**SAMPLE QUESTION BANK**

**Program: BE (Mechanical Engineering)**

Curriculum Scheme: **Rev 2016**

**BE Semester VIII**

Course Code:MEC 801 and Course Name: Design of Mechanical Design

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**MCQ- SAMPLE SET**

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| 1. | The logical order of different activities in a design project is called \_\_\_\_\_\_\_\_\_. |
| Option A: | System Design |
| Option B: | Morphology of design |
| Option C: | Product Design |
| Option D: | Concept design |
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| 2. | Optimum design is the process of selecting the best possible design satisfying certain criteria like |
| Option A: | Feasible design |
| Option B: | Geometrical tolerance |
| Option C: | Dimensional tolerance |
| Option D: | Concurrent engineering |
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| 3. | Which of the following is not a part of snatch block of the hoisting EOT crane? |
| Option A: | Hook |
| Option B: | Cross piece |
| Option C: | Shackle plate |
| Option D: | Rope drum |
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| 4. | In the hoisting mechanism, the steel wire ropes are made up of \_\_\_\_\_. |
| Option A: | Cast iron |
| Option B: | Stainless steel |
| Option C: | Improved plow steel |
| Option D: | Low carbon steel |
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| 5. | Which types of conveyors is suitable for the transmitting material at slope from 40 to 60 deg. without slipping? |
| Option A: | Flat belt conveyor |
| Option B: | Troughed belt conveyor |
| Option C: | Blanket belt conveyor |
| Option D: | Woven wire belt conveyor |
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| 6. | In cylinder liners, thermal stress can be reduced by \_\_\_\_\_\_\_. |
| Option A: | increasing velocity of flowing water through the jacket |
| Option B: | increasing the wall thickness of the cylinder liner |
| Option C: | decreasing the wall thickness of the cylinder liner |
| Option D: | decreasing velocity of flowing water through the jacket |
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| 7. | Piston head design is based on |
| Option A: | Strength and rigidity considerations |
| Option B: | Bending and torsional moments |
| Option C: | Buckling consideration |
| Option D: | Strength and heat transfer considerations |
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| 8. | Discharge capacity of the gear pump is --------- that of the centrifugal pump. |
| Option A: | higher than |
| Option B: | Lower than |
| Option C: | Same as |
| Option D: | unpredictable |
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| 9. | If maximum spindle speeds is 500 rpm; minimum speed is 300 rpm with Number of speed steps 7, What is the geometric progression ratio? |
| Option A: | 0.91 |
| Option B: | 1.5 |
| Option C: | 1.08 |
| Option D: | 2 |
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| 10. | In ------------ progression Ratio of two spindle speeds is constant. |
| Option A: | Arithmetic |
| Option B: | Chord |
| Option C: | Harmonic |
| Option D: | Geometric |
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| 11. | Primary Design Equation stands for |
| Option A: | Cost, weight. |
| Option B: | Stress equation. |
| Option C: | Limit Equation. |
| Option D: | Shape, dimension. |
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| 12. | For buckling consideration, the end conditions of connecting rod in plane of motion are, |
| Option A: | One end is fixed and the other hinged |
| Option B: | Both ends are fixed |
| Option C: | Both ends are hinged |
| Option D: | One end is free and the other fixed |
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| 13. | Driving unit is connected to belt conveyor at: |
| Option A: | To head and tail pulley both |
| Option B: | Tail pulley |
| Option C: | Snub Pulley |
| Option D: | Head pulley |
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| 14. | System design makes systematic approach to\_\_\_\_\_\_\_ error or \_\_\_\_\_\_\_ accidents. |
| Option A: | Reduce, increase |
| Option B: | Reduce, avoid |
| Option C: | Avoid, reduce |
| Option D: | Increase, reduce |
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| 15. | Design of pulley axle of EOT crane is carried out by considering \_\_\_\_\_\_\_. |
| Option A: | Torsional shear stress |
| Option B: | Bearing stress |
| Option C: | Tensile stress |
| Option D: | Bending stress |
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| 16. | Volume carrying capacity is more in: |
| Option A: | Chain conveyor |
