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Subject Name & Code : Dynamics of Machinery (PCME404)

Exam Name : Q2

1. Which of the following is used to control the speed variations of the engine caused by the fluctuations of the engine turning moment? [C]

A) D-slide valve B) Governor C) Flywheel D) Meyer's expansion valve

2. Which of the following are functions of the flywheel? [A]

A) Store and release energy during the work cycle B) enegrgy stored only C) power stored D) power and energy stored

3. The maximum fluctuation of energy is the [B]

A) sum of maximum and minimum energies B) difference between the maximum and minimum energies C) the ratio of the maximum energy and minimum energy D) the ratio of the mean resisting torque to the work done per cycle

4. The following dynamometer is widely used for absorption of wide range of powers at wide range of speeds..... [A]

A) hydraulic B) belt transmission C) rope brake D) electric generator

5. The ratio of the maximum fluctuation of speed to the mean speed is called [C]

A) fluctuation of spee B) maximum fluctuation of speed C) coefficient of fluctuation of speed D) none of the mentioned

6. The following dynamometeris used for power measurement when the speed is high and the viscous force is small..... [A]

A) telsa fluid friction dynamometer B) froude water vortex dynamometer C) rope brake dynamometer D) belt transmission dynamometer

7. In vehicle, the flywheel is placed in between [A]

A) engine and clutch B) clutch and propeller shaft C) propeller shaft and differential D) before engine

8. The flywheel is used in [B]

A) drilling machine B) punch press C) surface grinder D) milling machine

9. The flywheel is generally made from [A]

A) cast iron B) steel C) pastic D) bronbe

10. In the rim type of flywheel, the major mass is [A]

A) concentrated around the periphery B) concentrated at the center C) contributed due to arms D) ineffective

11. A split flywheel is made to [C]

A) minimize large centrifugal forces B) reduce weight C) avoid cooling stresses D) increase heat

12. When comes down to stress reduction, which one is preferred? [B]

A) Solid flywheel B) Split flywheel C) Both have equal stresses D) Cannot be determined

13. Due to the centrifugal force acting on the rim, the flywheel arms will be subjected to [A]

A) tensile stress B) compressive stress C) shear stress D) strain

14. the tensile stress in the flywheel rim due to the centrifugal force acting on the rim is given by [D]

A) ρv2/4 B) ρv2/2 C) 3ρv2/4 D) ρv2

15. The cross-section of the flywheel arms is usually [A]

A) elliptical B) rectangular C) I-section D) L-section

16. The diameter of the hub of the flywheel is usually taken [B]

A) equal to the diameter of the shaft B) twice the diameter of the shaft C) three times the diameter of the shaft D) four times the diameter of the shaft

17. Which of the following doesn’t waste energy? [A]

A) Flywheel B) Governor C) Both flywheel and governor D) engine

18. If the load on the engine is constant, the mean speed will be constant and ___ will not operate. [B]

A) flywheel B) governor C) both flywheel and governor D) engine

19. When the torque required by the machine is more than the torque supplied by the motor, the flywheel is [B]

A) accelerated B) retarded C) rotating with constant speed D) any of the mentioned

20. The flywheel is accelerated when [C]

A) driving torque = load torque B) driving torque < load torque C) driving torque > load torque D) any of the mentioned

21. Turning moment diagram is a graph between [A]

A) torque and crank angle B) torque and crank radius C) force and crank radius D) none of the mention

22. When engine torque is more than mean resisting torque, then the flywheel _____. [C]

A) has uniform velocity B) has 0 velocity C) has acceleration D) has retardation

23. When engine torque is less than mean resisting torque, then the flywheel _____ [D]

A) has uniform velocity B) has 0 velocity C) has acceleration D) has retardation

24. The area of the turning moment diagram represents _____. [B]

A) work done B) work done per revolution C) power generated D) power generated per revolution

25. Mean resisting torque in turning moment diagram is given by [A]

A) work done per cycle/angle turned during the cycle B) work done per cycle x angle turned during the cycle C) work done per revolution /angle turned during the cycle D) work done per revolution x angle turned during the cycle

26. Work produced by the 4-stroke engine is less because _____. [A]

A) one power stroke per 2 revolutions B) one power stroke per revolution C) one power stroke per 4 revolution D) four power stroke per revolution

