Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2016

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.  | Herring-bone gears are also known as  |
| Option A: | Hypoid gears |
| Option B: | Helical gears |
| Option C: | Spiral gears |
| Option D:  | Bevel gears  |
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| Q2. | Which of the following statements is true for gear drive ?  |
| Option A: | transmit very large power |
| Option B: | have low transmission efficiency |
| Option C: | require more space |
| Option D: | less maintenance costs  |
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| Q3. | A helical gear has normal module of 6 mm. What is the transverse module if helix angle is 25 degrees ?  |
| Option A: | 4.95 mm |
| Option B: | 500 mm |
| Option C: | 5.43 mm |
| Option D: | 6.62 mm |
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| Q4. | Which of the following statements is/are true for Helical gear ?  |
| Option A: | have low contact ratio than spur gears |
| Option B: | radial load is created on bearings |
| Option C: | low transmission efficiency  |
| Option D: | used for power and motion transmission  |
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| Q5. | To avoid interference the minimum number of teeth required on helical pinion decreases as helix angle \_\_\_ |
| Option A: | decreases |
| Option B: | increases |
| Option C: | does not affect number of teeth |
| Option D:  | constant  |
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| Q6. | Which of the following formulae is used to determine minimum number of teeth required on helical pinion to avoid interference ?  |
| Option A: | (2ha cos^3 Ψ) / (mn sin^2 Φn) |
| Option B: | (mn zp / 2 cos Ψn)(1+G) |
| Option C: | 1.15 π mn / sin Ψn |
| Option D:  | 2 ha |
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| Q7.  | What is the minimum face width required for a helical gear which has helix angle of 23 deg and normal module of 7 ?  |
| Option A: | ≥ 64.72 |
| Option B: | ≥ 56.28 |
| Option C: | ≥ 33.35 |
| Option D:  | ≥ 8.74 |
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| Q8.  | Angle made by \_\_\_\_\_\_\_\_ with axis of rotation is called as helix angle.  |
| Option A: | only helix |
| Option B: | only teeth |
| Option C: | helix or teeth |
| Option D:  | gear wheel  |
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| Q9. | A cylindrical roller bearing is subjected to frictional torque of 500 N-mm. What is the approximate power loss if the shaft rotates at 1500r.p.m ?  |
| Option A: | 0.0785 kW |
| Option B: | 0.0392 kW |
| Option C: | 0.0526 W |
| Option D:  | 0.0236 W |
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| Q10.  | What is the frictional torque acting on a cylindrical roller bearing of 50 mm diameter which is subjected to radial load of 30 kN and has coefficient of friction 0.0011 ?  |
| Option A: | 109 kN-mm |
| Option B: | 900 kN-mm |
| Option C: | 825 N-mm |
| Option D:  | 1650 N-mm |
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| Q11.  | Load acting on bearing in its plane of rotation iscalled as \_\_\_\_\_\_\_  |
| Option A: | axial load |
| Option B: | radial load |
| Option C: | thrust load |
| Option D:  | tangential load  |
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| Q12.  | Mass of \_\_\_\_\_\_\_\_\_\_\_ required to neutralize one gram of lubricating oil is called as neutralization number. |
| Option A: | potassium hydroxide |
| Option B: | calcium hydroxide |
| Option C: | magnesium hydroxide |
| Option D: | sodium hydroxide  |
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| Q13. | A journal of 120 mm diameter rotates in a bearingat a speed of 1000 rpm. What is the power lost duringfriction if 8 kN radial load acts on the journal and coefficient of friction is 0.002525 ?  |
| Option A: | 0.126 kW |
| Option B: | 0.253 KW |
| Option C: | 2.365 kW |
| Option D:  | 7.615 kW |
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| Q14.  | A journal bearing is a \_\_\_\_\_\_ contact bearing working on the hydrodynamic lubrication and which supports load in\_\_\_\_ direction.  |
| Option A: | Sliding, Axial |
| Option B: | Rolling, Radial |
| Option C: | Sliding, Radial |
| Option D:  | Rolling, Axial |
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| Q15. | The cam follower generally used in automobile engines is  |
| Option A: | knife edge follower |
| Option B: | flat faced follower |
| Option C: | spherical faced follower |
| Option D:  | roller follower |
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| Q16.  | 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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| Q17. | The cam follower extensively used in air-craft engines is |
| Option A: | knife edge follower |
| Option B: | flat faced follower |
| Option C: | spherical faced follower |
| Option D: | roller follower |
|  |  |
| Q18. | In a radial cam, the follower moves  |
| Option A: | direction perpendicular to the cam axis |
| Option B: | direction parallel to the cam axis |
| Option C: | any direction  |
| Option D:  | along the cam axis |
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| Q19.  | In a cone pulley, if the sum of radii of the pulleys on the driving and driven shafts is constant, then  |
| Option A: | open belt drive is recommended |
| Option B: | cross belt drive is recommended |
| Option C: | both open belt drive and cross belt drive are recommended |
| Option D:  | chain drive is recommended  |
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| Q20. | 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: | varies linearly  |
|  |  |
| Q21. | When two pulleys of different diameters are connected by means of an open belt drive, then the angle of contact taken into consideration should be of  |
| Option A: | larger pulley |
| Option B: | smaller pulley |
| Option C: | average of two pulleys |
| Option D:  | stepped pulley  |
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| Q22.  | The power transmitted by a belt is maximum when the maximum tension in the belt (T) is equal to  |
| Option A: | Tc |
| Option B: | 2Tc |
| Option C: | 3Tc |
| Option D:  | 4Tc |
|  |  |
| Q23. | The velocity of the belt for maximum power is  |
| Option A: | √T/3m |
| Option B: | √T/4m |
| Option C: | √T/5m |
| Option D:  | √T/6m |
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| Q24.  | The frictional resistance (Tr) offered by the ring inflat pivot bearing is given as |
| Option A: | 2 π μ p r δr |
| Option B: | 2 π μ p r^2 δr |
| Option C: | 2/3 π μ p r δr |
| Option D:  | 2/3 π μ p r^2 δr |
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| Q25. | In which of the following brakes the force acting on the brake drum is in axial direction ?  |
| Option A: | Block brake |
| Option B: | Shoe brake |
| Option C: | Band brake |
| Option D:  | Cone brake |