| Option B: | Screw conveyor |
| Option C: | Troughed belt conveyor |
| Option D: | Flat belt conveyor |
|  |  |
| 17. | In case of bearing selection for pulley of EOT crane, the rotation factor V will be ? |
| Option A: | 1 |
| Option B: | 2 |
| Option C: | 1.2 |
| Option D: | 2.1 |
|  |  |
| 18. | The process of filling the liquid into the suction pipe and pump casing up-to the level of delivery  valve is called as \_\_\_\_\_\_\_\_\_. |
| Option A: | Pumping |
| Option B: | Filling |
| Option C: | Leveling |
| Option D: | Priming |
|  |  |
| 19. | The function of piston skirt is |
| Option A: | To support gudgeon pin |
| Option B: | To provide bearing surface for side thrust |
| Option C: | To seal the cylinder and prevent leakage of oil past piston. |
| Option D: | To support gas load |
|  |  |
| 20. | The optimization problem involves ……………….. |
| Option A: | Short computations |
| Option B: | Zero computations |
| Option C: | Long computations |
| Option D: | Span computations |
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| 21. | What is design morphology ? |
| Option A: | sequential design methodology |
| Option B: | force analysis |
| Option C: | material selection |
| Option D: | optimum design |
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| 22. | Planning for distribution involves |
| Option A: | Design of reliability |
| Option B: | Design of safety |
| Option C: | Planning of warehouse systems |
| Option D: | Planning of recycling |
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| 23. | What does number 6 indicate in the class of wire rope 6 x 37 (18/12/6/1)? |
| Option A: | Diameter |
| Option B: | Strands |
| Option C: | Wires |
| Option D: | Stands |
|  |  |
| 24. | The maximum bending stress in a crane hook having trapezoidal cross section always occurs at |
| Option A: | Inner fiber |
| Option B: | Outer fiber |
| Option C: | centroidal axis |
| Option D: | Neutral axis |
|  |  |
| 25. | The minimum diameter of pulley for 3 bend system having 25 mm diameter of rope is |
| Option A: | 500 mm |
| Option B: | 575 mm |
| Option C: | 525 mm |
| Option D: | 550mm |
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| 26. | In case of reverse bending rope life is ----------------one half approximately |
| Option A: | reduce by |
| Option B: | increase by |
| Option C: | reduce to 90 % |
| Option D: | remain same |
|  |  |
| 27. | If rope velocity is 14 m/min and diameter of pulley is 528 mm then find rpm of pulley |
| Option A: | N = 8.44 RPM |
| Option B: | N = 37.71 RPM |
| Option C: | N = 11.6 RPM |
| Option D: | N = 16.6 RPM |
|  |  |
| 28. | In case of bearing section for pulley of EOT crane the rotation factor V will be |
| Option A: | V = 1.2 |
| Option B: | V = 1 |
| Option C: | V =0.5 |
| Option D: | V = 1.8 |
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| 29. | When a belt conveyor is transmitting maximum power, |
| Option A: | Effective tension is equal to centrifugal tension |
| Option B: | Effective tension is half of centrifugal tension |
| Option C: | Driving tension on slack side is equal to centrifugal tension |
| Option D: | Driving tension on tight side is twice the centrifugal tension |
|  |  |
| 30. | What is the mass capacity of flat belt conveyor if volumetric capacity 0.55 m^3/hr? (ρ = 1500 kg/m^3) |
| Option A: | 825 tons/hr |
| Option B: | 825 kg/hr |
| Option C: | 2.727 tons/hr |
| Option D: | 2722 kg/hr |
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| 31. | What is the use of snub pulley? |
| Option A: | To support belt conveyor on lower run |
| Option B: | Increasing the lap angle on drive and tail pulley |
| Option C: | To give trough angle |
| Option D: | Transmit the power from motor to head pulley |
|  |  |
| 32. | If maximum combustion force is 44210 N length of piston pin in connecting rod is 41 mm then induced bearing stress in piston pin is |
| Option A: | 23 .44 Mpa |
| Option B: | 33.48 Mpa |
| Option C: | 30 MPa |
| Option D: | 46.5 Mpa |
|  |  |
| 33. | What are the stresses acting on the Gudgeon pin? |
| Option A: | Shear and bending both |
| Option B: | Shear Stress |
| Option C: | Bending stress |
| Option D: | Torsional Stress |
|  |  |
| 34. | Cylinder wall thickness is calculated on the basis of |
| Option A: | radial stress |
| Option B: | residual stress |
| Option C: | whipping stress |
| Option D: | circumferential hoop stress |
|  |  |
| 35. | Which type of bearing is used in gear pump |
| Option A: | Thrust bearing |
| Option B: | Needle bearing |
| Option C: | Angular contact bearing |
| Option D: | Deep groove ball bearing |
