

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Engineering - SEMESTER-VI • EXAMINATION – WINTER • 2016

Subject Code: 3360504

Date: 25-10-2016

Subject Name: Pulp and Paper Technology

Time: 10:30 am - 01:00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of only simple calculator is permitted in Mathematics.
6. English version is authentic.

- Q.1** Answer any seven out of ten. **14**
1. Define pulp.
 2. Why the lignin is removed from pulp in chemical pulping?
 3. Define paper.
 4. List out various units involved in paper making.
 5. Why is web forming process supported by the endless belt?
 6. If the newsprint is kept long time, it becomes yellowish. Why?
 7. Paper made from beaten pulp is less stable than made from unbeaten pulp. Why?
 8. What are the controlling the factors for smoothness of the papers?
 9. Why the good formation is essential for writing and printing paper?
 10. Why the hemi cellulose is separated from pulp during digestion in sulphite pulping?
- Q.2** (a) Write down the properties of cellulose and hemi-cellulose to have for which they used in manufacturing of paper? **03**
- OR
- (a) What are materials used as fillers? **03**
- (b) Write down the properties of hemi-cellulose to have for which they used in manufacturing of paper? **03**
- OR
- (b) What are the factors that affecting the properties of paper? **03**
- (c) Draw the block diagram for bleaching process of pulp **04**
- OR
- (c) Draw the flow diagram of black liquor recovery process. **04**
- (d) Explain black recovery process. **04**
- OR
- (d) Discuss the pollution problems in pulp and paper industries. **04**
- Q.3** (a) Draw the flow diagram the Kraft pulping process. **03**
- OR
- (a) Write down the reactions involved in Kraft pulping process. **03**
- (b) List out various lignin chemicals. **03**
- OR
- (b) Draw the neat flow diagram of sulphite pulping **03**
- (c) Explain the sulphite pulping process **04**
- OR

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|------------|-----|------------------------------------------------------------------------------|-----------|
| | (c) | List out major engineering problems in pulp industries and explain in short. | 04 |
| | (d) | Discuss the properties of cellulose. | 04 |
| | | OR | |
| | (d) | Give the application of Cellulose. | 04 |
| Q.4 | (a) | List out various raw materials for paper manufacturing. | 03 |
| | | OR | |
| | (a) | List the types of paper products. | 03 |
| | (b) | Give the applications of different types of paper products. | 04 |
| | | OR | |
| | (b) | Draw the flow sheet of paper production. | 04 |
| | (c) | Write different pulping methods & explain any one in detail. | 07 |
| Q.5 | (a) | Give properties of Di-methyl sulfides. | 04 |
| | (b) | Give properties of Di-methyl sulfoxide. | 04 |
| | (c) | How the brightness of paper can be measured? | 03 |
| | (d) | Give the application the various lignin chemicals. | 03 |
