

MECHANICAL DEPARTMENT **BEARINGS TEST (T14)**

CANDIDATE NAME:GROUP NO:

RESULT PASS
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ASSESSOR:*PRINT*:*SIGN*

- 1 Name the two type of rolling elements.

 i) BALL BEARINGS

 ii) ROLLER BEARINGS
- 2 Which type of bearing has the higher radial capacity?

 PLAIN BEARINGS OR NEEDLE ROLLER BEARINGS
- 3 What are the two advantages of seals and shields in anti-friction bearings?

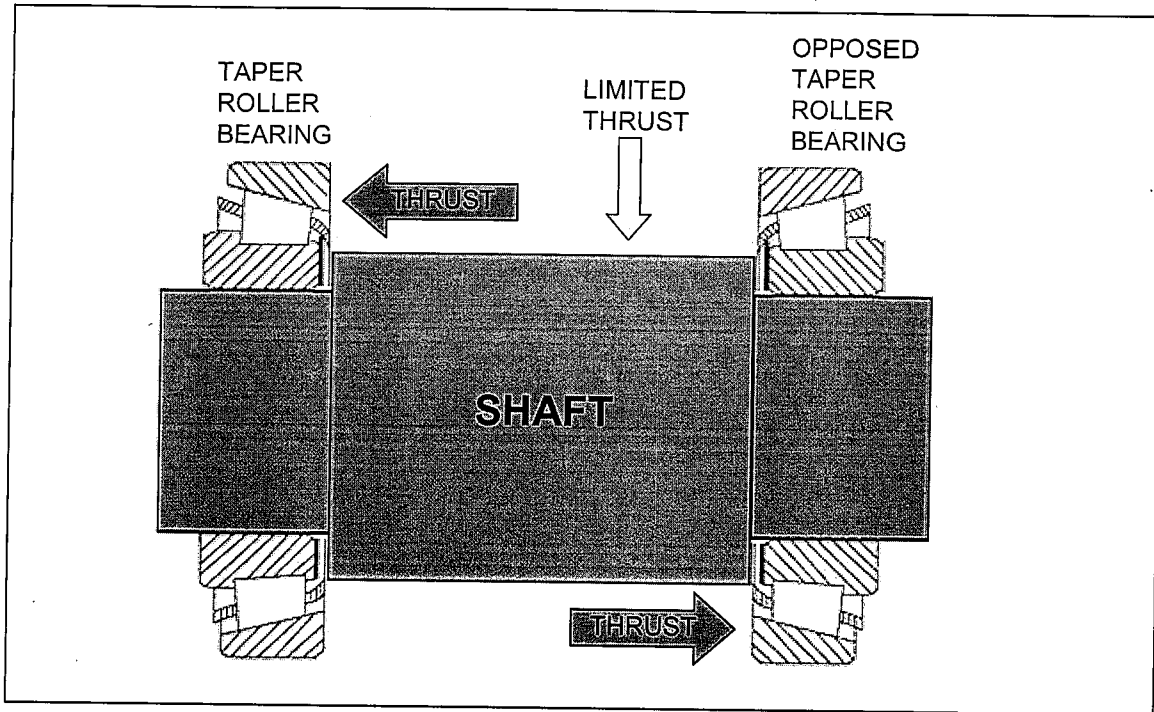
 i) SHIELD – KEEPS ANY CONTAMINATION OUT

 ii) SEALS – KEEP THE LUBRICATION IN
- 4 What type of load would a roller bearing take?

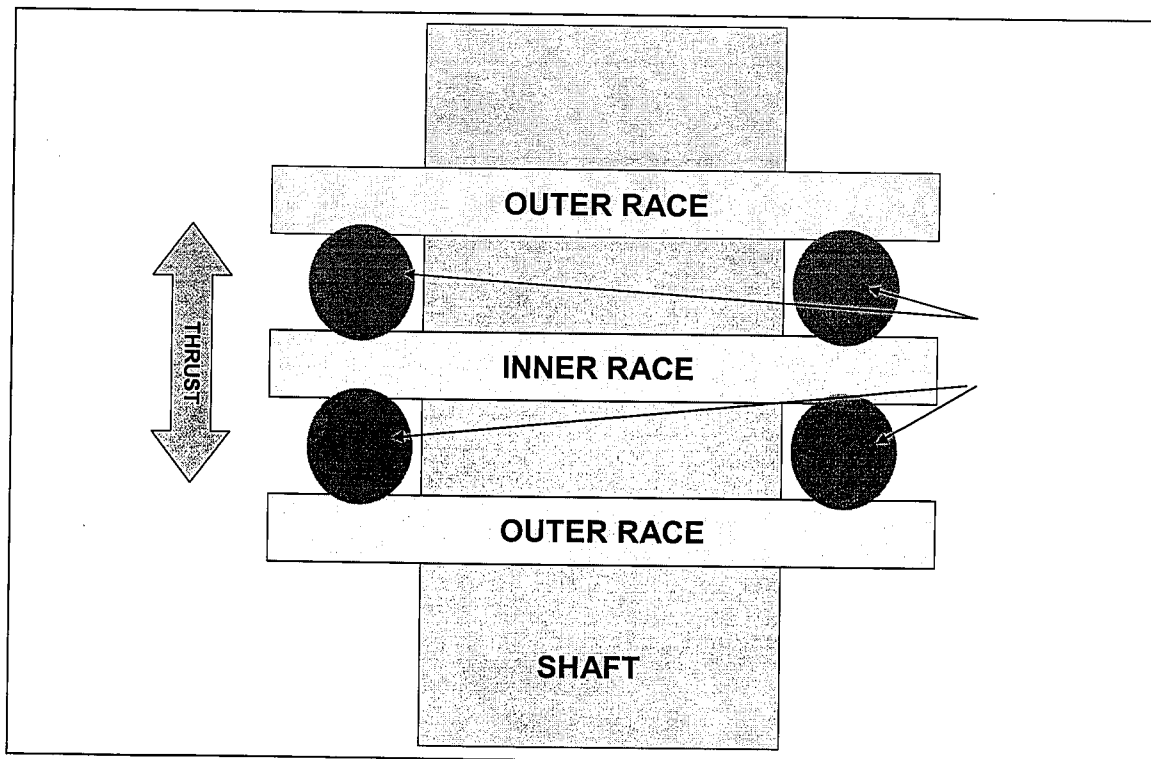
 (PIN POINT) RADIAL LOAD
- 5 What type of load would a taper rolling bearing take?