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| 36. | In a water pump with 1000 ltr/min flow rate and 64 m of manometric head & 70 % overall ἠ=0.7 the hydrostatic power is |
| Option A: | 14 kw |
| Option B: | 13 kw |
| Option C: | 15 kw |
| Option D: | 18 kw |
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| 37. | What is the maximum percentage loss of economic cutting speed if geometric progression ratio = 1.06 ? |
| Option A: | 17.00% |
| Option B: | 11.50% |
| Option C: | 5.70% |
| Option D: | 2.90% |
|  |  |
| 38. | For 12 speed gearbox the optimum structural diagram is |
| Option A: | 12 = 2(1) 3(2) 2(6) |
| Option B: | 12=2(1) 3(2) 2(2) |
| Option C: | 12= 2(6) 3(1) 2(3) |
| Option D: | 12=2(6) 3(2) 2(1) |
|  |  |
| 39. | Following is the correct order for design of system design |
| Option A: | Specify functions of element – Determine forces acting on element – select suitable material for element – determine failure mode of element |
| Option B: | Specify functions of element – select suitable material for element – Determine forces acting on element – determine failure mode of element |
| Option C: | Specify functions of element – Determine forces acting on element– determine failure mode of element – select suitable material for element |
| Option D: | Specify functions of element – determine failure mode of element – Determine forces acting on element – select suitable material for element |
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| 40. | The term synthesis in general design methodology corresponds to |
| Option A: | Specifications |
| Option B: | Mechanisms |
| Option C: | Analysis |
| Option D: | Drawings |
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| 41. | In morphology of design, Planning for Consumption involves |
| Option A: | Designing the packaging of the product |
| Option B: | The decision to produce |
| Option C: | Economic Commitment |
| Option D: | Aesthetic feature |
|  |  |
| 42. | The bending stress in a curved beam is |
| Option A: | Zero at the neutral axis |
| Option B: | Zero at the centroidal axis |
| Option C: | Zero at the inner fiber |
| Option D: | Zero at the outer fiber |
|  |  |
| 43. | Which belt conveyor prevents sliding down of material at an inclination of 55 degree with horizontal? |
| Option A: | Flat belts |
| Option B: | Troughed belts |
| Option C: | Blanket belt conveyor |
| Option D: | Woven wire belt conveyors |
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| 44. | For four-stroke single-cylinder square engine with BP = 12 KW, N = 1200 rpm, compression ratio 14 , MEP = 1 MPa , ɳmech = 0.8 , Cylinder dia is |
| Option A: | 124 mm |
| Option B: | 136 mm |
| Option C: | 115 mm |
| Option D: | 119 mm |
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| 45. | The optimum value of vane exit angle for a centrifugal pump impeller is |
| Option A: | 10-15 degree |
| Option B: | 20-25 degree |
| Option C: | 30-40 degree |
| Option D: | 50-90 degree |
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| 46. | As per the rules and guidelines for gearbox layout, the minimum no. of teeth on gear to avoid undercutting for 20 deg. pressure angle is |
| Option A: | 14 |
| Option B: | 16 |
| Option C: | 18 |
| Option D: | 20 |
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| 47. | Which of the following is not a design parameter |
| Option A: | Functional requirements parameters |
| Option B: | Material parameter |
| Option C: | Geometric parameter |
| Option D: | Distribution system design |
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| 48. | With the pressure remains constant, if flow rate will be raised, what will be minimum alteration possible |
| Option A: | redesign of gear for diameters |
| Option B: | keeping gear diameters fixed, increment in facewidth |
| Option C: | keeping all gear dimensions fixed, increment in clearance with casing |
| Option D: | selecting motor of high capacity |
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| 49. | For the area of wire rope given by the equation    The functional requirement parameter is   1. ;(b) ; (c) ; (d) |
| Option A: | a |
| Option B: | b |
| Option C: | c |
| Option D: | d |
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| 50. | If belt tension in the two sides is 730N and 140N and belt is moving with a velocity of 10m/s, calculate the power transmitted. |
| Option A: | 4.5kW |
| Option B: | 5.9kW |
| Option C: | 6.2kW |
| Option D: | 3.4 kW |
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| 51. | Maximum and minimum diameter of a shaft to be machined is 100 mm and 80 mm respectively. What is the maximum spindle speed if cutting velocity is 40 m/min? |
