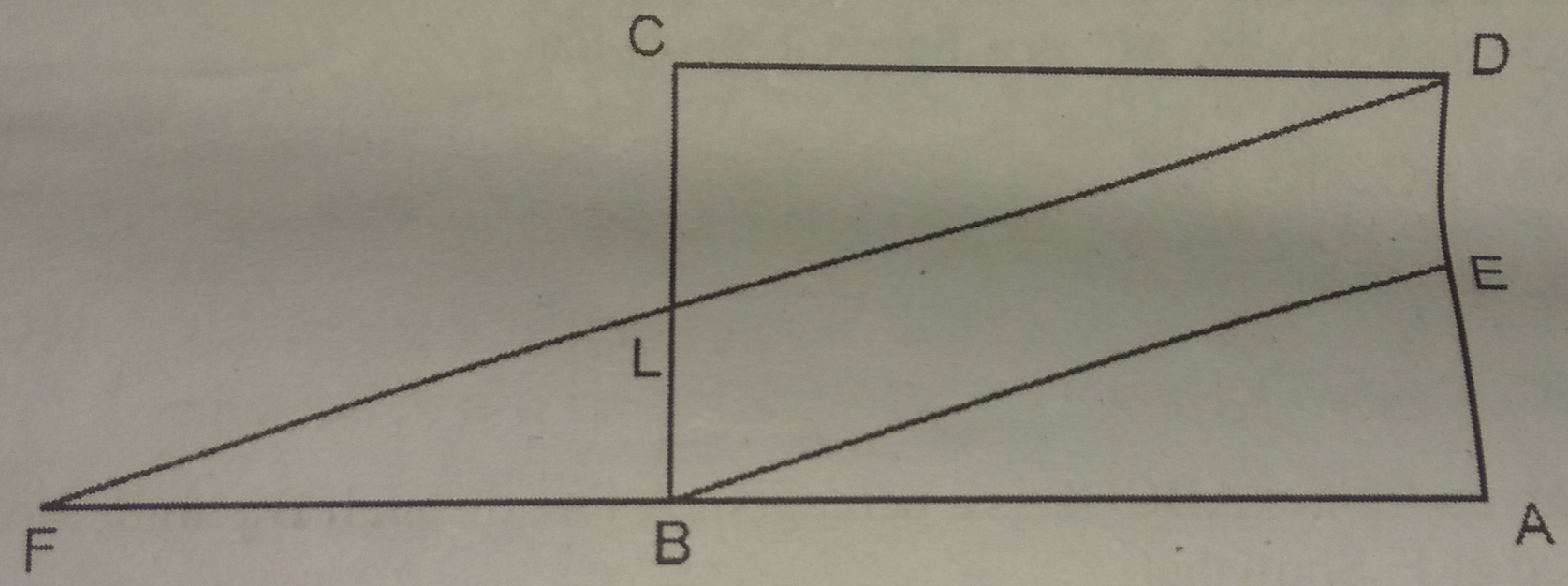
Q14 Prove that parallelograms on the same base and between the same parallel lines are equal in area.

Q15 Construct an angle of 90°.

Q16 A conical tent is 10 m high and the radius of its base is 24m. Calculate its slant height and cost of canvas required to make it at the rateRs.70 per m^2.

Q17. A sphere, a cylinder and a cone have equal radii which is equal to their height. Find the ratio of their volumes.

Q18.In the given figure, ABCD is a parallelogram and E is the mid-point of AD.DL∥ BE meets AB produced at F. Prove that B is the midpoint of AF and EB =LF.



Section D

Q19. Prove that ,the angle subtended by an arc at the center is double the angle subtended by it at any point on the remaining part of the circle

Q20. Construct a triangle ABC in BC = 4.5cm ∠ B =45° and AB-AC =2.5cm .

Q21. The heights of 72 plants in a garden are given below:

Heights (in cm)	58	60	62	64	66	68
Number of plants	12	14	20	13	8	5

Find the mean height per plant.