27. A negative loop is formed in the turning moment diagram because the pressure inside the cylinder is _____ than the atmospheric pressure. [C]

A) equal B) more C) less D) high

28. When the work is done on the gases, which of the following effect is observed on the turning moment diagram? [A]

A) Formation of the negative loop B) Formation of positive loop C) Formation of an infinite loop D) Formation of no loop

29. When the work is by the gases, which of the following effect is observed on the turning moment diagram? [B]

A) Formation of the negative loop B) Formation of positive loop C) Formation of an infinite loop D) Formation of no loop

30. In a four stroke I.C. engine, the turning moment during the compression stroke is [B]

A) positive throughout B) negative throughout C) positive during a major portion of the stroke D) negative during a major portion of the stroke

31. While drawing the turning moment diagram, which of the forces in not taken into account? [D]

A) Inertia force B) Force on connecting rod C) Force on crank D) Coriolis force

32. Work done per cycle is calculated as _____. [A]

A) Tmean × θ B) T-1 C) T/2 D) Tmax × θ/2

33. For a 4 stroke IC engine, the angle θ assumes a value equal to _____. [C]

A) π B) 2π C) 4π D) π/2

34. When the flywheel absorbs energy, its speed _____. [B]

A) remains unaffected B) increases C) decreases D) goes down to 0

35. Consider a three cylinder engine, the resultant turning moment diagram is the _____ of three cylinders. [A]

A) sum B) difference C) product D) independent

36. For a multicylinder engine, the coefficient of fluctuation of speed would _____. [B]

A) vary with the number of cylinders B) remains unaffected C) vary with length of connecting rod D) vary with input temperature

37. Rope brake dynamometer uses..... [D]

A) oil as lubricant B) water as lubricant C) grease as lubricant D) no lubricant

38. The maximum fluctuation of energy = [A]

A) Max. KE – Min. KE B) Max. KE + Min. KE C) Max. KE – Min. KE)/2 D) Max. KE + Min. KE)/2

39. The coefficient of fluctuation of energy = [A]

A) the maximum fluctuation of energy/work done per cycle B) fluctuation of energy/work done per cycle C) maximum the fluctuation of energy/mean speed D) the fluctuation of energy/mean speed

40. The difference the maximum and minimum speeds during a cycle is called [B]

A) fluctuation of speed B) the maximum fluctuation of speed C) coefficient of fluctuation of speed D) none of the mentioned

41. If E = Mean kinetic energy of the flywheel, CS = Coefficient of fluctuation of speed and ΔE = Maximum fluctuation of energy, then [D]

A) ΔE = E / CS B) ΔE = E2 × CS C) ΔE = E × CS D) ΔE = 2E × CS

42. For a four-stroke engine, work done/cycle is (where Tm is the mean torque) [D]

A) π Tm B) 2π Tm C) 3π Tm D) 4π Tm

43. A flywheel is fitted to the crankshaft of an engine having W as the amount of indicated work per revolution and permissible limits of the coefficient of fluctuation of energy and speed as CE and CS respectively. The kinetic energy of the flywheel is given [B]

A) 2WCE/CS B) WCE/2CS C) WCE/CS D) WCS/2CE

44. If the rotating mass of a rim type flywheel is distributed on another rim type flywheel whose mean radius is half the mean the radius of the former, then the energy stored in the latter at the same speed will be [C]

A) four times the first one B) same as the first one C) one fourth of the first one D) one and a half times the first one

45. Reciprocal of coefficient of fluctuation of speed is called [B]

A) fluctuation of speed B) coefficient of steadiness C) the maximum fluctuation of speed D) none of the mentioned

46. he coefficient of fluctuation of the speed of the flywheel is given by (Where N1 =Maximum speed, N2 = Minimum speed, N = MeaN Speed [A]

A) (N1-N2)/N B) (N1+N2)/N C) (N1-N2) x N D) (N1+N2) x N

47. For a 4 cylinder engine, if the minimum speed of the engine is half the maximum speed, then coefficient of fluctuation is _____ [D]

A) 0.5 B) 1.5 C) 2 D) 0.66

48. In the turning moment diagram of a multicylinder engine, the work done during exhaust stroke is by _____ [B]

A) The gases B) On the gases C) Piston wall D) Valve

49. The amount of energy absorbed by a flywheel is determined from the [A]

A) Torque-crank angle diagram B) a. Acceleration-crank angle diagram C) a. Speed-space diagram D) a. Speed-energy diagram

