CBCS SCHEME

1/3	US	N	18ME46B/1	8MEB406	
1/2/		1			
lail.	THE PARTY OF THE P	Section 1	Fourth Semester B.E. Degree Examination, Jan./Feb. 2023	th Semester B.E. Degree Examination, Jan./Feb. 2023	
M.R.	THE REAL PROPERTY.		Mechanical Measurements and Metrology		
10	C	ME			
*	Ti	mė:	3 hrs.//	Marks: 100	
	SANG!	ALORE			
e.		Λ	Note: Answer any FIVE full questions, choosing ONE full question from each mo	odule.	
blank pages. = 50, will be treated as malpractice.			Module-1		
ıalpı	1	a.	Define metrology. State the objectives of metrology.	(06 Marks)	
as n		b.	Distinguish between line standard and end standard.	(06 Marks)	
ted		c.	Four length of bars A, B, C, D of approximately 250 mm each are to be call		
i tes			standard calibrated metre bar which is actually 0.0008 mm less than a metre. It is		
ages II be			that, bar B is 0.0002 mm longer than bar A, bar C is 0.0004 mm longer than bar A		
y hij			is 0.0001 mm shorter than bar A. The length of all four bars put together is		
blar = 50			longer than the calibrated standard metre. Determine the actual dimension of each		
ning +8=				(08 Marks)	
nair ,, 42			O-OR		
e rei n eg	2	a.	Explain the wringing phenomena of slip gauge.	(05 Marks)	
n th ritte		b.	Explain the working of autocollimator with the help of a neat sketch.	(07 Marks)	
es o		c.	Select size of the angle gauges required to build the following angles. Also		
s lin			arrangement: (i) 33°16'42" (ii) 102°8'42"	(08 Marks)	
On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Any revealing of identification, appeal to evaluator and /or equations written eg, $42+8=50$, will be					
nal /or			Module-2		
and	3	a.	With a general sketch, explain the limits, tolerance, fits, allowances and deviation	ıs	
w d			with a general alterni, explain are limital, references, it is, and walless and deviation	(10 Marks)	
dra valu		b.	What is meant by interchangeability? State its advantages.	(06 Marks)	
orily to e		c.	Enumerate the classification of plain gauges.	(04 Marks)	
oulsc					
ompuls			OR /		
On completing your answers, or Any revealing of identification,	4	a.	Define comparator. What is the need of comparator?	(04 Marks)	
ficat		b	With a neat sketch, explain the working of sigma comparator.	(08 Marks)	
ır an lenti		C.	Sketch and explain the working of LVDT.	(08 Marks)	
yor of id		49			
ting ing			Module-3		
nple	5	a.	Derive the expression for the effective diameter of screw thread using two wire m	ethod.	
y re				(10 Marks)	
		b.	With a neat sketch, explain the construction and working of tool makers microso		
.1.			are its applications?	(10 Marks)	
Important Note: 1.					
ant]	-		OR		
port	6	a.	Explain how gear tooth Vernier caliper is used to measure gear tooth thickness.	(10 Marks)	
[m]		b.	With a schematic diagram, explain the working principle of CMM.	(10 Marks)	

18ME46B/18MEB406

Module-4 Explain the generalized measurement system with the aid of block diagram. (10 Marks) b. Explain the following terms: (ii) Repeatability (iii) Linearity (i) Sensitivity (iv) Threshold (v) Least count (10 Marks) What is transducer? Sketch and explain working principle of piezo-electric transducers. (10 Marks) With a neat sketch, explain the working of CRT. (10 Marks) Module-5 With a neat sketch, explain the working of Rope brake dynamometer. (10 Marks) 9 With a neat sketch explain the working of McLeod gauge. (10 Marks) What is thermocouple? State the laws of thermocouple. (08 Marks) Describe the working and construction of optical pyrometer. (08 Marks) (04 Marks) Write short note on gauge factor.