

# Future Secure Institute™

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Q1. The center of gravity of a complex link in a four bar chain will experience: -

- a) No Acceleration
- b) One linear Acceleration
- c) Only Angular Acceleration
- d) Both linear and angular Acceleration

Q2. V-Belt में angle रहता है:-

- a)  $10^\circ$  to  $20^\circ$
- b)  $20^\circ$  to  $30^\circ$
- c)  $30^\circ$  to  $40^\circ$
- d)  $60^\circ$  to  $80^\circ$

Q3. जब porter gov. की sleeve up word होती है तब gov. Speed: -

- a) Increase
- b) Decrease
- c) Remains same
- d) First increase and then Decrease

Q4. इंजन में working fluid supply condition को control किया जाता है:-

- a) D-slide valve
- b) Governor
- c) Meyer's expansion valve
- d) Fly wheel

Q5. High speed engine के लिए cam move करेगा:-

- a) Uniform velocity
- b) Simple harmonic
- c) Cycloidal motion
- d) Uniform Acceleration and Retardation

Q6. MITRE gear के लिए सही कथन:-

- a) min. Back-lash
- b) great speed reduction
- c) Equal speed
- d) inn. Axial Thrust

Q7. Two Spring Stiffness  $K_1$  &  $K_2$ , Series में है, तब Total stiffness :-

- a)  $K = K_1 K_2 / (K_1 + K_2)$
- b)  $K = (K_1 + K_2) / (K_1 K_2)$
- c)  $K = K_1 K_2$
- d)  $K = K_1 + K_2$

Q8. Helical gears में contact के समय कौन-सा contact होगा: -

- a) Point
- b) Line
- c) Area
- d) Volume

Q9. Cam and follower में contact है: -

- a) Lower pair
- b) Higher pair
- c) sliding pair
- d) Rolling pair

Q10. Helical gear के teeth रहते हैं: -

- a) Inclined to wheel Rim
- b) straight over the wheel Rim
- c) Curved over the wheel Rim
- d) Cut on the surface of the frusta of cones.

Q11. When speed of governor increase, then: -

- a) Height & Radius of Govn. Increase
- b) Height & Radius of Govn. Decrease

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c) Height Decrease, Radius Increase

d) Height Increase, Radius Decrease

Q12. A differential gear an auto mobile is a: -

a) simple gear train    b) Epi cyclic gear train    c) Compound gear train    d) Speed Reducer

Q13. The crank shaft tuning in a journal Bearing For a : -

a) Tuning pair    b) Sliding pair    c) Rolling pair    d) Helical pair

Q14. Bevel gear में Axes होगी: -

a) Perpendicular    b) Parallel    c) Non-intersecting    d) Non-coplanar

Q15. किस Mechanism में coriolis component of Acceleration considered होगा :-

a) Quick Return motion mechanism    b) Bea Engine  
c) Four Bar    d) Slider crank Mechanism

Q16. एक slider sliding at 10 cm/ o a link which is Rotating at 60 rpm, is subjected to coriolis acceleration of magnitude in  $\text{cm}^2/\text{s}^2$  :-

a) 20  $\Pi$     b) 10  $\Pi$     c) 40  $\Pi$     d) 80  $\Pi$

Q17. मे कौन-सा mechanism है :-

a) Slider crank  
b) Double crank  
c) crank-Rocker  
d) Double Rocker

Q18. एक circular pitch क्या होगा यदि किसी gear के 24 teeth व module 4.25 mm हो :-

a) 8.50 mm    b) 13.35 mm    c) 4.25 mm    d) 6.67 mm

Q19. Gear का size specified किया जायेगा: -

a) Pitch circle dia    b) Pressure angle    c) Circular pitch    d) Diameter pitch

Q20. Modula, gear में होगा:-

a)  $1/P_d$     b)  $1/P_c$     c)  $P_c/\Pi$     d)  $P_d/\Pi$

Q21. एक hartnell Govn पर 800 N force उसकी sleeve पर तथा 1200 N उसकी min Radius पर लगाया जाता है। यदि Sleeve Lift 20 mm, Then value of Spring stiffness (s): -