50. In the figure given below, the quantity represented by the arrow is known as _____ [D]

A) Maximum Torque B) Minimum Torque C) Maximum Force D) Mean resisting torque

51. In a turning moment diagram, the variations of energy above and below the mean resisting torque line is called [A]

A) fluctuation of energy B) maximum fluctuation of energy C) coefficient of fluctuation of energy D) coefficient of power

52. The fly wheel is accelerated when [A]

A) driving torque > load torque B) driving torque < load torque C) driving torque = load torque D) none of the mentioned

53. Maximum fluctuation of energy in a flywheel is equal to [A]

A) Iω(ω1 – ω2) B) 2HCSn C) 2GCSn D) Iω2 C P

54. If E = Mean kinetic energy of the flywheel, CS = Coefficient of fluctuation of speed and Δ E = Maximum fluctuation of energy, then [D]

A) ΔE = E / CS B) ΔE = E2 × CS C) ΔE = E × CS D) ΔE = 2 E × CS

55. The radius of gyration (k) for rim type flywheel having radius ‘r’ is given by [C]

A) k = 2r B) k=r/2 C) k=r D) k=r/3

56. The flywheel of a machine having the weight of 4500 N and radius of gyration of 2 m have cyclic fluctuation of speed from 125 r.p.m to 120 r.p.m. Assuming g = 10m/s2, the maximum fluctuation of energy is [D]

A) 12822 N-m B) 24200 N-m C) 14822 N-m D) 12100 N-m

57. A circular solid disc of uniform thickness 20 mm, radius 200 mm and mass 20 kg, is used as a flywheel. If it rotates at 600 rpm, the kinetic energy of the flywheel, in Joules is [B]

A) 395 B) 790 C) 1580 D) 3160

58. In a punching press, which of the following quantity is constant? [B]

A) Load B) Torque C) Angular velocity D) Angle of rotation

59. The relation between stroke punch s and radius of crank r is _____. [B]

A) s=r B) s=2r C) s=4r D) s=r/2

60. If the stroke punch is 100 mm, find the radius of the crank in mm. [C]

A) 200 B) 300 C) 50 D) 400

61. The balancing energy required for punching is supplied by the flywheel by _____. [B]

A) increase in its kinetic energy B) the decrease in its kinetic energy C) the decrease in its potential energy D) by variation of mass

62. The Coefficient of fluctuation of energy of flywheel is given as [A]

A) (Emax – Emin)/Work done per cycle B) (Emax + Emin)/Work done per cycle C) (Emax – Emin) x Work done per cycle D) (Emax + Emin) x Work done per cycle

63. The coefficient of fluctuation of speed is the _____ of maximum fluctuation of speed and the mean speed [B]

A) product B) ratio C) sum D) difference

64. In which of the following dynamometers does the energy produced by the engine is used for doing work? [D]

A) Prony brake dynamometer B) Rope brake dynamometer C) Absorption dynamometer D) Epicyclic train dynamometer

65. Coefficient of fluctuation is the ratio of _____ [A]

A) The maximum fluctuation of speed to the mean speed B) The minimum fluctuation of speed to the mean speed C) The maximum speed to the mean speed D) The minimum speed to the maximum speed

66. Which of the following is a characteristic feature of a dynamometer [B]

A) It can measure torque B) It can measure frictional resistance C) It can measure the balancing force D) It can act as a speedometer

67. The balance energy required for punching is supplied by the flywheel by _____ [B]

A) Increase in its kinetic energy B) Decrease in its kinetic energy C) Decrease in its potential energy D) By variation of mass

68. When the length of the connecting rod is unknown then the value $(\theta 2 - \theta 1)/2\pi$ is equal to [B]

A) t/s B) t/2s C) t/2r D) t/r

69. Load torques can be classified into how many types [B]

A) 3 B) 2 C) 4 D) 5

70. A circular solid disc of uniform thickness with radius 200 mm and mass 20 kg is used as flywheel. It is rotates at 600 rpm the kinetic energy of the flywheel in Joule is [B]