| Option A: | 120rpm |
| Option B: | 127rpm |
| Option C: | 160rpm |
| Option D: | 636rpm |
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| 52. | If connecting rod carries compressive load of 70 kN , taking length to diameter ratio 1.2 and bearing pressure 7 N/mm2, then the crank pin diameter will be |
| Option A: | 91.28 mm |
| Option B: | 89.25 mm |
| Option C: | 56.53 mm |
| Option D: | 78.21 mm |
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| 53. | Arrange these Phases in Methodology of Design in proper sequence  1) Prepare specific list 2) Rough sketch of possible mechanism 3) Prepare blueprints 4) Block diagram /general layout for mechanism 5) Design individual component |
| Option A: | (1-2-3-4-5) |
| Option B: | (1-2-4-5-3) |
| Option C: | (2-1-3-4-5) |
| Option D: | (2-1-4-3-5) |
|  |  |
| 54. | For the hoisting speed is 6 m/min and design load is 144 kN in case of EOT crane, determine the motor capacity taking efficiency of 85%. |
| Option A: | 10 kW |
| Option B: | 13.678 kW |
| Option C: | 16.94 kW |
| Option D: | 18.21 kW |
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| 55. | For the belt conveyor, with motor capacity of 11.13kW at a velocity of 1.35 m/s, the working tensions in the belt at angle of lap 240 degree are |
| Option A: | 11.52kN,3.38kN |
| Option B: | 5.2 kN,1.2 kN |
| Option C: | 0.639kN, 0.45 kN |
| Option D: | 20.2 kN, 15.85 kN |
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| 56. | Thermal stress in cylinder liners can be reduced by |
| Option A: | increasing the wall thickness of cylinder liner |
| Option B: | increasing velocity of flowing water through jacket |
| Option C: | decreasing the wall thickness of cylinder liner |
| Option D: | decreasing velocity of flowing water through jacket |
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| 57. | In case of centrifugal pump, the centrifugal force due to unbalanced mass generated at impeller having diameter 168 mm and mass is 3.46 kg running at 2880 rpm is |
| Option A: | 76.40 N |
| Option B: | 90 .13 N |
| Option C: | 56.96 N |
| Option D: | 40.32 N |
|  |  |
| 58. | For and , number of spindle speed, Z =12 and cutting speed 20 m /min, according to the harmonic progression speed at second step is |
| Option A: | 36.85 rpm |
| Option B: | 32.74 rpm |
| Option C: | 40 rpm |
| Option D: | 39.41 rpm |
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| 59. | If shaft diameter is having range , the diameter represent the type of design parameter |
| Option A: | Specified parameter |
| Option B: | Limited parameter |
| Option C: | Unspecified parameter |
| Option D: | Unspecified and unlimited parameter |
|  |  |
| 60. | In case of crane hook, if M76 nut with 84% core diameter subjected to bearing stress 20 N/mm2 under design load of 144 kN, for safe design the number of threads required are |
| Option A: | 4.36 |
| Option B: | 5.39 |
| Option C: | 1.25 |
| Option D: | 10.56 |
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| 61. | Snub pulley in case of belt conveyor function as |
| Option A: | To remove debris from the belt |
| Option B: | To increase the velocity of the belt conveyor |
| Option C: | To increase the tension in the belt |
| Option D: | To increase angle of lap around drive pulley |
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| 62. | In case of engine cylinder ,the design of length of the threaded portion for stud is based on |
| Option A: | Material of stud , and stress applied at core diameter of stud |
| Option B: | Material of cylinder block and stress applied on internal threads of cylinder block |
| Option C: | Material of cylinder block and stress applied on core diameter of stud |
| Option D: | Material of stud, and stress applied on internal threads of cylinder block |
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| 63. | For gear pump having design pressure 30 bar and actual flow rate 51.28 LPM, assuming overall efficiency 88 %, the motor capacity required is |
| Option A: | 2 kW |
| Option B: | 2.9 kW |
| Option C: | 3.2 kW |
| Option D: | 3.4 kW |
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| 64. | Speed diagram gives information about |
| Option A: | Order of changing transmission in individual transmission group to get desired spindle speed. |
| Option B: | Motor capacity and transmission between motor and input shaft |
| Option C: | Machine tool spindle torque |
| Option D: | Diameter range of workpiece |
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| 65. | Hook of EOT crane s manufactured by method |
