Changes from Version 57 ⟶ Version 58

p.26 p prime $\not\Rightarrow p^N$ primary (example after def^n of primary)

p.27 ⑤ diagram has = bottom arrow, 3rd condition also requires diagram & use $R \to R/I$ quotient map

p.27 ⑥ added def^n of immersion

p.28 bottom clarified $0 =$ max ideal (t)

p.31 added sentence at bottom "compatibly with localisations R_f".

p.33 $R \otimes_A S = \ldots$ free $\underline{A}$-alg...

p.32 example for ~~Rings~~ B-algebras .... $C \otimes_B D$

p.32 at end: exercise shifted up since true for any cat

p.33 added alternative proof in blue at end

p.34 added Exercise 2 and Lemma to clarify proof of Thm. improved step ① of Proof of Thm and Step ③

p.36 cleaned up 2nd blue box

p.37 clarified ⑧ that Δ is immersion

p.38 fixed proof at top of page

p.40 clarified surj means epimorphism, added reference to 1.5 Facts

p.40 Def $\underline{F}$ invertible sheaf

p.41 recalled $\widetilde{M}(U)$ as in 1.11

p.42 6.6 clarified why Hom $(F(U)\ldots)$ does not work

p.44 end: blue comment $M = F(X)$ works

p.44 cleaned up pf of last Lemma

p.46 cleaned up

p.47 cleaned up proof at top (sec 7.5)

p.50 removed blue comment $s \in C^{n-1}$

p.50 8.4: $F \in$ QCoh not CoL

p.52 blue comment about $\mathrm{Mat}_{m \times n}(R)$

p.52 bottom right in blue: swapped $e, \tilde{e}$

p.53 comment about rescaling α_{10} by $\beta_0 \beta_1^{-1}$ to get t^i

p.54 bottom replaced g_i by β_i

p.55 box about "n_i" pole/zero order n: simplified notation

p.56 $U_i = \cancel{D_{x_i}} = \mathrm{Spec}$ ....

p.56 c_{02} has no $\underline{x_1}$'s at denom, c_{01} has no $\underline{x_2}$'s at denom.

p.56 Simplified Trick 1

p.58 $A \xhookrightarrow{i} B$ inj added 'mono' in blue

p.58 asking them to preserve surjectivity) in blue

p.58 fixed the warning

p.63 blue box 'irrelevant' not 'irredundant'

p.11 blue comment about $\oplus = x$.

p.32 top right nonexaminable box

p.28 bottom $B = \mathbb{A}^1_k$ "so flat $X \to \mathbb{A}^1 \ldots$"

p.29 top cultural Rmk

p.44 added Non-examinable to last few facts about flat modules

Changes from Version 56 ⟶ Version 57

p.6 top right corner $(x-\lambda_i)^{n_i}$
added exercise $V(I) = V(\sqrt{I})$
added picture

p.7 5) added: $f \in \sqrt{g}$
p.9 in Exercise: $A \neq 0$ not $R \neq 0$
p.10 in Exercise 2): $\prod_{x \in U}$ not $\prod_{x \subseteq U}$, and $iFU = \dots$ not $i(U)$.

p.10 added Rmk
p.11 above 1.8 added details about the Example
p.15 "just restrict the map $U \longrightarrow \coprod F_x$" not $\prod F_x$.
p.15 explained in blue that $\coprod F_x$ is disjoint union.
p.15 end: added Rmk $\mathcal{O}_X(X) = \dots = R$
p.16 uniqueness added: $f_i^{n_i}(\alpha - \beta) = 0 \in R$ some...
p.17 top: added $\mathcal{O}_X(U) = \{(s_f) \dots\} \cong \dots$ ($\varprojlim$ definition)

p.19 extra details top right about determining $f_p(\frac{r}{s})$
p.19 closed subscheme ... $Y \subseteq X$ closed topological subspace
p.22 $\xleftarrow{f_y^\#}$ not just $f^\#$
added details: $S_y = \mathcal{O}_{Y,y} \longrightarrow R$ (given)

p.23 Localisation $R\text{-mods} \longrightarrow S^{-1}R\text{-mods}$
p.23 $\varinjlim_{f \in S}$ and $g = fh \in S$

p.23 proof: $x_m = 0 \in M_m$ not R_m, $rx = 0 \in M$ not R

p.29 proof of $\alpha^{-1}V(I) = V(\langle \varphi I \rangle)$ simplified
p.27 for ④ added ($\Leftrightarrow \dots$) remark in blue

p. 27 above 3.6 added arrow $\theta_X(D_f) \to \theta_{X,(0)}$ = Frac...

p. 26 fixed above 3.5 "multiplicity = 1 = ..." not order

p 25 Hwk 2 added blue remark "Not enough..."

p. 25 blue box added $\Leftarrow$ $\text{Nil}(R/I) = \sqrt{I}$

p 25 under Hwk 1 in Rmk added proof (Pf "$\Rightarrow$" ....)

p. 23 at bottom added example about Nilradicals

p. 25 Sec. 3.3 proof of claim corrected ($f^\# - g^\#$ not a ring hom, and sends $1 \mapsto 1-1=0$)

p. 32 fixed final examples.

p. 36 proof of Claim $K(b) = \ldots = R_P/P \cdot R_P$
& at end comment about topology

p. 37 Sec. 5.3 improved base change example notation

p. 35 Sec. 5.4 Rmk $\Delta_{X/B}$ not $\Delta_{X\sim B}$

p. 37 fixed last step of last claim: $U_i \cap U_j \cong \Delta \cap \ldots$ closed

p. 38 green box $(f, id): X \times Y \to \ldots$ not $(id, f): Y \times X \to \ldots$