A) a. 395 B) a. 790 C) a. 1580 D) a. 3160

71. What type of force handles for active torques [C]

A) Strong nuclear forces B) Weak nuclear forces C) Gravitational forces D) Electrostatic forces

72. Energy is stored in a flywheel in the form of [C]

A) Heat energy B) Solar energy C) Kinetic energy D) Potential energy

73. Split flywheel is made to [A]

A) Avoid cooling stresses B) Minimize large centrifugal forces C) Reduce weight D) increase weight

74. The one of the following is not pure rotation [C]

A) windmill B) the minutes hand of a clock C) bicycle wheel D) flywheel

75. Which of the following is used for controlling fluctuations in an engine? [D]

A) Control valve B) Flywheel C) Governor D) a. Flywheel and Governor both

76. The stress in disc type flywheel as compared to rim type flywheel is [C]

A) equal B) less C) greater D) above is true

77. The mass of flywheel of a steam engine is 3250 kg with the radius of gyration of 1 m. The starting torque of the engine is 4500 N-m, what is the angular acceleration (rad/s2) of the flywheel? [C]

A) 3.4 B) 2 C) 1.38 D) 2.48

78. The turning moment diagram for a single cylinder double acting steam engine consists of +ve and-ve loops above and below the average torque line, For the +ve loop, the ratio of the speeds of the flywheel at the beginning and the end is which one of the fo [B]

A) Equal to unity B) Less than unity C) Zero D) Greater than unity

79. The safe rim velocity of a flywheel is influenced by [B]

A) Centrifugal stresses B) Fluctuation of energy C) Fluctuation of speed D) Mass of the flywheel

80. Which of the following is used to store energy and give up whenever required? [D]

A) Clutch B) Gear C) Governor D) Flywheel

81. A body of weight W is required to move up the rough inclined plane whose angle of inclination with the horizontal is α. The effort applied parallel to the plane is given by (where μ = tan φ = Coefficient of friction between the plane and the body) [C]

A) P = W tan α B) P = W tan (α + φ) C) P = W (sin α + μ cos α) D) P = W (cos α + μ sin α)

82. A body in motion will be subjected to coriolis acceleration when that body is [D]

A) in plane rotation with variable velocity B) in plane translation with variable velocity C) in plane motion which is a resultant of plane translation and rotation D) restrained to rotate while sliding over another body

83. The frictional torque transmitted by a disc or plate clutch is same as that of [B]

A) flat pivot bearing B) flat collar bearing C) conical pivot bearing D) truncated conical pivot bearing

84. The frictional torque transmitted by a cone clutch is same as that of [D]

A) flat pivot bearing B) flat collar bearing C) conical pivot bearing D) truncated conical pivot bearing

85. The angle of inclination of the plane, at which the body begins to move down the plane is called [B]

A) angle of friction B) angle of repose C) angle of projection D) none of the mentioned

86. The factional torque for square thread at the mean radius r while raising load W is given by [B]

A) T = W.r tan(φ - α) B) T = W.r tan(φ + α) C) T = W.r tan α D) T = W.r tan φ

87. The minimum force required to slide a body of weight W on a rough horizontal plane is [A]

A) W sin θ B) W cos θ C) W tan θ D) W cosec θ

88. In a disc clutch, if there are n1 number of discs on the driving shaft and n2 number of discs on the driven shaft, then the number of pairs of contact surfaces will be [C]

A) n1 + n2 B) n1 + n2 + 1 C) n1 + n2 - 1 D) n1 + n2 - 2

89. Band brake has complex construction with large number of parts. [B]

A) difficult B) It has simple construction C) It has simple constructions but large number of parts D) It has complicated construction but small number of parts

90. Band brakes require _____ maintenance [A]

A) Little B) Zero C) Much D) None of the listed

91. Calculate the braking torque if tension in the two sides is 3500N and 1980N with radius of drum being 160mm [A]

A) 243.20N-m B) 223.4N-m C) 278.6N-m D) 12.5 n-m

92. In drum brakes, as the temperature increases coefficient of friction _____ [D]

A) increases B) decreases C) remains same D) Can't be determined

93. Loss of torque transmitting capacity at high temperatures is called [A]

A) Fading B) Rolling C) Drifting D) Planking

94. Disk brakes can be used for opposite rotation of disk also. [A]

A) No they are effective for one direction of motion only B) They can be used C) Poor efficiency in opposite direction D) None of the listed