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- a) 10 N/mm      b) 20 N/mm      c) 18 N/mm      d) 15 N/mm

Q22. Coefficient of steadiness of fly Wheel is :-

- a)  $N_1 - N_2 / 2(N_1 + N_2)$       b)  $N_1 + N_2 / 2(N_1 - N_2)$       c)  $2(N_1 + N_2)$       d)  $N_1 + N_2 / N_1 - N_2$

Q23. Watt's gov. की Angular Speed क्या होगी यदि Height 20cm हो:-

- a) 20 Rad/sec      b) 10 Rad/sec      c) 6 Rad/sec      d) 7 Rad/sec

Q24. Worm gear drive की efficiency रहती है:-

- a) 10%-25%      b) 40%-60%      c) 50%-70%      d) 70%-85%

Q25. एक K. chain में no of Pair होंगे:-

- a) 1      b) 2      c) 3      d) 4

Q26. Ball and socket Joint है:-

- a) Rolling Pair      b) sliding pair      c) Spherical pair      d) Turning Pair

Q27. ABCD four bar mechanism में AB=30cm, CD =45cm, AB व CD, AD पर Perpendicular है यदि B की velocity V, तब C की velocity होगी:-

- a)  $4/3V$       b)  $9/4V$   
c)  $3/2V$       d) V

Q28. Degree of freedom of slider crank mechanism:-

- a) 1      b) 2      c) 3      d) 0

Q29. Relation between pair & link in four link mechanism:-

- a)  $L=P+4$       b)  $L=2P-6$       c)  $L=2(P-1)$       d)  $L=2P-4$

Q30. Hartnell Govn. में stiffness is:-

- a)  $S = 2(F_1 - F_2)/x$       b)  $S = F_1 - F_2/2x$       c)  $S = F_1 + F_2/h$       d)  $S = F_1 - F_2/x$

Q31. Match

List 1

List 2

- a) Governor      1. Dunkerley method  
b) Flywheel      2. Turning Moment

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c) Critical speed                      3. D' Alembert's Principal

d) Inertia force                        4. Speed Control

CODE	a)	b)	c)	d)
	2	5	4	1
	1	2	3	4
	3	2	1	4
	4	2	1	3

Q32. किस gear में Min-axial Thrust होगा:-

- a) Bevel gear                      b) Helical gear                      c) Spur gear                      d) Double helical gear

Q33. In volute gear में, Ratio of pitch circle Radius/Base Circle Radius:-

- a)  $\cos \Phi$                       b)  $\sin \Phi$                       c)  $\sec \Phi$                       d)  $\csc \Phi$

Q34. Gear drive में Addendum equal:-

- a)  $Pd$                       b)  $Pc$                       c)  $m$                       d)  $1.57 m$

Q35. Height  $h$ , Angular speed  $w$ , Watt gov. And porter governor, are Related by:-

- a)  $h \propto w$                       b)  $h \propto 1/w$                       c)  $h \propto w^2$                       d)  $h \propto 1/w^2$

Q36. Gear के pitch surface से नीचे surface का कहा जाता है:-

- a) Bottom tooth                      b) Face                      c) Flank                      d) Dedendum portion

Q37. A simple mechanism has:-

- a) 1 link                      b) 2 link                      c) 3 link                      d) 4 link

Q38. Universal joint, Example of:-

- a) lower pair                      b) higher pair                      c) rolling pair                      d) sliding pair

Q39. Inversion of a mechanism is:-

- a) Changing of a higher pair to lower pair                      b) obtained by fixing different link in a K.chain  
c) Turnin it up side down                      d) All

Q40. Product of module and diametral pitch is:-

- a) 1                      b)  $\Pi/2$                       c)  $\Pi$                       d)  $2 \Pi$

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Q41. Path of contact in cycloidal gear is:-

- a) straight line      b) curved line      c) circle      d) none

Q42. कौन gravity controlled governor है:-

- a) Hartnell govn.      b) hartung govn.      c) watt Govn.      d) all

Q43. Double slider crank chain, में No of pair है:-

- a) 1      b) 2      c) 3      d) 4

Q44. Oldham's coupling is Inversion of:-

- a) 4 bar chain      b) 6 bar chain      c) single slider crank chain      d) Double slider crank chain

Q45. Kinematic element pair consists of:-

- a) pair of element having line or point contact  
b) Pair of element having surface contact  
c) Two element that permit Relative motion  
d) Two element which are mechanically held together.

