

B. TECH. Civil (Construction Management)

Term-End Examination

June, 2013

**ET-523 (B) : Operation and Maintenance of
Construction Equipment**

Time : 3 hours

Maximum Marks : 70

Note : Answer any seven questions. All questions carry equal marks. Use of scientific calculators is allowed.

1. (a) Compare the merits and demerits of purchasing an equipment over hiring. What are the conditions warranting the purchasing of equipment ? 5
- (b) What are the general considerations for selection of a equipment ? 5
2. Distinguish between licence and permit. Why do contractors require to obtain licence to practice their trade ? Who arranges permits and who gives licence to constructions tradesmen ? 10
3. (a) Discuss the reasons why the output in night shifts is less than that during day shift ? 5
- (b) How are job and management factors considered in obtaining the average output of an equipment ? 5

4. (a) How are the fuel charges for construction equipment computed ? 5
- (b) What charges or costs are included in total capital costs ? Explain each item of above with example. 5
5. (a) How will you plan the access roads in a project area ? What are guidelines for aligning haul roads ? 6
- (b) Name the four major types of inspections and explain each type briefly. 4
6. (a) Discuss the role of project manager in maintenance schedule giving suitable examples. 5
- (b) Why should the records of downtime be maintained giving suitable reasons of maintenance of such records ? 5
7. (a) What information do you require to select a pump for a particular job ? Explain briefly why these information are required. 5
- (b) How can you determine the performance of two pumps given their speeds of rotation and discharge, power and head of operation of one pump ? 5

8. (a) How does weather and altitude affect the performance of an IC engine ? 5
- (b) Why is cooling system required on IG engines ? 5
9. (a) What is turbocharging and why is it necessary ? 5
- (b) Explain the working of a centrifugal compressor. 5
10. (a) Describe with a neat sketch a ram type grout pump. 4
- (b) How does a single acting steam hammer operate ? What are its merits and demerits ? 6
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