95. The intensity of normal pressure between the friction lining and the brake drum at any point is proportional to square of the vertical distance from the pivot. [B]

A) It is independent B) Proportional to vertical distance linearly C) Inversely proportion to vertical distance D) None of the listed

96. The centrifugal force acting on the shoe can never be omitted. [B]

A) high B) Always omitted C) Depends on the magnitude D) There is no centrifugal force acting

97. Internally expanding brakes never suffer the problem of self-locking [B]

A) roughness B) Wear might lead to self-locking C) Brakes are never self-locked D) None of the listed

98. Moment of normal force and frictional forces about the pivot axis are 640000N-mm and 250000N-mm respectively. If force acts at a distance of 190mm from the pivoted point, calculate the actuating force [B]

A) 1078.6N B) 2052.6N C) 3223.5N D) 4454.5N

99. A cone clutch consists of inner conical surface and outer cylindrical surface. [B]

A) Both cylindrical B) Both conical C) Outer conical D) Outer conical and inner cylindrical

100. Power is transmitted only by key and friction in the cone clutch [B]

A) Only by spline B) By key, spline and friction C) By friction only D) By key only

101. The torque transmitting capacity of cone clutch increases as its semi vertical angle increase. [B]

A) increase B) Decreases C) Remains constant D) None of the listed

102. In a centrifugal clutch, when the centrifugal force is slightly more than the spring force, shoe begins to move in a radially inward direction [A]

A) Radially outwards B) Radially upwards C) Radially downwards D) Radially inwards

103. Which of these is not a type of clutch [D]

A) Single disc B) Conical C) Centrifugal D) Cylindrical

104. In a single plate clutch, considering uniform pressure, T = nμWR. What is R equal to? [B]

A) 2(r13 + r23) / 3(r12 + r22) B) 2(r13 – r23) / 3(r12 – r22) C) (r1 – r2)/2 D) (r1 + r2)/2

105. In a single plate clutch, considering uniform wear, T = nμWR. What is R equal to? [D]

A) 2(r13 + r23) / 3(r12 + r22) B) 2(r13 – r23) / 3(r12 – r22) C) (r1 – r2)/2 D) (r1 + r2)/2

106. In a single plate clutch, the pressure is uniformly distributed. If the outer and inner radii are 100 mm and 70 mm respectively, find the value of R. [C]

A) 76.39 mm B) 23.48 mm C) 85.88 mm D) 34.98 mm

107. Maximum intensity of pressure is given by ____ [C]

A) C/R B) C/R2 C) C/r2 D) C/r1

108. When the pressure is uniformly distributed over entire area, then the intensity of pressure is _____ [A]

A) W/ (π(r12 – r22) B) W/ (π(r12 + r22) C) W/ (π(r22 – r12)) D) W/ (π(r22 x r12))

109. For uniform wear, the axial thrust W = _____ [B]

A) 2 π C (r2 + r1) B) 2 π C (r1 – r2) C) 2 π C (r2 – r1) D) 2 π C (r1 x r2)

110. Find the axial thrust to be provided by the springs if the maximum intensity of pressure in a single plate clutch should not exceed 0.2 N/mm2. The outer and the inner radius is 75 mm and 35 mm. Assume theory of uniform wear. [D]

A) 1792.01 N B) 1789.21 N C) 1723.41 N D) 1759.29 N

111. Find the average pressure in a single plate clutch if the axial force is 5 kN. The inside radius and the outer radius is 30 mm and 70 mm respectively. Assume uniform wear. [C]

A) 398 N/mm2 B) 0.398 N/m2 C) 0.398 N/mm2 D) 398 N/m2

112. Which of the following clutches include shoes and spider inside the rim of the pulley? [A]

A) Centrifugal clutch B) Cone clutch C) Multi plate clutch D) Single plate clutch

113. In a centrifugal clutch, what is ω? [B]

A) Angular acceleration of the pulley B) Angular running speed of the pulley C) Angular acceleration at which the engagement begins to take place D) Angular running speed at which the engagement takes place