Q46. Consider a point on a link connecting double slider crank chain. It would trace: -

- a) A circular path      b) An elliptical path      c) A straight path      d) A parabolic path

Q47. Total No of I.C:-

- a)  $n(n-1)$       b)  $n(n-1)/2$       c)  $n(n-1)$       d)  $n(n+1)/2$

Q48. Sensitiveness of Governor is:-

- a) Range Of speed/2. Mean speed      b) mean speed/Range of speed  
c) Rage of speed/Mean speed      d) None

Q49. Pantograph में pair होंगे:-

- a) Turning pair      b) Sliding pair      c) spherical pair      d) Rolling pair

Q50.  $L$ =No of link,  $J$ = No of joint तब:-

- a)  $L=3/2(j+2)$       b)  $L=1/3(j+2)$       c)  $L=2/3(+2)$       d)  $L=2/3(j+1)$

Q51. A quarter nary joint बराबर होगा:-

- a) 1 binary joint      b) 2 binary joint      c) 3 binary joint      d) 4 binary joint

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Q52. Damped vibration में damping force proportional to:-

- a) Displacement      b) velocity      c) Acceleration      d) vibraatio

Q53. What is flywheel:-

- a) An essential element of every prime mover  
b) Use in storing up energy  
c) Used to keep the speed of prime over constant  
d) None

Q54. Medium velocity gear की velocity:-

- a) 1-3 m/s      b) 3-15 m/s      c) 15-30 m/s      d) 30-50 m/s

Q55. Cam size depend upon:-

- a) Base circle      b) pitch circle      c) prime circle      d) outer circle

Q56. Damping capacity of a material is its ability to:-

- a) Absorb shocks      b) Absorb Impact  
c) With stand creep faiury      c) Absorb vibration.

Q57. In Involuter gear, the normal to the Involuter is tangent to the.

- a) Pitch circle      b) Base circle      c) addendum circle      d) Dedendum circle

Q58. Critical speed of a shaft depends on :-

- a) Dia of disc      b) length of shaft      c) Eccentricity      d) All

Q59. The coriolis component of acceleration Acts:-

- a) Along the sliding surface      b) At 45° to the sliding surface  
c) Perpendicular to the sliding surface      d) None

Q60. Magitude of corioli component of acc.:-

- a) 2      b) vw      c) 2vw      d) None

Q61. Clock में gear रहता है:-

- a) Reverted gear train      b) Simple gear train  
c) sun and planet gear      d) None

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Q62. Flywheel में fluctuation of energy is:-

- a) Sum of  $N_{max}$  &  $N_{min}$       b)  $N_{max} - N_{min}$   
c)  $N_{max} / N_{min}$       d)  $N_{min} / N_{max}$

Q63. Spring controlled gov. Unstable से stable लाने पर:-

- a) Increase spring stiffness      b) Decrease spring stiffness  
c) Increase ball weight      d) Decrease ball weight

Q64. Porter gov. Is:-

- a) Pendulum type      b) Dead weight      c) Spring loaded      d) Inertia type

Q65. Sensitivity of an isochronous gear is:-

- a) 0      b) 1      c) 2      d)  $\infty$

Q66. यदि gov. const speed पर run करे तो उसकी sleeve पर force होगा:-

- a) Cont      b) min      c) Max      d) 0

Q67. In Spur gear:-

- a) Both shaft are parallel      b) Teeth the straight  
c) Teeth are parallel to axis      d) All

Q68. Piston, Piston rod and cross head of a steam engine have :-

- a) 1 Link      b) 2 Link      c) 3 Link      d) None

Q69. Max fluctuation of energy in a flywheel :-

- a)  $I\omega(W_1 - W_2)$       b)  $I\omega^2 CS$       c)  $2ECS$       d) All

Q70. In a compound gear train there is :-

- a) only one gear on each shaft      b) more than one gear on shaft  
c) No gear on driving shaft      d) None

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