Reg. No. :

Question Paper Code: 59713

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2020

Fifth Semester

Mechanical Engineering

15UME503 – DESIGN OF MACHINE ELEMENTS

(Regulation 2015)

Duration: One hour   Maximum: 30Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The ability of material to resist scratching and indentation is   CO1- R

   (a) Hardness   (b) Stiffness   (c) Resilience   (d) Surface finish

2. 50.025 (or) 49.075 is the   CO1- U

   (a) Unilateral tolerance   (b) Reference of tolerance

   (c) Bilateral tolerance   (d) Modified tolerance

3. A key capable of fitting in a recess milled out in a shaft is known as   CO2-R

   (a) Wood ruff key   (b) Feather key   (c) Flat saddle key   (d) Gib head key

4. The element which join two shafts are called   CO2- R

   (a) Coupling   (b) Bush   (c) Bearing   (d) None of the Above

5. The thickness of plate in a riveted joint in boiler is determined on the basis of   CO3- U

   (a) Tearing strength of plate   (b) Shearing strength of margin
   (c) Crushing strength of plate   (d)Hoop stress

6. Welded joint is called as   CO3- R

   (a) Permanent joint   (b) Linked joint   (c) Temporary joint   (d) Movable joint

7. The springs made in the form of a cone disk to carry a high compressive force is   CO4- U

   (a) Helical   (b) Belleville   (c) Leaf   (d) None of the above

8. An elastic member which deflects under the action of load and regains its   CO4- R
   original shape after the removal of load is

   (a) Shaft   (b) Bolt   (c) Spring   (d) Coupling

9. The following type(s) of bearing(s) have no rolling element.   CO5- U

    (a) Thrust bearing   (b) Linear bearing   (c) Journal bearing   (d) All the above

10. Hydrostatic bearing usually use _____ as lubricant   CO5- U

    (a) Oil   (b) Grease   (c) Nothing   (d) Any of the above

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PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

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11. Discuss about the Factors influencing Machine Design.   CO1- U   (8)
12. Draw a Muff Coupling connecting two shafts with design parameters   CO2- U   (8) and write the equations for the design procedure.
13. Discuss about the Bonded Joints.   CO3- U   (8)
14. Design a cantilever leaf spring to absorb 600 N-m energy without   CO4- App   (8) exceeding a deflection of 150 mm and a stress of 800 N/mm^2. The length of the spring is 600 mm. the material of spring is steel.
15. Compare the Rolling contact bearing with Sliding contact bearing.   CO5- U   (8)