CIRCULAR MOTION

Each question has four possible answers, encircled the correct answer:

1. When a body is moving along a circular path, it covers a certain angle in given time. Such a type of motion is called:

(a) Linear motion **(b)** Angular motion

(c) Vibratory motion **(d)** Rotatory motion

2. When a body moves in such a way that its distance from the mean position remains constant is called:

(a) Linear motion **(b)** Circular motion

(c) Vibratory motion **(d)** Rotatory motion

3. The angle through which a body moves is called:

(a) Angular displacement **(b)** Angular velocity

(c) Angular acceleration **(d)** None of these

4. The SI unit of angular displacement is:

(a) Metre **(b)** Kilometre

(c) Radian **(d)** None of these

5. The angle subtended at the center of a circle by an arc equal to its radius is called:

(a) One radian **(b)** One degree

(c) One rotation **(d)** None of these

6. One radian is equal to:

(a) 47.3° **(b)** 57.3°

(c) 67.3° **(d)** 59.3°

7. The linear acceleration of bodies moving in circular path is:

(a) Constant **(b)** Negative

(c) Positive **(d)** Zero

8. The angular displacement is assign positive sign when the rotation is:

(a) Clockwise **(b)** Anti-clock wise

(c) Perpendicular **(d)** Parallel

9. The direction associated with angular displacement is given by:

(a) Left hand rule **(b)** Head to tail rule

(c) Right hand rule **(d)** None of these

10. Angular displacement is a:

(a) Scalar **(b)** Vector

(c) Neither scalar nor vector **(d)** None of these

11. Radian is defined as the angle subtended at the center of a circle by an:

(a) Arc whose length equal to radius of circle

(b) Arc whose length less than radius of circle

(c) Arc whose length greater than radius of circle

(d) None of these

12. Which one is the correct relation for angular displacement θ, radius r and length of arc S is:

(a) $S = r\theta$ **(b)** $\frac{S}{r} = \theta$

(c) $Sr = \theta$ **(d)** $S\theta = r$

13. The rate of change of angular displacement is called:

(a) Angular speed **(b)** Angular acceleration

(c) Angular velocity **(d)** None of these

14. Angular velocity is a:

(a) Scalar **(b)** Vector

(c) Neither scalar nor vector **(d)** None of these

15. The direction of angular velocity of a body moving in a circle is:

(a) Towards the axis of rotation **(b)** Away from the axis of rotation

(c) Along the axis of rotation **(d)** None of these

16. Average angular velocity is defined by the relation:

(a) $< \omega > = \theta t$ **(b)** $< \omega > = \frac{\theta}{t}$

(c) $< \omega > = \frac{t}{\theta}$ **(d)** $< \omega > = \frac{\theta^2}{t}$

17. When an object moves in a circle, the angle between angular velocity ω and linear velocity v is:

(a) 90° **(b)** 0°

(c) 45° **(d)** 60°

18. The angular velocity at any instant is called:

(a) Instantaneous angular velocity **(b)** Instantaneous angular speed

(c) Instantaneous angular displacement **(d)** None of these

19. If a particle moves in a circle of radius r with uniform angular velocity ω then the angle between radius r and linear velocity v is:

(a) 45° **(b)** 90°

(c) 60° **(d)** 180°

20. The rate of change of angular velocity is called:

(a) Angular velocity **(b)** Angular acceleration

(c) Angular displacement **(d)** None of these

21. SI unit of angular acceleration is:

(a) rad/s^2 **(b)** rad/s

(c) $rad.s^2$ **(d)** rad.s

22. The relation between linear acceleration and angular acceleration is:

(a) $\vec{\alpha} = \vec{a} \times \vec{r}$ **(b)** $\vec{a} = \vec{r} \times \vec{\alpha}$

(c) $\vec{r} = \vec{a} \times \vec{\alpha}$ **(d)** $\vec{a} = \vec{\alpha} \times \vec{r}$

23. The dimensions of angular acceleration are:

(a) $[LT^{-2}]$ **(b)** $[T^{-2}]$

(c) $[LT^{-1}]$ **(d)** $[T^{-3}]$

24. The relation between linear velocity and angular velocity is:

(a) $\vec{v} = \vec{r} \times \vec{\omega}$ **(b)** $\vec{v} = \vec{\omega} \times \vec{r}$

(c) $\vec{\omega} = \vec{v} \times \vec{r}$ **(d)** $\vec{r} = \vec{v} \times \vec{\omega}$

25. The dimensions of angular velocity are:

(a) $[LT^{-1}]$ **(b)** [LT]