Q22. A heap of wheat is in the form of a cone whose diameter is 10.5 m and height is 3m Find its volume. The heap is to be covered by canvas to protect it from rain. Find th area of the canvas required.

Q23. An insurance company selected 1800 drivers at random in a particular city to find a Relationship between age and accidents. The data obtained are given in the following table:

Age of Drivers (in years)	Accidents in One year 0	1	2	3	Over 3
18-29	390	155	100	40	28
30-50	486	120	68	14	8
Above 50	308	40	30	8	5

Find the probability of the following events for a driver chosen at random from the city:

(a) Having exactly 2 accidents in one year.
(b) Being 30-50 years of age group and having no accident in a year.

(c) Having no accidents in one year.

(d) To avoid accidents on roads, what should one do?

Q24. ABCD is a quadrilateral in which P,Q,R,S are mid points of the sides AB , BC ,CD and AD respectively. AC is a diagonal .Show that

a) SR || AC ,SR=$\frac{1}{2}AC$

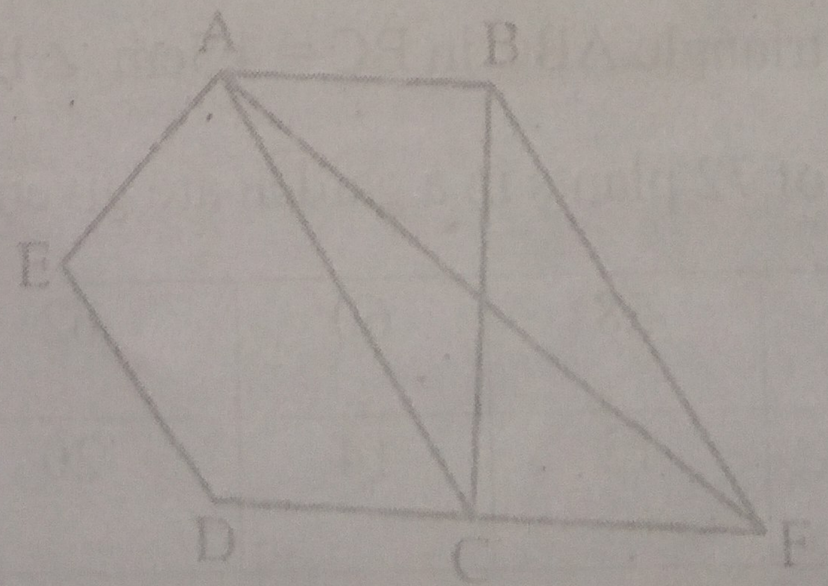
b) PQ=SR

c) PQRS is a parallelogram .

Q25. In the given figure, ABCDE is a pentagon. A line through B parallel to AC meets DC produced at F. Showthat

(i) ar (ACB) = ar (ACF)

(ii) ar (AEDF) = ar (ABCDE)



(a)Inner curved surface area of the vessel. $2\pi rh$

(b) radius of the base

(c) Capacity of the vessel πr^2

Q27. Following is the distribution of weights(in kg) of 100 persons living in a camp:

Weight(in kg)	45-50	50-55	55-60	60-65	65-70	70-75
No. of Persons	18	15	25	12	16	14

Draw a histogram and frequency polygon for the given data.

Q28. A small indoor greenhouse (herbarium) is made entirely of glass panes (including base) held together with tape. It is 30 cm long, 25 cm wide and 25 cm high.
(i) What is the area of the glass?
(ii) How much of tape is needed for all the 12 edges?

SECTION E (BASED ON OTBA)

Q29. Rita ate x slice of pizza and y cheese burger. She got 830 calories from them. Write a linear equation in two variables for the same. Write it in standard form. Also, write the values of a, b and c . *(3 marks)*

Q30. A person wants to burn 100 calories by doing physical activities .*He jogged for 'p'* hours and walked for 'q' hours. Write a linear equation depicting his total workout. Also draw its graph . (4 marks)

Q31. Taking the height as 300 cm , B.M.I. as 'u' and weight as 'v' kgs, form a linear equation in two variables .Write any two solutions of the equation. (3marks)