Total marks : 80
Number of questions : 38

Question paper has 5 sections A - E

SECTION	NUMBER OF QUESTIONS	MARKS PER SECTION
A	20 MCQ's of 1 mark each	20
B	5 questions of 2 marks each	10
C	6 questions of 3 marks each	18
D	4 questions of 5 marks each	20
E	3 case based questions of 4 marks each	12

1 Marker questions

Section A has 18 MCQ questions

And 2 assertion reasoning questions.

Case based questions

Section E has 3 case based integrated units of assessment.

Each carrying 4 marks each with sub parts of values 1, 1 and 2 marks.

Internal choice

All questions are compulsory, however an internal choice is provided in

2 questions of 5 marks
2 questions of 3 marks
2 questions of 2 marks

And also in subparts carrying 2 marks of section E

Unit wise weightage

UNIT NAME	MARKS
Number Systems	6
Algebra	20
Coordinate Geometry	6
Geometry	15
Trigonometry	12
Mensuration	10
Statistics and probability	11
Total	80

If α and β are the zeros of a polynomial $f(x) = px^2 - 2x + 3p$ and $\alpha + \beta = \alpha\beta$, then p is

(a) -2/3   (b) 2/3   (c) 1/3   (d) -1/3

Statement A (Assertion): If product of two numbers is 5780 and their HCF is 17, then their LCM is 340

Statement R(Reason) : HCF is always a factor of LCM

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)

(b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A)

(c) Assertion (A) is true but reason (R) is false.
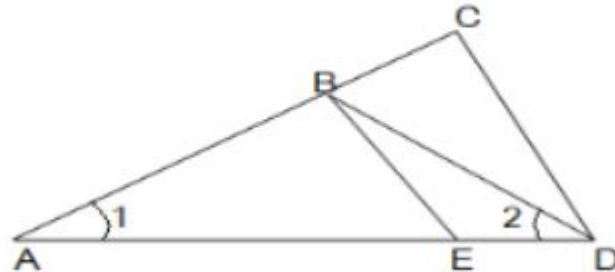
(d) Assertion (A) is false but reason (R) is true.

Section B
Short answer questions - 1

In the given figure below, $\dfrac{AD}{AE} = \dfrac{AC}{BD}$ and $\angle 1 = \angle 2$. Show that $\triangle BAE \sim \triangle CAD$.

Prove the following that-

$$\frac{\tan^3\theta}{1+\tan^2\theta} + \frac{\cot^3\theta}{1+\cot^2\theta} = \sec\theta\ \text{cosec}\theta - 2\sin\theta\cos\theta$$

To fill a swimming pool two pipes are used. If the pipe of larger diameter used for 4 hours and the pipe of smaller diameter for 9 hours, only half of the pool can be filled. Find, how long it would take for each pipe to fill the pool separately, if the pipe of smaller diameter takes 10 hours more than the pipe of larger diameter to fill the pool?

OR

In a flight of 600km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr from its usual speed and the time of the flight increased by 30 min. Find the scheduled duration of the flight.

Section E
Case study based questions

The school auditorium was to be constructed to accommodate at least 1500 people. The chairs are to be placed in concentric circular arrangement in such a way that each succeeding circular row has 10 seats more than the previous one.

(i)   If the first circular row has 30 seats, how many seats will be there in the 10th row?

(ii) For 1500 seats in the auditorium, how many rows need to be there?

OR

If 1500 seats are to be arranged in the auditorium, how many seats are still left to be put after 10th row?

(iii) If there were 17 rows in the auditorium, how many seats will be there in the middle row?