| Option A: | Casting |
| Option B: | Cold rolling |
| Option C: | Forging |
| Option D: | bending |
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| 66. | Embodiment design discusses about |
| Option A: | Identification of problem |
| Option B: | Manufacturing operations to be performed |
| Option C: | Product architecture |
| Option D: | Maintenance schedule |

**Descriptive SAMPLE SET**

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| Q1. | What is morphology? Explain seven phases of morphology. |
| Q2. | What is difference between the positive displacement pump and Rotodynamic pump? |
| Q3. | Explain the stresses at different section in Crane hook. |
| Q4. | Draw the layout of belt conveyor and explain its main components. |
| Q5. | Write short note on wet and dry liner. |
| Q6. | A nine-speed gear box is to be designed for a medium- size, general purpose machine tool for spindle speeds varying between 100 rpm and 630 rpm. if the recommended geometric progression ratio is as per 1.26  If gear box is driven by 750 rpm, three phase electric motor through a belt derive, Calculate spindle speed steps (By geometric progression). |
| Q7. | What is the significance of specific speed and Net Positive Suction Head (NPSH) in the design of a centrifugal pump. |
| Q8. | Derive an expression for breaking strength of 6 x 37 type of wire rope. |
| Q9. | Draw a neat sketch of Belt assembly and explain the function of snub pulley. |
| Q10. | Explain Optimum design. |
| Q11. | State the importance of Ray Diagram in the design of multi speed gear box. |
| Q12. | Explain why an I – section with Ixx ≤ 4 Iyy is selected for connecting rod of an I.C. Engine? |
| Q13. | The following specifications refers to an EOT crane  Application Class II  Load to be lifted 10 T  Hoisting speed 6 m/min  Maximum Lift: 10 m  **Select the suitable type and size of the wire rope for an expected life of 12 months. Perform rope life check.** |
| Q14. | The speciﬁcation of belt conveyor system are as follows  Capacity: 300TPH  Material to be conveyed: LimeStone  Inclination :12 degree Lump size : 80mm Centre to Centre distance: 50m (Assume troughing angle 25 degree) .  **Select the belt conveyor and Design required motor capacity and draw layout sketch of the belt conveyor system.** |
| Q15. | It is required to design a gear pump for flow of 50 LPM and pressure 30 bar. The pump is to be driven from an electric motor by direct coupling.  The design should include the **design of gears.** |
| Q16. | The following specifications refers to an EOT crane  Application Class II  Load to be lifted 5 T  Hoisting speed 8 m/min  Maximum Lift: 10 m  **Select the suitable Hook (M.S. material) and check at critical cross section** |
| Q17. | The speciﬁcation of belt conveyor system are as follows  Capacity: 200TPH  Material to be conveyed: Lime Stone  Inclination :12 degree Lump size : 100mm  Centre to Centre distance: 50m (Assume troughing angle 25 degree)  **Select the belt conveyor and Design required motor capacity and calculate pulley tension.** |
| Q18. | The Centrifugal pump has to work with the following specifications: a) Static suction head: 3m b) Static delivery head: 8 m c) Length of suction pipe: 7m d) Length of delivery pipe: 50 m e) Discharge: 850 lpm f) Working fluid: water at 30° C. The pump is directly connected to an electric motor of capacity 5 KW at 2000 rpm.  **Determine size of suction and Delivery pipe and Design the impeller (Inlet and outlet velocity, Number of blades)** |
| Q19. | A 20o troughing belt conveyor has the following specifications:  Material conveyed: Lime stone  Max. lump size: 100mm  Capacity: 300 tons/hr.  Inclination: 10o  Centre to Centre distance: 60m  a) Determine the total force on belt, width, no. of plies and thickness of the belt.  b) Select a proper motor for the conveyer. |
| Q20. | A centrifugal pump directly coupled to a motor is required to deliver 1200 LPM of water at 30oC against a total head of 25 m:  a) Select suitable motor.  b) Determine the diameter of suction and delivery pipes.  c) Determine the impeller diameter, inlet and outlet vane angle and no. of vanes. |
| Q21. | The following Specifications refers to an EOT Crane:  Application: Class II  Load to be Lifted :120KN  Hoisting Speed :6m/min  a) Select suitable wire rope and find its life  b) Select Standard Hook and Check the induced stress at the most critical section. Design a nut for hook |
