Total No. of printed pages = 7

END SEMESTER / RETEST EXAMINATION, J/F 2023

Semester : 5th

Subject Code : Me-503

PLANT MAINTENANCE ENGINEERING

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instructions :

- *All* questions of PART – A are compulsory.
- Answer any *three* questions from PART – B.

PART – A

Marks – 25

1. Answer the following Multiple Choice Questions by tick(√) mark the correct option : 1×10=10

   (a) Zero line represents _____ size.

   (i) Actual (ii) Basic

   (iii) Zero (iv) None of these

[Turn over

(b) Gaskets are used only to seal the _____ clearances.

(i) Static (ii) Dynamic

(iii) Both (i) and (ii) (iv) None of these

(c) Codification is generally limited to _____ digits.

(i) six (ii) seven

(iii) eight (iv) None of these

(d) The repetitive jobs carried out in all maintenance activities in between two overhauling is termed as _____ cycle.

(i) Repair cycle (ii) Minor repair

(iii) Major repair (iv) None of these

(e) The non-linearity across the guideways is called _____.

(i) Spiral twist (ii) Straightness

(iii) Parallelism (iv) None of these

(f) Machining is done when the extent of wear is _____0.3 mm.

(i) Above (ii) Below

(iii) Equal to (iv) None of these

(g) For a hole basis system, different fits are obtained by varying the _____ diameter.

(i) Shaft (ii) Hole

(iii) Both (i) and (ii) (iv) None of these

(h) Maximum allowance is the difference between the _____ hole size and the _____ shaft size.

(i) largest, smallest (ii) smallest, largest

(iii) largest, largest (iv) None of these

(i) The gap or clearance between two mating surfaces can be better checked by _____.

(i) Feeler gauge (ii) Radius gauge

(iii) Snap gauge (iv) None of these

(j) Pressure with standing capacity of a boiler can be checked by _____ test.

(i) Inspection (ii) Hydraulic test

(iii) Water hammer (iv) None of these.

2. Fill in the blanks : 1×10=10

(a) For an interference fit smallest shaft dia is greater than _____ hole diameter.

(b) The foundation bolt cavity may be made concrete _____ levelling.

(c) Piles are used for the installation in a _____ soil.

(d) Straightness of flat surfaces are levelled with _____.

(e) To take readings of dial indicator on different profiles of guide way _____ is mostly used during measuring extent of wear.

(f) Anvil crack can best be repaired by _____.

(g) The _____ welding is an efficient procedure to deposit materials as a repairing measure.

(h) Predictive maintenance is a type of _____ maintenance.

(i) Smearing technique is used to identify wear on _____.

(j) Break down maintenance is suitable only for _____ industries.

3. Write True or False : 1×5=5

(a) Galvanising is suitable for small items like screws, bolts etc.

(b) More standby equipments are needed in case of preventive maintenance.

(c) Generally a try square is used to measure the perpendicularity of two adjacent surfaces.

(d) Pitting corrosion is very common on metals like brass, copper etc.

(e) Dirt is not responsible for bearing failure.

PART – B

Marks – 45

4. (a) What is fit ? State its different types with suitable examples. 5

   (b) Why is the hole basis system adopted in all modern systems of fits ? 5

   (c) Why planned maintenance is preferred over breakdown maintenance ? 5

5. (a) How levelling and alignment are done at the time of installation of a machine ? 5

   (b) What is the difference between the static and dynamic seals ? State a few common applications of the packing and gaskets. 5

   (c) What is maintenance planning ? Discuss sequential steps of maintenance planning and control. 5

6. (a) What are the causes of mechanical wear of guideways and slides ? 5

   (b) What are the common procedures to recover worn surfaces ? Describe in detail. 10

7. (a) How do you repair key way on a shaft ? 5

(b) Explain how worn files are re-conditioned ? 5

(c) How do you repair cracks on C.I. body. 5

8. (a) What are the functions of lubrication ? Discuss the most important properties of lubricants. 3+4=7

(b) What is meant by corrosion ? Explain various corrosion control procedures. 2+6=8