(c) $[LT^{-2}]$ **(d)** $[T^{-1}]$

26. If a rotating body is moving anti-clockwise, the direction of angular velocity is:

(a) Towards the centre **(b)** Along the linear velocity

(c) Away from the centre **(d)** Perpendicular to both radius and linear velocity

27. Angular acceleration is produced due to:

(a) Centripetal force **(b)** Torque

(c) Force **(d)** None of these

28. The period of circular motion is given by:

(a) $T = \frac{2\pi}{\omega}$ **(b)** $T = \frac{\omega}{2\pi}$

(c) $T = 2\pi\omega$ **(d)** None of these

29. The force needed to bend the normally straight path of particle into a circular path is called:

(a) Inertia **(b)** Torque

(c) Centripetal force **(d)** None of these

30. When a body is moving in a circle of radius r with constant linear velocity v, its centripetal force is:

(a) $\frac{mv^2}{r}$ **(b)** $\frac{m^2v}{r}$

(c) $\frac{mv}{r^2}$ **(d)** None of these

31. When a body moves in a circle of radius r with angular speed ω, its centripetal force is:

(a) $\frac{m\omega}{r}$ **(b)** $mr\omega^2$

(c) $\frac{mr}{\omega^2}$ **(d)** $\frac{m\omega^2}{r}$

32. A body is moving in a circle of radius r with constant speed v, its centripetal acceleration is:

(a) $\frac{v^2}{r}$ **(b)** v^2r

(c) $\frac{r}{v^2}$ **(d)** $\frac{v}{r}$

33. A body is moving in a circle of radius r with constant angular velocity ω, its centripetal acceleration is:

(a) $\frac{\omega}{r}$ **(b)** ωr

(c) $\omega^2 r$ **(d)** ωr^2

34. The force required to keep a body into a circle is called:

(a) Centrifugal force **(b)** Centripetal force

(c) Gravitational force **(d)** None of these

35. A body is moving in a circle at constant speed. Which of the following statement is correct:

(a) There is no force acting away from the centre of the circle

(b) There is no force acting towards the centre of the circle

(c) There is no acceleration

(d) None of these

36. The vectorial form of centripetal force is:

(a) $-m\omega^2\vec{r}$ **(b)** $m\omega^2\vec{r}$

(c) $-m\omega\vec{r}$ **(d)** $m^2\omega\vec{r}$

37. An object is traveling in a circle with constant speed. Its acceleration is constant in:

(a) Direction only **(b)** Magnitude only

(c) Both magnitude and direction **(d)** None of these

38. A body of mass 4 kg moves along a circle of radius 2m with a constant speed of 4 m/s. The centripetal force is:

(a) 32 N **(b)** 16 N

(c) 20 N **(d)** 64 N

39. In case of planets, the necessary acceleration is provided by:

(a) Coulombs force **(b)** Centripetal force

(c) Gravitation force **(d)** None of these

40. The necessary centripetal force to the moving car round a corner track is provided by:

(a) Centrifugal force **(b)** Gravitational force

(c) Coulombs force **(d)** Frictional force

41. The mud flies off the tyre of a moving bicycle in the direction of:

(a) Towards the centre **(b)** Tangent to the tyre

(c) Along the radius **(d)** Along the motion

42. The angular momentum is defined as:

(a) $\vec{L} = m\vec{v}$ **(b)** $\vec{L} = \vec{r} \times \vec{F}$

(c) $\vec{L} = \vec{r} \times \vec{P}$ **(d)** $\vec{L} = \vec{P} \times \vec{r}$