114. What is the formula for the total frictional torque transmitted? [A]

A) μ(Pc – Ps)R × n B) μ(Pc – Ps)R C) μ(Pc + Ps)R D) μ(Pc + Ps)R x n

115. The brakes commonly used in railway trains is [A]

A) shoe brake B) band brake C) band and block brake D) internal expanding brake

116. The brake commonly used in motor cars is [D]

A) shoe brake B) band brake C) band and block brake D) internal expanding brake

117. When brakes are applied to all the four wheels of a moving car, the distance travelled by the car before it is brought to rest, will be [B]

A) maximum B) minimum C) Same D) Zero

118. Which of the following is an absorption type dynamometer ? [A]

A) prony brake dynamometer B) Belt transmission dynamometer C) epicyclic-train dynamometer D) torsion dynamometer

119. In a centrifugal clutch, total frictional torque transmitted = μ(Pc – Ps)R × n; where Pc is the _____ acting on each shoe and is given by the formula Pc = _____ [C]

A) centrifugal force, mω12r B) inward force, mω2r C) centrifugal force, mω2r D) inward force, mω12r

120. In a centrifugal clutch, total frictional torque transmitted = μ(Pc – Ps)R × n; where Ps is the _____ acting on each shoe and is given by the formula Ps = _____ [D]

A) centrifugal force, mω12r B) inward force, mω2r C) centrifugal force, mω2r D) inward force, mω12r

121. If the radial clearance (c) is specified and is not negligible, then what is the operating radius of the mass centre of the show from the axis of the clutch? [C]

A) r1 = r – c B) r1 = c – r C) r1 = r + c D) r1 = r x c

122. Clutch and coupling perform the same action. [B]

A) Both being permanent joints B) No they are different type of joints C) Both being temporary joints D) None of the listed

123. permissible intensity of pressure is 1.5N/mm². Assuming uniform wear theory, calculate the operating force in the clutch. [C]

A) 15546N B) 12344N C) 23562N D) 24543N

124. If number of contacting surfaces are 5, then number of disks required in multi disk clutch are? [C]

A) 4 B) 5 C) 6 D) 7

125. Multi disk clutches are dry clutches [B]

A) Plasma clutches B) Wet clutches C) friction is less D) friction is high

126. What is the direction in which the limiting friction acts? [A]

A) Opposite to the direction in which the body tends to move B) Opposite to the direction in which the body moves C) In the direction in which the body tends to move D) In the direction in which the body moves

127. If the area of contact between the two surfaces is increased by two times, what will be the effect of it on the force of friction? [C]

A) Increases by two times B) Decreases by two times C) Remains same D) Depends on the surface

128. The ratio of frictional force to normal reaction is known as _____ [A]

A) Coefficient of friction B) Coefficient of restitution C) Coefficient of inertia D) Coefficient of force

129. Which of the following is true regarding the limiting friction? [A]

A) value is equal to the force applied in the opposite direction which tends to move the body
B) Its value is equal to the force applied in the opposite direction which moves the body
C) Its value is equal to μ.N
D) It is equal to the normal reaction

130. The angle at which the body just begins to slide down an incline is known as _____ [C]

A) Angle of inclination
B) Angle of motion
C) Angle of repose
D) Angle of stability

131. . For a body on an inclined plane, the value of coefficient of friction is equal to _____ (θ is the angle of friction) [A]

A) Tanθ
B) Cotθ
C) Sinθ
D) Cosθ

132. What is the maximum value of static friction? [A]

A) Limiting friction
B) 0
C) Rolling friction
D) Kinetic friction

133. A body of mass 1 kg is kept on a rough surface having coefficient of friction = 0.25 being pulled by a force of 2N, after how long will the body come to rest again? [C]

A) 2s
B) 2.5s
C) 0s
D) 4s

134. If two bodies one light and other heavy have equal kinetic energies, which one has a greater momentum [A]

A) heavy body
B) light body
C) both have equal momentum
D) it depends on the actual velocities

135. . A car moving with uniform acceleration cover 450 m in a 5 second interval, and covers 700 m in the next 5 second interval. The acceleration of the car is [D]

A) 7 m/s2
B) 50 m/s2
C) 25 m/s2
D) 10 m/s2

136. ------friction is the force of friction experienced by a body when it is at rest. [B]

A) Dynamic
B) Static
C) Sliding
D) Rolling

137. ---------friction is the force of friction experienced by a body when it is in motion [A]

