PAPER 4

Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: MEC701 and Course Name: MACHINE DESIGN II

Time: 1 hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

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| Q1. | When bevel gears connect two shafts whose axes intersect at an angle greater than a right angle and one of the bevel gears has a pitch angle of 90 o, then they are known as |
| Option A: | angular bevel gears |
| Option B: | crown bevel gears |
| Option C: | internal bevel gears |
| Option D: | mitre gears |
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| Q2. | The piston pin bearings in heavy duty diesel engines are |
| Option A: | needle roller bearings |
| Option B: | tapered roller bearings |
| Option C: | spherical roller bearings |
| Option D: | cylindrical roller bearings |
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| Q3. | For low and moderate speed engines, the cam follower should move with |
| Option A: | uniform velocity |
| Option B: | simple harmonic motion |
| Option C: | uniform acceleration and retardation |
| Option D: | cycloidal motion |
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| Q4. | The backlash for spur gears depends upon |
| Option A: | Module |
| Option B: | pitch line velocity |
| Option C: | tooth profile |
| Option D: | both (a) and (b) |
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| Q5. | The size of a gear is usually specified by |
| Option A: | pressure angle |
| Option B: | pitch circle diameter |
| Option C: | circular pitch |
| Option D: | diametral pitch |
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| Q6. | Antifriction bearings are |
| Option A: | thick lubricated bearings |
| Option B: | plastic bearings |
| Option C: | thin lubricated bearings |
| Option D: | ball and roller bearings |
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| Q7. | When bevel gears having equal teeth and equal pitch angles connect two shafts whose axes intersect at right angle, then they are known as |
| Option A: | angular bevel gears |
| Option B: | crown bevel gears |
| Option C: | internal bevel gears |
| Option D: | mitre gears |
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| Q8. | Due to slip of the belt, the velocity ratio of the belt drive |
| Option A: | decreases |
| Option B: | increases |
| Option C: | does not change |
| Option D: | zero |
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| Q9. | A bearing is designated by the number 405. It means that a bearing is of |
| Option A: | light series with bore of 5 mm |
| Option B: | medium series with bore of 15 mm |
| Option C: | heavy series with bore of 25 mm |
| Option D: | light series with width of 20 mm |
|  |  |
| Q10. | For high speed engines, the cam follower should move with |
| Option A: | uniform velocity |
| Option B: | simple harmonic motion |
| Option C: | uniform acceleration and retardation |
| Option D: | cycloidal motion |
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| Q11. | The difference between the tooth space and the tooth thickness as measured on the pitch circle, is called |
| Option A: | working depth |
| Option B: | clearance |
| Option C: | face width |
| Option D: | backlash |
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| Q12. | The velocity ratio of two pulleys connected by an open belt or crossed belt is |
| Option A: | directly proportional to their diameters |
| Option B: | inversely proportional to their diameters |
| Option C: | directly proportional to the square of their diameters |
| Option D: | inversely proportional to the square of their diameters |
|  |  |
| Q13. | The listed life of a rolling bearing, in a catalogue, is the |
| Option A: | minimum expected life |
| Option B: | maximum expected life |
| Option C: | average life |
| Option D: | rated life |
|  |  |
| Q14. | A circle drawn with centre as the cam centre and radius equal to the distance between the cam centre and the point on the pitch curve at which the pressure angle is maximum, is called |
| Option A: | base circle |
| Option B: | pitch circle |
| Option C: | prime circle |
| Option D: | Secondary circle |
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| Q15. | In a gear, having involute teeth, the normal to the involute is a tangent to the |
| Option A: | pitch circle |
| Option B: | base circle |
| Option C: | addendum circle |
| Option D: | dedendum circle |
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| Q16. | In a hydrodynamic lubricated bearing |
| Option A: | there is a thick film of lubricant between the journal and the bearing |
| Option B: | there is a thin film of lubricant between the journal and the bearing |
| Option C: | there is no lubricant between the journal and the bearing |
| Option D: | the lubricant is forced between the journal and the bearing, by external pressure |
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| Q17. | The dedendum circle diameter is equal to (where í = Pressure angle) |
| Option A: | pitch circle diameter x cos í |
| Option B: | addendum circle diameter x cos í |
| Option C: | clearance circle diameter x cos í |
| Option D: | pitch circle diameter x sin í |
|  |  |
| Q18. | The diameter of the shorter pulley in leather belt drive is 265mm. It is rotating at 930 rpm. Calculate the velocity of the belt |
| Option A: | 25m/s |
| Option B: | 20m/s |
| Option C: | 30m/s |
| Option D: | 13m/s |
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| Q19. | In worm gears, the angle between the tangent to the pitch helix and an element of the cylinder, is known as |
| Option A: | helix angle |
| Option B: | pressure angle |
| Option C: | pitch lead angle |
| Option D: | none of these |
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| Q20. | When the length of the journal is equal to the diameter of the journal, then the bearing is said to be a |
| Option A: | short bearing |
| Option B: | long bearing |
| Option C: | medium bearing |
| Option D: | square bearing |
|  |  |
| Q21. | The form factor of a spur gear tooth depends upon |
| Option A: | circular pitch only |
| Option B: | pressure angle only |
| Option C: | number of teeth and circular pitch |
| Option D: | number of teeth and the system of teeth |
|  |  |
| Q22. | A sliding bearing which operates without any lubricant present, is called |
| Option A: | zero film bearing |
| Option B: | boundary lubricated bearing |
| Option C: | hydrodynamic lubricated bearing |
| Option D: | hydrostatic lubricated bearing |
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| Q23. | Which of the following displacement diagrams should be chosen for better dynamic performance of a cam-follower mechanism |
| Option A: | simple hormonic motion |
| Option B: | parabolic motion |
| Option C: | cycloidal motion |
| Option D: | rotational motion |
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| Q24. | The driving sprocket has 20 teeth and rotates at 1400rpm. The pitch of the chain is 18mm. Calculate the velocity of the chain |
| Option A: | 6.6m/s |
| Option B: | 6.3m/s |
| Option C: | 5.8m/s |
| Option D: | 7.2m/s |
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| Q25. | When the shaft rotates in anticlockwise direction at slow speed in a bearing, it will |
| Option A: | have contact at the bottom most of the bearing |
| Option B: | move towards right of the bearing making the metal to metal contact |
| Option C: | move towards right of the bearing making no metal to metal contact |
| Option D: | move towards left of the bearing making metal to metal contact |