Part 6 — Visual Revision Sheets & Tables

1️⃣ "Process Basics at a Glance"

Term	Short Definition	BPR Relevance	Mini Example
Process	Linked steps transforming inputs → outputs	Core unit of analysis	"Order → Pay → Prepare → Pickup"
Data & Rules	Facts + decision logic that move a process	Enable automation & consistency	"If payment OK → start drink"
Efficiency	Output / input for one step	Reduces waste	Faster cashier = same job in less time
Productivity	Total output / total input	Measures system success	More orders/hr
Consistency	Same input → same output	Ensures quality	Digital order specs
Bottleneck	Slowest step limiting output	Target of redesign	Barista station
Merit Function	Weighted score combining criteria	Decision tool	Choose best To-Be design

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2️⃣ "Economics & Finance Snapshot"

Concept	Definition	Use in BPR
Micro Economics	Firm-level resource use & pricing	Deciding internal process improvements
Macro Economics	Economy-wide variables (GDP, inflation)	Decides feasibility of CAPEX
Opportunity Cost	Value of next best option lost	Compare automation vs manual hiring
Utility	Satisfaction derived	Faster service → higher utility
CAPEX	Long-term investment	App development, machines

OPEX	Recurring cost	Staff, utilities, maintenance
ROI	(Gain − Cost)/Cost × 100 %	Proves redesign payoff
Break-even	Fixed cost / (unit margin)	Shows minimum throughput needed

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3 "Comparison Matrix — As-Is vs To-Be"

Feature	As-Is Process	To-Be (Reengineered)
Information Flow	Manual, sequential	Digital, real-time
Decision Rules	Tacit / verbal	Embedded / automated
Time Measurement	Unrecorded	Timestamped
Errors	High (3–10 %)	Low (1–2 %)
Cost per Transaction	High	Lower
Lead Time	Long	Short
Visibility	Low	Full dashboard
Staff Role	Transactional	Analytical / Customer-facing
Change Focus	Efficiency only	Efficiency + Productivity + Growth

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4 "6 C-Suite Roles in Reengineering"

Role	Core Focus	In Reengineering Context
CEO	Vision & Strategic Direction	Approves radical change; sets targets
COO	Operations & Throughput	Identifies bottlenecks; monitors KPIs
CTO	Technology Enablement	Selects platforms for automation
CFO	Financial Performance	Evaluates ROI and payback

CHRO	People & Culture	Reskilling and change management
CMO	Market & Customer Experience	Ensures UX and brand alignment

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5️⃣ "Time Analysis Toolkit"

Metric	Formula	Plain Meaning	Example
Wait Time	Start – Queued	How long a unit waited	15 s before barista start
Service Time	Finish – Start	Hands-on time	45 s to make drink
Lead Time	Final Finish – First Queued	Customer experience time	7 min total
Throughput	Output / time	Orders per hour	170 orders/hr
WIP	Throughput × Lead	Avg. items in system	12 customers
Takt Time	Available time / demand	Max allowable cycle per unit	24 s/order
Utilization	Arrival rate / Capacity	Load on station	Barista at 85 % → stable

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6️⃣ "Efficiency vs Productivity vs Quality"

Aspect	Focus	Improved By	Example
Efficiency	Resources per task	Automation or layout change	Cashier → App Pay
Productivity	Total output	Bottleneck balancing	Two baristas peak hours
Quality	Defect / error rate	Rule enforcement + training	Digital spec → fewer remakes

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7️⃣ "Starbucks Mini-Sheet"

Metric	As-Is	To-Be	Δ Improvement
Cost / Txn	130 Rs	118 Rs	−9 %
Lead Time	12 min	7 min	−42 %
Throughput	120/hr	170/hr	+42 %
Error Rate	3.5 %	2.0 %	−43 %
Automation	15 %	65 %	+50 %

Payback: ≈ 6 months **Merit Score:** As-Is 0.66 → To-Be 0.31

Exam Line:

> "Replacing cashier entry with mobile pre-ordering reduced non-value-added time, stabilized barista load, and improved ROI within half a year."

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8 "University Fees Process Sheet"

Step	As-Is Issue	To-Be Solution
Fee Payment	Manual upload of receipts	Live bank API integration
Eligibility Check	Post-selection manual	Pre-rule validation in system
Approval	Admin sign-off	Auto confirmation on conditions
Error Rate	10 %	1–2 %
Lead Time	3–5 days	< 2 hours
Staff Load	120 hours/batch	35 hours

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9 "Tesla / Manufacturing Sheet"

Focus Area	As-Is	To-Be

Material Movement	Manual forklifts	Automated Guided Vehicles (AGVs)
Quality Check	End-of-line	Inline sensor checks
Cycle Time	14 min	9 min
Defect Rate	5 %	1.5 %
Throughput	4 units/hr	6.5 units/hr
Utilization	95 %	82 % (stable)

🔟 "Problem → BPR → Result" Cheat Flow

Problem Type	Reengineering Action	Result Metric to Show
Long Waits	Timestamp + app pre-order	Lead Time ↓
Manual Errors	Encode rules + validation	Error Rate ↓
High Cost	Automation / layout change	Cost / Txn ↓
Slow Throughput	Remove bottleneck / parallelize	Orders / hr ↑
Staff Resistance	Training + redeployment	Adoption ↑
Low Visibility	Dashboards + data capture	Decision Speed ↑

🔹 10 Quick "Drop-in" Exam Sentences

1. "Timestamps revealed idle wait accounting for nearly 40 % of total lead time."
2. "Applying Little's Law linked rising WIP directly to barista queue buildup."
3. "Automation replaced repetition, freeing labor for higher-value service tasks."
4. "Merit-function analysis confirmed a 50 % performance improvement overall."
5. "Capex investment was offset by monthly opex savings within two quarters."
6. "Consistency increased as order specifications moved from voice to data."

7. “Throughput rose from 120 to 170 orders/hr after balancing workloads.”
8. “Rule-based enrollment prevented 80 % of common student errors.”
9. “Inline sensors transformed reactive inspection into proactive control.”
10. “Cultural acceptance was ensured through training and transparent communication.”

📈 11 “Formula Box” (keep at notebook’s end)

Metric	Formula	Meaning
Lead Time	Finish – Start	Customer experience time
Throughput	Units / Time	System speed
WIP	Throughput × Lead Time	Items in system
Takt Time	Avail. Time / Demand	Target cycle
Utilization	Arrival / Capacity	Load %
ROI %	(Gain − Cost)/Cost × 100	Return ratio
Payback	Capex / Monthly Saving	Months to recover
Merit Score	$\Sigma (w_i \times norm_i)$	Comparative performance

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🧭 12 “Five-Step Answer Framework”

1. **Define the concept** (1 line).
2. **Describe As-Is problem** (1–2 lines).
3. **Present To-Be solution** (automation / rules / tech).
4. **Add numbers or ratios** (lead time, cost, ROI).

5. **Conclude with change-management and impact**.

(You can write almost any 10-mark answer with this pattern.)

✅ Revision Tip

Before the exam:

- Highlight yellow = definitions,
- Blue = formulas,
- Green = case facts (Starbucks, University, Tesla).
  During the paper, flip straight to those color codes to locate ready examples.