ET-523(B)

B.Tech. Civil (Construction Management)

Term-End Examination

00923

June, 2018

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 calculator is permitted.*

1. (a) Discuss the advantages and disadvantages of renting of equipment over purchasing it. When do you prefer renting ?

   (b) What are the various costs considered while fixing hire charges ? Explain each type of cost consideration briefly.   *5+5*

2. (a) Why is the output during night shifts less than that in the day ? How does weather affect the output of an equipment ?

   (b) What do you understand by "downtime" ? How do you control it ?   *5+5*

3. (a) Describe the four major types of inspections.

(b) What is preventive maintenance ? What are its principal objectives ? $5+5$

4. (a) Why is a log book a historical record ? What information do you get from a log book ?

(b) What is priming ? What are the different methods of priming a pump ? $5+5$

5. (a) Explain different methods of cooling the IC engine. Why is a cooling system required on an IC engine ?

(b) How do weather and altitude affect the performance of an IC engine ? $5+5$

6. (a) Why do you carry out cash flow analysis for equipment ?

(b) How will you ensure safety on a construction job ? $5+5$

7. (a) Draw an organisational chart for centralised maintenance. Describe the objectives of an organisational chart for equipment management.

(b) What role do operating conditions play on machine productivity ? $5+5$

8. (a) What is a centrifugal pump ? How does a reciprocating pump lift water ?

(b) What are the guidelines for aligning haul roads and how will you plan the access roads in a project area ?   *5+5*

9. (a) Where is vibratory pile driver preferred ? What are the advantages of a vibratory pile driver ?

(b) A pump operating at a rate of 3600 rpm requires 90 kW power to discharge 120 litres/sec against a head of 75 m. Find its capacity head and power required at 2100 rpm.   *5+5*

10. Write short notes on any *five* of the following :   *5×2=10*

(a) Erection charges

(b) Depreciation

(c) Supercharging

(d) Type of lubricants

(e) Petrol engine

(f) Training of operators

(g) Job and management factors