$\boxed{2.18}$ a) If $f(x,y) = ax^2 + bxy + cy^2$, then $f(1,0) = a$, $f(0,1) = c$
$f(1,1) = a+b+c$. If $p \mid a$, $p \mid c$, $p \mid a+b+c \Rightarrow p \mid b$ as well, contradicting the assumption that f is primitive.

b) For any $p \mid M$, choose $\alpha_p \in \{0,1\}$ and $\beta_p \in \{0,1\}$ so that

$$\gcd(f(\alpha_p, \beta_p), p) = 1.$$

Now, by Chinese Remainder theorem, there is a α, and a β s.t.

$$\alpha \equiv \alpha_p \pmod p \qquad \forall p \mid M$$
$$\beta = \beta_p \pmod p \qquad \forall p \mid M$$

Then one easily checks $\gcd(f(\alpha,\beta), M) = 1$.

$\boxed{2.19}$ First we list all the reduced forms of discr. $D = -15, -24, -31, -52$.

$\underline{D=-15}$: $x^2 + xy + 4y^2$ represents $\{1,4\}$ in $(\mathbb{Z}/15\mathbb{Z})^\times$ (Two genera)
$2x^2 + xy + 2y^2$ " $\{2,8\}$ in $(\mathbb{Z}/15\mathbb{Z})^\times$

$\underline{D=-24}$: $x^2 + 6y^2$ represents $\{1,7\}$ in $(\mathbb{Z}/24\mathbb{Z})^\times$ (Two genera)
$2x^2 + 3y^2$ " $\{5,11\}$ in $(\mathbb{Z}/24\mathbb{Z})^\times$

$\underline{D=-31}$: $x^2 + xy + 8y^2$ There is only $\underline{\underline{\text{one}}}$ genus.
$2x^2 \pm xy + 4y^2$ (For this, one might find useful to utilize some genus theory, which gives this answer straight away)

$\underline{D=-52}$: $x^2 + 13y^2$ represents $\{1,9,25,27,29,49\}$ in $(\mathbb{Z}/52\mathbb{Z})^\times$
$2x^2 + 2xy + 7y^2$ " $\{7,11,17,19,31,47\}$ " .
(Two genera)