



AEN (M) 2013-19

FOR EVALUATOR'S USE ONLY

Sub. Code : **55**

Optional Paper

Mechanical Engineering : Paper-I

Time : 3 Hours / Maximum Marks : 200 / Total Pages : 32

Evaluation Table													(For Evaluator's Use Only)	
PART-A				PART-B				PART-C				Grand Total		
QN	E-1	E-2	AC	QN	E-1	E-2	AC	QN	E-1	E-2	AC	PART-A		
1				21				33				PART-B		
2				22				34				PART-C		
3				23				35				Total		
4				24				36				(-) Marks		
5				25				37				Final Total		
6				26				38				Marks in Words		
7				27				39						
8				28										
9				29										
10				30										
11				31								Remarks of Evaluator/Chief Evaluator		
12				32										
13														
14														
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16														
17														
18												Remarks of Scrutiniser		
19														
20														
Total														
Evaluator's Sign														



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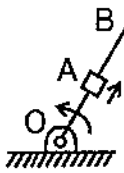
PART – A

Marks : 40

Note : Attempt all the twenty questions. Each question carries 2 marks. Answer should not exceed 15 words.

1 Why does the pressure angle remain constant during engagement in involute teeth gears ?

2 A link OB is rotating with a constant angular velocity of 2 rad/s in counter clockwise direction and a block is sliding radially outward on it with an uniform velocity of 0.75 m/s with respect to the rod, as shown in the figure below. If OA = 1 m, what is the magnitude of the absolute acceleration of the block at location A in m/s^2 ?



3 What is meant by self-locking brakes ?

4 Which type of ball-bearing can take up considerable amount of shaft misalignment ?

5 Define Atomic Packing Factor.

6 What are the properties required for bearing materials ?



7 List various crystalline imperfection as based on their geometry.

8 What are the two most important alloying elements added to improve corrosion resistance of steel ?

9 A thin cylinder of inner radius 500 mm and thickness 10 mm is subjected to an internal pressure of 5 MPa. What is the average circumferential (hoop) stress ?

10 What is fatigue failure ?

11 Which effects are taken into account by employing the Wahl's stress factor in design of helical springs ?

12 Why is a boss usually provided at the fulcrum of a lever ?

13 A steel bar of 200 mm diameter is turned at a feed of 0.25 mm/rev with a depth of cut of 4 mm. The rotational speed of the workpiece is 160 rpm. What is the material removal rate ?

14 What are the major defects which are likely to occur in sand castings ?

15 What are the functions of flux coating on the electrodes employed in arc welding ?

16 What is meant by unilateral and bilateral tolerance ? Give examples.

17 Define Method study.

18 What is the difference between public limited company and private limited company ?



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SPACE FOR ROUGH WORK



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