43. The SI unit of angular momentum is:

(a) $kg\ m^2/s$ **(b)** $kg\ m^2/s^2$

(c) $kg^2\ m/s$ **(d)** $kg\ m/s$

44. The dimensions of angular momentum $\vec{L}$ are:

(a) $[M^2LT^{-1}]$ **(b)** $[M^2L^2T]$

(c) $[ML^2T^2]$ **(d)** $[ML^2T^{-2}]$

45. Angular momentum of a body under central force is:

(a) Minimum **(b)** Zero

(c) Maximum **(d)** Constant

46. A body rotating in a circle of radius 1 m with an angular speed 10 rad/s has the tangential velocity:

(a) 2 m/s **(b)** 5 m/s

(c) 10 m/s **(d)** 15 m/s

47. The rate of change of angular momentum of a body is:

(a) The applied torque **(b)** The applied force

(c) Both (a) and (b) **(d)** None of these

48. Angular momentum is conserved under:

(a) Variable force **(b)** Constant force

(c) Central force **(d)** None of these

49. The direction of angular momentum $\vec{L}$ is:

(a) Along the direction of $\vec{P}$

(b) Along the direction $\vec{r}$

(c) Parallel to the plane containing $\vec{r}$ and $\vec{P}$

(d) Perpendicular to the plane containing $\vec{r}$ and $\vec{P}$

50. The angular momentum of a body about a fixed point is conserved if its velocity:

(a) Increases **(b)** Decreases

(c) Constant **(d)** None of these

51. Angular momentum of a rigid body is equal to:

(a) $I\omega$ **(b)** $I\alpha$

(c) $\frac{1}{2} I\omega$ **(d)** $\frac{1}{2} I^2\omega$

52. In rotational motion, the quantity which plays the same role as the inertial mass in term of linear motion is known as:

(a) Angular momentum **(b)** Linear momentum

(c) Momentum of inertia **(d)** Torque

53. The value of angular momentum is maximum when θ is:

(a) $60°$ **(b)** $45°$

(c) $0°$ **(d)** $90°$

54. The angular momentum $\vec{L}$ in terms of angular velocity ω is equal to:

(a) $mr^2\omega$ **(b)** $m^2r\omega$

(c) $mr\omega^2$ **(d)** $m^2r^2\omega^2$

55. The product of the mass m of the rotating body and the square of radius of gyration is called:

(a) Moment of inertia **(b)** Torque

(c) Linear momentum **(d)** None of these

56. Mathematically moment of inertia is equal to:

(a) $I = mr^2$ **(b)** $I = mr$

(c) $I = m^2r$ **(d)** $I = m^2r^2$

57. The moment of inertia depends upon:

(a) Angular momentum

(b) Mass of the body and its angular speed

(c) Mass of the body and its radius

(d) Mass as well as its distribution with respect to axis of rotation

58. Moment of inertia of a thin rod about mid length is:

(a) $I = \frac{1}{12} mL^2$ **(b)** $I = \frac{2}{5} mr^2$

(c) $I = \frac{1}{3} mr^2$ **(d)** $I = \frac{1}{2} mr^2$

59. Moment of inertia of a hoop about its axis is:

(a) $I = \frac{1}{3} mr^2$ **(b)** $I = \frac{1}{2} mr^2$

(c) $I = \frac{2}{3} mr^2$ **(d)** $I = \frac{2}{5} mr^2$

60. The moment of inertia of a body comes in action in:

(a) Circular motion **(b)** Straight line motion

(c) Curved path **(d)** None of these

61. The SI unit of angular momentum is:

(a) kgm^3 **(b)** kgm

(c) kgm^2 **(d)** kgm^{-2}

62. The physical quantity which plays the same part in angular motion as mass does in linear motion is called:

(a) Moment of inertia **(b)** Momentum

(c) Torque **(d)** None of these

63. The physical quantity which produces angular acceleration is known as:

(a) Force **(b)** Torque

(c) Inertia **(d)** None of these

64. Moment of inertia of a solid disc about its axis is:

(a) $\frac{1}{2}mr^2$ **(b)** $\frac{2}{5}mr^3$

(c) $\frac{2}{3}mr^2$ **(d)** $\frac{1}{3}mr^2$

65. Moment of inertia of a sphere is:

(a) $\frac{1}{2}mr^2$ **(b)** $\frac{2}{5}mr^3$

(c) $\frac{2}{5}mr^2$ **(d)** $\frac{1}{3}mr^2$

66. The dimensions of moment of inertia are:

(a) $[ML^2]$ **(b)** $[ML^{-2}]$

(c) $[ML^{-1}]$ **(d)** $[M^2L]$

67. The force and torque are analogues to:

(a) Each other **(b)** Moment of inertia

(c) Velocity **(d)** None of these

68. The total weight of the body acts at:

(a) its center of gravity **(b)** its centre

(c) its one end **(d)** its other end

69. The center of gravity is also called:

(a) Centre of body **(b)** Centre of mass

(c) Both (a) and (b) **(d)** None of these

70. The acceleration due to gravity:

(a) Same value at every place **(b)** Same value everywhere on the surface of earth

(c) Varies with altitude **(d)** None of these

71. The value of 'g' at the center of the Earth is:

(a) Infinite **(b)** Double

(c) Zero **(d)** None of these

72. Law of conservation of angular momentum states that if no ———— acts on a system, the total angular momentum of the system remains constant:

