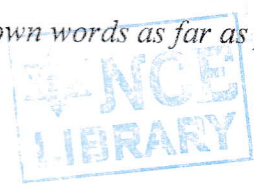


TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2082 Chaitra

Exam.	Regular (New Course)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	1 / 1	Time	1 1/2 hrs.

Subject: - Civil Engineering Material (ENCE 103)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.



1. Explain in brief why the properties and quality of engineering materials control the quality of a construction projects. Explain about any two mechanical properties with example of its significant importance. [1+1]
2. Describe the essential characteristics of a good building stone. Explain the weathering and its effects on stone structures. [1+2]
3. Briefly explain different steps of brick earth preparation for brick manufacturing. [3]
4. Briefly explain volcanic ash and calcinated clay. What is the reason for using them with lime? [1+1]
5. Describe Bogue's compound (cement clinker). What is meant by initial setting time and final setting time of a cement? [2+2]
6. Explain the properties and uses of different types of mortar commonly used in civil construction works. [2]
7. What is seasoning of timber and how it can be done? Briefly explain any two types of commercial forms of timber. [2+1]
8. Differentiate between cast iron and wrought iron. Also, explain the corrosion of steel and describe the methods adopted for its preservation. [2+2]
9. Describe in step about the procedure of applying distemper on new plastered surface. Write down the characteristics of a good varnishes. [1.5+1.5]
10. Write short on: (Any Four) [4]
 - a) Asphalt
 - b) Composite materials
 - c) AAC blocks
 - d) Metal matrix composite
 - e) Sound insulating materials

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2082 Kartik

Exam.	Back (New Course)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	I / I	Time	1½ hrs.

Subject: - Civil Engineering Materials (ENCE 103)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. Define ductile failure and brittle failure of a material. [2]
2. What are the characteristics of good building stones? Explain "preservation of stones" in brief. [1+2]
3. List out the standard test performed for bricks. Define about properties of roof tiles. [2+1]
4. Describe the differences in quick lime and hydraulic lime. [2]
5. What are the major constituents of cement clinkers? Why soundness and consistency tests of cement are important for determining quality of cement? [2+2]
6. Explain briefly the process of hand mixing and machine mixing of mortar. [2]
7. What are the commercial uses of a good timber? Write short note on bamboo as an engineering material. [1+2]
8. What is heat treatment process in metals and why is it needed? Differentiate between ferrous and non-ferrous metal. [2+2]
9. Write about varnish and its function. Explain any two defects seen in paints after its application in wall. [2+1]
10. Write short notes on: (Any Two) [2×2]
 - a) Properties and uses of bitumen
 - b) Carbon fiber
 - c) Anti-termite treatment
 - d) Steel reinforced concrete

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2081 Baishakh

Exam.	Regular(New Course -2080 Batch)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	I / I	Time	1 1/2 hrs.

Subject: - Civil Engineering Material (CE 103)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. What are the factors to be considered while selecting appropriate materials for construction works? Explain any two mechanical properties that are to be considered during material selection. [1+1]
2. Define why surface dressing is used in stones? How does deterioration of stone take place? [1.5+1.5]
3. Write a brief on 1st class brick and 2nd class brick. What causes efflorescence in bricks and how is efflorescence in a brick determined in lab? [1+2]
4. Describe about quick lime and fat lime. [2]
5. Draw a flow chart for the manufacture of cement by wet process. Describe the procedure for performing consistency test of cement in lab. [2+2]
6. What is mortar and explain about cement mortar and mud mortar with properties and where they are used? [0.5+1.5]
7. Write down the importance of seasoning of timber. Explain different methods of preservation of timber. [1.5+1.5]
8. Describe the importance of steel and its types according to their composition and properties. Write down the uses of copper as engineering material. [3+1]
9. What are the different ingredients of paint? Explain with their role as ingredients of paint. [3]
10. Differentiate between asphalt and bitumen. Write a short note on aerated autoclave blocks. [2+2]

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2081 Kartik

Exam.	Back (New Course -2080 Batch)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	I / I	Time	1½hrs.

Subject: - Civil Engineering Material (CE 103)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. How does the weathering affect the civil engineering materials? What is the major difference between ductile and brittle failure of materials? [1+1]
2. Explain about why and where the use of stoned preferred in engineering constructions. [3]
3. Write about the essential constituents of good brick earth with their percentage composition and function. Define glazing with its function. [2+1]
4. Define hydraulicity of lime. Write a short note on lean lime. [1+1]
5. Explain briefly the manufacturing of cement by WET PROCESS with its flow diagram. In what conditions it is considered a better process than the dry process? [3+1]
6. What are the things to be considered while using ordinary cement mortar for constructions? [2]
7. What does a seasoning of timber mean and why is it necessary? Write the distinctive properties of hard wood and soft wood. [1.5+1.5]
8. What is main principle of heat treatment of metal? Describe annealing, normalizing and quenching. [1+1+1+1]
9. Differentiate between the paint and varnish. Write down the process of application of paint in new wood surface. [1.5+1.5]
10. Compare between bitumen and tar. Describe about anti- termite treatments. [2+2]

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INSTITUTE OF ENGINEERING
Examination Control Division
2081 Chaitra

Exam.	Regular (New Course)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	I / I	Time	1½ hrs.

Subject: - Civil Engineering Materials (ENCE 103)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. What are the difference between hardness, toughness and strength of a material? Explain with example. [3]
2. What is dressing of stones and how can dressing of stones be done? [1+1]
3. Write about the major constituents of Brick earth with their role in manufacturing and property of bricks. [3]
4. Explain in brief about the storage and handling of fat lime. [2]
5. Explain about compounds of cement clinkers and their function in cement. Why is pozzolana used to make (PPC) Portland Pozzolana-cement? [3+1]
6. How is mud mortar different from cement mortar? [2]
7. Describe briefly the various methods used in preserving timber. [3]
8. Define Metals and Alloys. Explain about the “surface hardening” as heat treatment process of metals. [2+2]
9. What are the ingredients of paint? Explain few of the characteristics of a good paint. [2+1]
10. Write short notes on: (Any Two) [2×2]
 - a) Type of Plastic materials
 - b) Gypsum products
 - c) Aerated Autoclave Concrete (AAC) Blocks
 - d) Properties and use of Tar
