

BITT POLYTECHNIC

GETLATU, RANCHI

MATHEMATICS

SEMESTER – 1, BRANCH – ME

ASSIGNMENT NO – 4

(25 QUESTIONS)

VERY SHORT ANSWERS:

1. FIND THE SLOPE OF THE LINE WHOSE INCLINATION IS 45° .
2. FIND THE INCLINATION OF A LINE WHOSE SLOPE IS $\sqrt{3}$.
3. FIND THE SLOPE OF THE LINE PASSING THROUGH THE POINTS (-2,3) AND (8,-5).
4. IF THE SLOPE OF THE LINE PASSING THROUGH THE POINTS (2,5) AND (x,3) IS 2, FIND THE VALUE OF x.
5. USING SLOPES, SHOW THAT THE POINTS (5,1), (1,-1) AND (11,4) ARE COLLINEAR.
6. FIND THE VALUE OF x FOR WHICH THE POINTS (x,-1), (2,1) AND (4,5) ARE COLLINEAR.
7. FIND THE ANGLE BETWEEN THE LINES WHOSE SLOPES ARE $\frac{1}{2}$ AND 3.
8. FIND THE ANGLE BETWEEN THE LINES WHOSE SLOPES ARE $\sqrt{3}$ AND $\sqrt{1} / \sqrt{3}$.
9. FIND THE EQUATION OF A LINE PASSING THROUGH THE POINTS (4,3) AND HAVING SLOPE 2.
10. IF THE ANGLE BETWEEN TWO LINES IS $\pi/4$ AND THE SLOPE OF ONE OF THE LINES IS $\frac{1}{2}$, FIND THE SLOPE OF OTHER LINE.

SHORT ANSWERS:

1. FIND THE 6TH TERM IN THE EXPANSION OF $(3x + 2y)^7$.
2. FIND THE MIDDLE TERM OF $(3+x)^6$.
3. FIND THE MIDDLE TERM OF $(1+x)^5$.
4. FIND THE TERM INDEPENDENT OF x IN $(2x-3y)^4$.
5. IF THE POINTS (h,0), (a,b) AND (0,k) LIE ON A LINE, SHOW THAT $a/h + b/k = 1$.
6. SHOW THAT THE LINE JOINING THE POINTS (2,-3) AND (-5,1) IS PARALLEL TO THE LINE JOINING THE POINTS (7,-1) AND (0,3).
7. SHOW THAT THE POINTS (2,-5) AND (-2,5) IS PERPENDICULAR TO THE LINE JOINING THE POINTS (6,3) AND (1,1).
8. USING SLOPES, SHOW THAT THE VERTICES (-2,-1), (4,0), (3,3) AND (-3,2) ARE THE VERTICES OF A PARALLELOGRAM.
9. FIND THE EQUATION OF A LINE WHOSE SLOPE IS $\frac{1}{2}$ AND Y- INTERCEPT EQUAL TO -5/4.
10. PROVE THAT THE LINES $x+2y-9=0$ AND $2x+4y+5=0$ ARE PARALLEL.

LONG ANSWERS:

1. SHOW THAT THE LINES $27x-18y+25=0$ AND $2x+3y+7=0$ ARE PERPENDICULAR TO EACH OTHER.
2. FIND THE ANGLES BETWEEN THE LINES $\sqrt{3}x+y=1$ AND $x+\sqrt{3}y=1$.
3. FIND THE EQUATION OF THE LINE PASSING THROUGH THE POINTS (2,-5) AND PARALLEL TO THE LINE $2x-3y=7$.
4. FIND THE EQUATION OF THE LINE PASSING THROUGH THE POINT (-2,-4) AND PERPENDICULAR TO THE LINE $3x-y+5=0$.
5. FIND THE EQUATION OF THE LINE WHICH MAKES INTERCEPTS 2 AND -3 ON THE X-AXIS AND THE Y-AXIS RESPECTIVELY.