



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN NAUTICAL SCIENCE

ANS 2312 : POWER PLANT II

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date Apr 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose No questions. Attempt Choose instruction.

Do not write on the question paper.

PAPER 1

Question ONE

- (a) Describe the process of waste heat recovery from the boiler [5Marks]
- (b) Outline the basic maintenance to be carried on a boiler [6Marks]
- (c) State the safety measures under the Health and Safety Act CAP 514 required before a boiler is put into operation. [4Marks]
- (d) Explain the importance of daily logging of the boiler operational parameters. [5Marks]

Question TWO

- (a) Describe the working principles of the reaction turbine. [5Marks]
- (b) Differentiate between the working principle of the water tube and fire tube boilers [4Marks]
- (c) (i) List FOUR types of boiler mountings.

(ii) State the function of each of the boiler mountings mentioned in (a)(i) above

[8Marks]

(d) State THREE reasons for blowing down a boiler.

[3Marks]

Question THREE

(a)(i) Describe one method used for supercharging in diesel engines.

(ii) State TWO advantages of super charging.

[6Marks]

(b) Describe TWO methods used in the starting of large diesel engine power plants

[6Marks]

(c) Outline the essential elements of a diesel plant and state their functions

[8Marks]

Question FOUR

(a) Explain the oily water distillation system process aboard a ship.

[8Marks]

(b) State the regulations regarding the discharge of contaminated water aboard a ship into the sea.

[4Marks]

(c) Describe the following feed water treatment process.

(i) Hot Lime

(ii) Sodium Zeolite

[8Marks]

Question FIVE

(a) (i) Explain the working principle of the steam engine

(ii) State FOUR limitations of steam engines compared to diesel engines

[10Marks]

(b) Outline the advantages and disadvantages diesel plants.

[5Marks]

(d) Draw lubrication system layout plan for a diesel engine.

[5Marks]

Question TWO

Question THREE

Question FOUR

Question FIVE