| Q22. | For the following specifications of an EOT crane,  Application - Class II  load to be lifted - 90 KN  Hoisting Speed - 6 m/min  Maximum lift – 11 m.   1. Select suitable type and size of the wire rope for an expected life of 12 months. 2. Select a standard Pulley and Design pulley axle. |
| Q23. | A single cylinder two stroke petrol engine develops 35 kW power at a speed of 2000 rpm. By making suitable assumptions and diagrams, Design:   1. cylinder and cylinder liner. 2. Piston with Piston pin and piston rings. |
| Q24 | A single cylinder four stroke cycle **diesel engine** develops 12 kW brake power when operating at 1000 rpm.  Design the following components:  (i) Determine bore size and check piston diameter for Total stress (Heat Dissipation and strength ) |
| Q25. | Explain Importance of Arithmetic progression and Geometric progression in the gear box design? |
| Q26. | Draw the flowchart and explain the first three phases for the morphology of Design? |
| Q27. | A single cylinder four stroke cycle Petrol engine develops 30 kW brake power when operating at 2000 rpm. Compression ratio: 7.5  Design the following components:  **(i) Determine bore size and check piston diameter for Total stress (Heat Dissipation and strength)** |
| Q28. | Explain significance of Structural and Ray diagram? |
| Q29. | What is optimum design and system concept in design? |
| Q30. | Draw the layout of a multi speed gear box for a machine tool application, with the speed steps arranged in geometric progression for minimum speed 100 rpm, maximum speed 1800 rpm, and speed step as 8. Also calculate the number of teeth of each gear pair if gear box is driven by three phase electric motor of 1440 rpm. |
| Q31. | The following specifications are referred to the four-stroke water cooled CI engine:  Break power: 10 KW  Avg. speed: 1200 rpm.  Maximum pressure inside the cylinder: 3.7 MPa.  Over running Speed: 10% of average speed.  Bore to stroke ratio: 1  Bore dia.= stroke length: 120mm  Design the following components of I.C engine: -  a) Piston and piston pin.  b) Connecting rod. |
| Q32. | Design a gear pump to deliver 50 LPM of oil at pressure of 30 bar.  Design should include  a) Gear and its shaft  b) Select suitable motor for the gear pump |
| Q33. | A Gear pump is to deliver 90 LPM of oil at 60 bar.   1. Select a suitable motor for above pump. 2. Design Gears for above pump and check for bending failure, dynamic load and pitting. |
| Q34. | A 25 degree troughing belt conveyor has the following specifications:  Material : Lime stone  Maximum lump size= 90 mm  Capacity : 200 TPH  Inclination = 100  Centre to centre distance= 60 m.  Determine:   1. Belt width and Number of plies 2. Select suitable motor for above belt system. |
| Q35. | With N min = 120 rpm, N max = 1500 rpm, GP ratio = 1.41, design a 2 X 3 multi speed gear box for a lathe machine operation.  Design should Include:   1. Write all possible structural formulae and draw structural diagrams.   b) Draw ray diagram and speed chart. |
| Q36. | A shaft is to be designed for minimum weight of torque transmitting capacity 900 N-m having a torsional rigidity 90 Nm/degree. Assume a factor of safety of 1.5 based on yield strength. Use maximum shear stress theory. Following material may be considered for the shaft.   |  |  |  |  | | --- | --- | --- | --- | | Material | Mass density | Yield Strength | Shear Modulus | | M1 | 2100 | 20 | 16 | | M2 | 3000 | 50 | 26.7 | | M3 | 4800 | 90 | 40 | | M4 | 8500 | 130 | 80 | |
| Q37. | Following specification refers to an EOT crane  Application-Class II  Load to be lifted =150 kN ,  Maximum lift = 8 m  Hoisting Speed = 10 m/min.  1) Design the hook and calculate maximum stress induced at critical cross section of hook  2) Select bearing for hook and design cross piece. |
| Q38. | A 25° troughing belt conveyor has the following data:  Material conveyed: Dry sand,  Capacity: 300 TPH,  lump size- 80 mm,  Centre distance = 50m.  Inclination=200  1)Determine the width of belt  2) Determine the power and speed of driving motor |
| Q39. | Design the gear pump to deliver 60 LPM of SAE 30 oil at a pressure of 40 bar.   1. Design Gear 2) Select suitable motor for gear pump.3) gear shaft |
| Q40. | A single cylinder four stroke water cooled diesel engine develops 3.7 kW brake power when operating at 1500 rpm  1)Determine bore and stroke of engine  2) Design the piston pin |
| Q41. | A multi-speed gear box is to be designed for a medium size general purpose machine tool for spindle speed varying between 20 rpm and 894 rpm . If the recommended geometric progression ratio is as per R20/3 series   1. Determine the candidate structure diagrams for machine tool gear box 2. Select the optimum structure diagram |