CONGRUENT TRIANGLES

VERY SHORT ANSWER TYPE QUESTIONS

Q.1 In the given $\triangle ABC$, $AD$ is the median, $BL \perp AD$ and $CM \perp DM$. Prove that $BL = CM$.

Q.2 In the given figure, $AB$ divides $\angle DAC$ in the ratio $1:3$ and $AB = DB$. Determine the value of $x$.

Q.3 In the given figure, bisectors of $\angle ABC$ and $\angle BCA$ intersect each other at $O$. If $\angle BAC = 50^\circ$, find $\angle BOC$.

Q.4 In the given figure, $AM \perp BC$ and $AN$ is the bisector of $\angle A$. If $\angle B = 65^\circ$ and $\angle C = 35^\circ$, find $\angle MAN$.

Q.5 $ABC$ is an isosceles triangle with $AB = AC$. $AD$ bisects exterior angle $PAC$ and $CD \parallel BA$. Prove that (i) $\angle DAC = \angle BCA$ (ii) $ABCD$ is a parallelogram.

SHORT ANSWER TYPE QUESTIONS

Q.6 In the given figure, $\angle B = \angle E$, $BD = CE$ and $\angle 1 = \angle 2$. Show that $\triangle ABC \cong \triangle AED$.

Q.7 $ABCD$ is a parallelogram and $E$ is the midpoint of side $BC$. $DE$ and $AB$ on producing meet at $F$. Prove that $AF = 2AB$. 
Q.8 In the given figure, AD and CE are the angle bisectors of \( \angle A \) and \( \angle C \), respectively. If \( \angle ABC = 90^\circ \), then find \( \angle AOC \).

Q.9 In the given figure, AB & CD are perpendicular on BD. Also AB = CD & AF = CE, prove that BE = FD.

Q.10 In the given figure, D is any point on the base BC produced of an isosceles \( \triangle ABC \). Prove that AD > AB.

Q.11 In the given figure, AB > AC. Show that AB > AD.

LONG ANSWER TYPE QUESTIONS

Q.12 Line segment joining the mid points M & N of parallel sides AB and CD, respectively of a trapezium ABCD is perpendicular to both the sides AB & DC. Prove that AD = BC.

Q.13 In the given figure, ABCD is a square and EF is parallel to diagonal BD and EM = FM.

Prove that
(i) DF = BE
(ii) AM bisects \( \angle BAD \)
Q.14 In the given figure, show that
\[ 2 \left( \frac{AC + BD}{AB + BC + CD + DA} \right) \]

Q.15 In the given figure, the side BC of \( \triangle ABC \) is produced to D. The bisector of \( \angle A \) meets BC in L. Prove that \( \angle ABC + \angle ACD = \angle ALC \)

Q.16 In a right angled triangle, one acute angle is double the other. Prove that the hypotenuse is double the smallest side.

MULTIPLE CHOICE QUESTIONS

Q.17 Two sides of a triangle are of lengths 5 cm and 1.5 cm, the length of the third side of the triangle cannot be
(a) 3.6 cm  (b) 4.1 cm  (c) 3.8 cm  (d) 3.4 cm

Q.18 In the given figure, the measure of \( \angle ABC \) is
(a) 60°  (b) 30°  (c) 45°  (d) 90°

Q.19 In triangles ABC and DEF, \( AB = FD \) & \( \angle A = \angle D \). The two triangles will be congruent by SAS axiom if
(a) BC = EF  (b) AC = DE  (c) AC = EF  (d) BC = DE

Q.20 In the given figure, the congruency rule used in proving \( \triangle ACB \cong \triangle ADB \) is
(a) ASA  (b) SAS  (c) AAS  (d) RHS

Q.21 D is a point on the BC of a \( \triangle ABC \) such that AD bisects \( \angle BAC \). Then
(a) BD = CD  (b) BA > BD  (c) BD > BA  (d) CD > CA