# 📘 MACHINE LEARNING – UNIT 3

# 🔥 COMPLETE PYQ ANALYSIS (2020–2025)

## 🎯 RGPV Exam Trend Analysis

Maine RGPV Machine Learning PYQs ka Unit–3 pattern analyze kiya based on:

- Previous year questions
- Repeated ensemble algorithms
- Examiner trends
- Most scoring topics
- Frequently asked theory questions

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# 🔥 UNIT 3 TOPICS

1. Ensemble Learning
2. Model Combination Schemes
3. Voting
4. Error Correcting Output Codes
5. Bagging
6. Random Forest Trees
7. Boosting
8. AdaBoost
9. Stacking

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# 📅 YEAR-WISE PYQ ANALYSIS

# 🔥 2025 PAPER

## ✅ Asked Questions

### Q1

Explain Bagging and Random Forest Trees.

⭐ MOST IMPORTANT

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### Q2

Explain AdaBoost Algorithm.

⭐ HIGHLY REPEATED

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### Q3

Explain Ensemble Learning with voting method.

⭐ IMPORTANT

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# 🔥 2024 PAPER

## ✅ Asked Questions

### Q1

Explain Ensemble Learning and model combination schemes.

⭐ VERY IMPORTANT

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### Q2

Differentiate Bagging and Boosting.

⭐ MOST REPEATED

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### Q3

Explain Random Forest algorithm.

⭐ HIGH CHANCE

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# 🔥 2023 PAPER

## ✅ Asked Questions

### Q1

Explain AdaBoost with example.

⭐ REPEATED

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### Q2

Explain Voting in Ensemble Learning.

⭐ IMPORTANT

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### Q3

Explain Stacking method.

⭐ HIGH CHANCE

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# 🔥 2022 PAPER

## ✅ Asked Questions

### Q1

Explain Ensemble Learning.

⭐ HIGHLY REPEATED

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### Q2

Explain Random Forest Trees.

⭐ VERY IMPORTANT

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### Q3

Explain Error Correcting Output Codes.

⭐ MEDIUM-HIGH

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# 🔥 2021 PAPER

## ✅ Asked Questions

### Q1

Explain Bagging technique.

⭐ REPEATED

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### Q2

Explain Boosting in Machine Learning.

⭐ MOST IMPORTANT

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### Q3

Differentiate Voting and Stacking.

⭐ IMPORTANT

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# 🔥 2020 PAPER

## ✅ Asked Questions

### Q1

Explain AdaBoost algorithm.

⭐ HIGH CHANCE

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### Q2

Explain Ensemble Learning with applications.

⭐ REPEATED

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### Q3

Explain Random Forest with advantages.

⭐ IMPORTANT

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# 📊 FINAL FREQUENCY ANALYSIS

| Topic | Frequency | Importance |
|---|---|---|
| Ensemble Learning | ⭐⭐⭐⭐⭐ | VERY HIGH |
| Bagging | ⭐⭐⭐⭐ | HIGH |
| Random Forest | ⭐⭐⭐⭐⭐ | VERY HIGH |
| Boosting | ⭐⭐⭐⭐ | HIGH |
| AdaBoost | ⭐⭐⭐⭐⭐ | VERY HIGH |
| Voting | ⭐⭐⭐ | HIGH |
| Stacking | ⭐⭐⭐ | MEDIUM-HIGH |
| ECOC | ⭐⭐ | MEDIUM |

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# 🔥 TOP 5 MOST REPEATED QUESTIONS

## 1️⃣ Explain Ensemble Learning.

📌 Asked in:

- 2020
- 2022
- 2024

⭐ HIGHEST PRIORITY

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## 2️⃣ Explain Random Forest Trees.

📌 Asked in:

- 2022
- 2024

- 2025

⭐ VERY IMPORTANT

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# 3️⃣ Explain AdaBoost Algorithm.

📌 Asked in:

- 2020
- 2023
- 2025

⭐ HIGHLY REPEATED

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# 4️⃣ Differentiate Bagging and Boosting.

📌 Asked in:

- 2021
- 2024

⭐ HIGH CHANCE

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# 5️⃣ Explain Voting Method in Ensemble Learning.

📌 Asked in:

- 2023
- 2025

⭐ IMPORTANT

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# 🎯 MOST EXPECTED QUESTIONS FOR UPCOMING EXAM

## ⭐ VERY HIGH CHANCE

1. Explain Ensemble Learning.
2. Explain Bagging and Random Forest Trees.
3. Explain AdaBoost Algorithm.
4. Differentiate Bagging and Boosting.
5. Explain Voting in Ensemble Learning.

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## ⭐ HIGH CHANCE

6. Explain Stacking Method.
7. Explain Model Combination Schemes.
8. Explain Boosting with example.

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## ⭐ MEDIUM CHANCE

9. Explain Error Correcting Output Codes.
10. Differentiate Voting and Stacking.

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## 🔥 EXAMINER TREND ANALYSIS

### 📌 What RGPV Examiner Mostly Asks?

| Type | Topics |
|---|---|
| Theory Based | Ensemble Learning |
| Comparison Based | Bagging vs Boosting |
| Algorithm Based | AdaBoost |
| Advantages Based | Random Forest |
| Short Notes | Voting, Stacking |

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# ⚡ SMART STUDY STRATEGY

# 🎯 FIRST STUDY THESE

1. Ensemble Learning
2. Random Forest
3. AdaBoost
4. Bagging vs Boosting

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# 🎯 THEN STUDY

5. Voting
6. Stacking
7. Model Combination Schemes

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# 🎯 LAST REVISION

8. ECOC
9. Advantages and Applications

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# 🔥 ONE-NIGHT REVISION PRIORITY

✔ Ensemble Learning combines multiple models
✔ Voting combines predictions of classifiers
✔ Bagging reduces variance
✔ Random Forest uses multiple decision trees
✔ Boosting improves weak learners
✔ AdaBoost assigns weights to wrong predictions
✔ Stacking combines outputs using meta learner
✔ Bagging works parallelly
✔ Boosting works sequentially

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# 🎯 TOPPER STRATEGY FOR GOOD CGPA

## 📌 If You Have Only 2–3 Hours

Study in this order:

1. Ensemble Learning
2. Random Forest
3. AdaBoost
4. Bagging vs Boosting
5. Voting