 RADIAL AND LIMITED AXIAL LOAD

- 6 Draw and label a shaft with two taper roller bearings assembled upon it and identify how this will accommodate heavy axial thrusts in either direction.



- 7 Draw and label a double acting ball thrust bearing; indicate the directions in which each item will carry axial loads.



8 Give two advantages of needle roller bearings.

i) CAN BE USED IN CONFINED SPACES

ii) CARRY HIGHER RADIAL LOAD

9 What is the main advantage of using a double row spherical roller bearing?

ALLOWS FOR SLIGHT MISALIGNMENT DUE TO SELF ALIGNMENT

10 What could cause early failure of a roller bearing if the outer race had lips on it and describe how this happens?

AS THE SHAFT SPINS IT CREATES CENTRIFUGAL FORCE, WHICH THROWS THE LUBRICATION OUTWARDS. ANY DEBRIS SUSPENDED IN THE LUBRICATING MEDIUM WOULD BE CAUGHT AGAINST THE LIP IN THE OUTER RACE THUS CREATING AN AREA OF WEAR.

11 Give six advantages of plain bearings over anti-friction bearings.

i) QUIETER IN OPERATION

ii) LOWER COST

iii) EASIER INSTALLATION / REPLACEMENT

iv) COMPACT (SMALL) SIZE

v) RESILIENT TO DAMAGE FROM DIRT

vi) RESISTS UNEXPECTED SHOCK LOADING

12 Give one advantage of a split plain bearing over a complete plain bearing.

CAN BE FITTED / REPLACED IN SITU

13 Name four types of materials that plain bearings are made from.

(SELECT FROM ; -)

i) WHITE METAL

ii) BRONZE

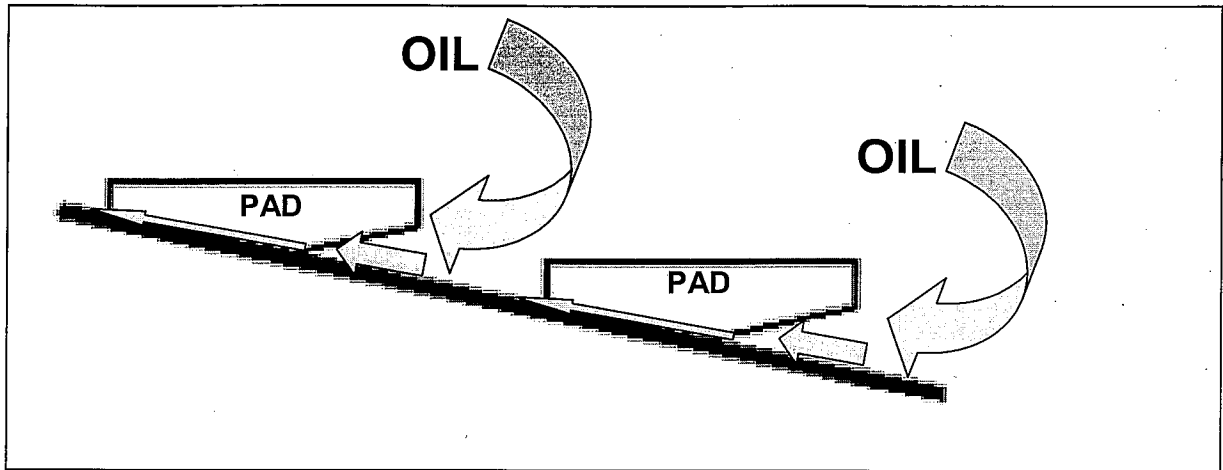
iii) BRASS

iv) CAST IRON

v) GRAPHITE

v) PLASTICS

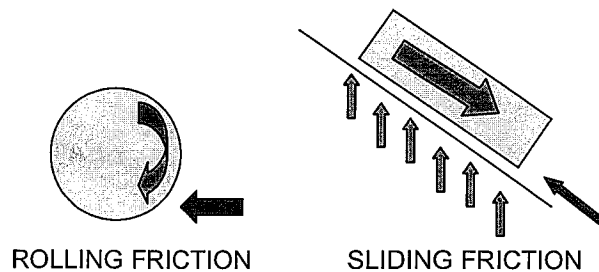
- 14 With the aid of a sketch show in detail how the pads on a thrust plate are lubricated.



- 15 What should be taken into consideration when aligning shafts with plain Bearings fitted?

- A) THE SHAFT WILL LIFT WHEN THE OIL PRESSURE INCREASES.
- B) ANY MIS-ALIGNMENT WILL CAUSE WEAR ON THE SHAFT.

- 16 With the aid of a sketch, describe sliding and rolling friction.



- 17 Why do plain bearings have grooves cut into their surface?

TO ALLOW FOR LUBRICATION TO GET ALL AROUND THE SURFACES.

- 18 Draw a rotating shaft, identify and indicate the direction of forces that could be present.