A) Dynamic
B) Static
C) Sliding
D) Rolling

138. When a body slides over another, the frictional force experienced by the body is known as _____ friction [A]

A) sliding B) Dynamic C) Static D) Rolling

139. When a body rolls over another, frictional force experienced by the body is known as _____ friction. [D]

A) sliding B) Dynamic C) inclined D) Rolling

140. Co-efficient of rolling friction is _____ than co-efficient of sliding friction. [C]

A) greater B) equal to C) lesser D) higher

141. Co-efficient of sliding friction for rubber on concrete is [B]

A) 0.03 B) 0.7 C) 0.18 D) 0.004

142. Co-efficient of sliding friction for steel is [C]

A) 0.03 B) 0.7 C) 0.18 D) 0.004

143. To measure the angle of twist, which of the following device is used in the Bevis-Gibson Flash Light Torsion Dynamometer? [B]

A) Torsion meter B) Prony brake dynamometer C) Rope brake dynamometer D) Belt transmission dynamometer

144. When the shaft is transmitting torque, which of the following phenomenon can cause visibility of light in the eyepiece? [A]

A) Moving eyepiece equal to the lag amount B) Moving eyepiece lesser than the lag amount C) Moving eyepiece greater than the lag amount D) Independent of eyepiece position

145. When the shaft is transmitting torque, which of the following phenomenon occurs? [B]

A) Visible Flashing of light B) Flashing of light cannot be seen C) Angle of torsion cannot be measured D) Torsion meter stops working

146. Which of the following dynamometers works on the assumption of uniform density of air [D]

A) Belt transmission B) Epicyclic train dynamometer C) Torsional dynamometer D) Bevis-Gibson Flash Light Torsion Dynamometer

147. On which of the following factor, the power of a torsion dynamometer does not depend [D]

A) Speed B) Torque C) Angle of twist D) Friction

148. Which of the following is not a characteristic of the Torsional dynamometer [A]

A) Conversion of energy into heat B) Conversion of energy into work C) Utilization of engine power D) Energy can be either utilized to do work or can be reused.

149. Which of the following is not a characteristic of the rope brake dynamometer? [B]

A) Energy loss in friction B) Energy absorbed by frictional resistances C) Energy utilization in work D) Energy can be either utilized to do work or can be reused

150. Which of the following dynamometer belongs to a different type [A]

A) Prony brake dynamometer B) Torsional dynamometer C) Epicyclic train dynamometer D) Belt transmission dynamometer

151. The entire energy or power produced by the engine is absorbed by the friction resistances of the brake in which of the following dynamometers does? [B]

A) Torsional brake dynamometer B) Prony dynamometer C) Belt Transmission dynamometer D) Epicyclic train dynamometer

152. Identify the type of absorption dynamometer ? [B]

A) Epicyclic dynamometer B) Prony dynamometer C) Belt Transmission dynamometer D) Epicyclic train dynamometer

153. Which parameters can be measured using a dynamometer? [A]

A) Torque B) mass C) weight D) legth

154. In the equation $Rn = (pl) / (x – \mu.a)$, if $x < \mu.a$ then the brakes are [B]

A) self energizing B) self locking C) self starting D) self powered

155. Which type of brakes have wooden blocks placed inside flexible steel band? [C]

A) Block brake B) Band brake C) Band and Block brake D) Pivoted block brake

156. In single shoe brake, when is uniform normal pressure observed between block and drum? [C]

A) $\theta < 60o$ B) $2\theta < 90o$ C) $2\theta < 60o$ D) $\theta > 30o$

157. Which energy is absorbed by the brakes of an elevator during braking process? [A]

A) Potential energy B) Kinetic energy C) electrical energy D) thermal energy

158. Double block brake is a type of [C]

A) Band brake B) Internal expanding shoe brake C) Shoe brake D) Rope brake dynamometer

159. If brakes are applied on front wheels of a car and if it moves on a level road, then retardation of the car is calculated using the formula [C]

A) μ g B) [μ g (l-x)] / (l + μ h) C) (μ g x) / (l- μ h) D) u.g

160. In the calculations of the bearings, we often use vector math. So for those systems which of the following is true? [C]

A) i x i =1 B) j x i = -j C) k x j = -i D) k x k = 1