

KATHMANDU UNIVERSITY  
End Semester Examination  
February/March, 2018

Marks scored:

Level : B.E.

Year : II

Course : MEEG 219

Semester: I

Exam. Roll No.:

Time: 30 mins.

F.M. : 20

Registration No.:

Date MAR 18 2018

SECTION "A"

[20 Q. × 1 = 20 marks]

Choose the most appropriate answer and mark [X].

1. A reliable instrument  
 gives reproducible results within specified limits  
 has good frequency response  
 has errors of same size and sign under the same working conditions  
 gives linear characteristics within the entire range
2. Which of the following is the wrong is a false statement  
 the specification of the percentage of full scale deflection is more accurate than the percentage of true value  
 hysteresis refers to the error in the output for a given value of input when this value is approached from ascending order and then descending order  
 sensitivity defined as the ratio of the magnitude of response to that magnitude of quantity being measured has a wide range of units depending upon the instrument or measurement system being investigated  
 resolution of a system refers to small change in the measure and that can be measured
3. A pressure measurement instrument is calibrated between 10 bar and 250 bar. The scale span of the instrument is  
 10 bar             250 bar             240 bar             260 bar
4. \_\_\_\_\_ gauge is used for checking check gauge and for arbitration purposes in case of doubt.  
 Master             Reference             Check             Workshop
5. \_\_\_\_\_ is difference between the maximum shaft and minimum hole.  
 Allowance             Clearance             Interference             Transition
6. What does allowance represent in clearance fits?  
 it represents maximum clearance and is negative  
 it represents minimum clearance and is negative  
 it represents maximum clearance and is positive  
 it represents minimum clearance and is positive
7. \_\_\_\_\_ system is most commonly in interchangeable manufacture especially where precision fits are required.  
 Unilateral             Bilateral             Interchangeability  Limit

8. A Push fit is \_\_\_\_\_ fit.  
 allowance       clearance       interference       transition
9. \_\_\_\_\_ is defined as the repeatability of a measuring process.  
 Precision       Accuracy       Graduation       Measure
10. The \_\_\_\_\_ errors are due to conditions external to the measuring device  
 instrumental       avoidable       environmental       observational
11. An \_\_\_\_\_ is an instrument used for measure small angular deflection.  
 clinometer       spirit level       auto-collimator       bevel protractor
12. Which type of deviation is observed while calculating hole dimensions?  
 negative       positive       zero       all of the above
13. In hole basis system, basic size is equal to  
 minimum hole size       maximum hole size  
 upper deviation which is zero       none of the above
14. A bar of length 'L' need to be supported at two points. Distance between the supports as per Sir G. B. Airy is given by  
 0.557 L       0.577 L       0.517 L       0.554 L
15. \_\_\_\_\_ gear is a gear wheel or pinion for transmitting motion between two parallel shafts.  
 Spur       Bevel       Helical       Rack and Pinion
16. What effect does pitch error have on nut and bolt?  
 major diameter of nut decreases and effective diameter of bolt increases  
 effective diameter of nut increases and effective diameter of bolt decreases  
 effective diameter of nut decreases and effective diameter of bolt increases  
 none of the above
17. Which method gives accurate results when effective diameter is measured without considering the thread angle?  
 one wire method       two wire method  
 three wire method       best wire size
18. The module of the gear is given by  
  $d/t$         $2d/t$         $d/2t$         $d/3t$   
 Where,  $d$  = diameter of pitch circle &  $t$  = number of teeth
19. Distance measured along the circumference of pitch circle from a point on tooth to corresponding point on adjacent tooth is known as  
 circular pitch       diametric pitch       gear ratio       module
20. Which principle does Taylor-Hobson-Talysurf tester work on?  
 capacitive demodulating principle       intensity modulating principle  
 carrier modulating principle       inductive modulating principle

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SECTION "B"

*Attempt ALL the questions.*

1. State and describe with example the important elements of measurement. [3]
2. Why frictional resistance to motion is high in V- thread than square thread. [3]
3. Explain different factors to be consider while using Gauge. [2]
4. Name the various methods of inspecting the surface finish by comparison. [2]
5. Differentiate between [2×2 = 4]
  - a. Analog instrument and digital instrument
  - b. Line standard and end standard
6. Explain different types of pitch error in screw thread. [4]
7. Write short note on: [3×2 = 6]
  - a. Go and No Go Gauge
  - b. Angle
  - c. Bench micrometer
8. Describe with sketch. [3×5 = 15]
  - a. Imperial standard yard
  - b. Tomlinson surface meter
  - c. Tooth to tooth pitch measurement
9. Explain the use of Sine bar with sketch when the component is of large size. [5]
10. Explain with the help of neat sketch the principle and construction of an auto-collimator. [5]
11. Explain spur gear terminology with neat sketch. [6]