(a) External torque **(b)** External couple

(c) External force **(d)** None of these

73. The axis of rotation of a body will not change its orientation unless an external ———— causes it to do so:

(a) Force **(b)** Torque

(c) Work **(d)** Energy

74. A cricketer spins the ball before bowling to:

(a) Give it downward deflection **(b)** Give it upward deflection

(c) Keep it straight **(d)** None of these

75. An elevator is accelerated downward with acceleration a, the apparent weight of a body of mass m in it will be:

(a) $m(a - g)$ **(b)** $m(g + a)$

(c) $m(g - a)$ **(d)** mg

76. An elevator is accelerated upward with acceleration a, the apparent weight of a body of mass m in it will be:

(a) $m(a - g)$ **(b)** $m(a + g)$

(c) $m(g - a)$ **(d)** mg

77. If the rope of an elevator moving downward with acceleration a breaks, the apparent weight of a body of mass m in it will be:

(a) $m(a - g)$ **(b)** $m(a + g)$

(c) $m(g - a)$ **(d)** Zero

78. The K.E of a disc of mass m rolling down on an included plane is:

(a) $\frac{1}{2}mv^2$ **(b)** $\frac{1}{4}mv^2$

(c) $\frac{3}{4}mv^2$ **(d)** None of these

79. The rotation K.E of any hoop of radius r is given by:

(a) $\frac{1}{2}mr^2\omega^2$ **(b)** $\frac{1}{2}r\omega^2$

(c) $\frac{1}{2}r^2\omega^2$ **(d)** None of these

80. Suppose a body of cylindrical shape is called down on an inclined plane of height h. It contains:

(a) Translation K.E **(b)** Rotational K.E

(c) Both (a) and (b) **(d)** None of these

81. Speed of hoop at the bottom can be given by:

(a) $v = \sqrt{gh}$ **(b)** $v = \sqrt{2gh}$

(c) $v = \sqrt{\frac{3}{4}gh}$ **(d)** None of these

82. Orbital velocity of a satellite orbiting closer to the planet is given by:

(a) $v = \sqrt{\frac{GM}{R}}$ **(b)** $v = \sqrt{\frac{GMm}{R}}$

(c) $v = \sqrt{gR}$ **(d)** None of these

83. If the earth stops rotating weight of a body on the equator:

(a) Increases **(b)** Remains constant

(c) Decreases **(d)** None of these

84. A body becomes weightless:

(a) Spaceship orbiting the earth **(b)** Outside the field free region

(c) On the earth's centre **(d)** All of above

85. The axis of rotation of a rotating body in the absence of external torque:

(a) Continuously changes **(b)** Remain fixed in direction

(c) Both (a) and (b) **(d)** None of these

86. The number of satellite included in the Global positioning system is:

(a) 20 **(b)** 48

(c) 24 **(d)** None of these

87. Orbital speed of a satellite at large enough height h above the earth's surface is:

(a) $\sqrt{gR}$ **(b)** $\sqrt{\frac{GM}{R+h}}$

(c) $\sqrt{\frac{GM}{R}}$ **(d)** None of these

88. In a spaceship orbiting the earth, the apparent weight of the body in it is:

(a) Less than its real weight **(b)** Greater than its real weight

(c) Weightlessness **(d)** None of these

89. One communication satellite covers:

(a) 240 longitudinal lines **(b)** 360 longitudinal lines

(c) 120 longitudinal lines **(d)** None of these

90. International telecommunication in satellite organization (INTELSAT):

(a) Operates at microwave frequency 4.611 and 149 Hz

(b) Has capability of 30,000 two-way telephone circuits

(c) Provides facility of three T.V channels

(d) All of above

91. Height of the closest orbit of the satellite above the earth is:

(a) 300 km **(b)** 250 km

(c) 500 km **(d)** 400 km

92. Radius of the geo-stationary orbit from the earths center is:

(a) 4.24×10^4 km **(b)** 3.23×10^4 km

(c) 4.23×10^3 km **(d)** None of these

93. Height of geo-stationary satellite above the equator is:

(a) 40,000 km **(b)** 24,000 km

(c) 30,000 km **(d)** 36,000 km

94. Entire populated earth, surface is covered by:

(a) Four **(b)** Three

(c) Two **(d)** None of these

95. The geo-stationary satellite are used for:

(a) World communications **(b)** Weather observations

(c) Navigation **(d)** All of above

96. Einstein theory was considered as a:

(a) Scientific trump **(b)** Simple trump

(c) Natural trump **(d)** None of these

97. Which theory of gravitation is better:

(a) Newton **(b)** Einstein

(c) Compton **(d)** Plank

98. The time period T of the artificial satellite is given by:

(a) $T = \frac{2\pi v}{R}$ **(b)** $T = \frac{2v}{\pi R}$

(c) $T = \frac{2\pi R}{v}$ **(d)** None of these

99. $1° =$ _____ radian.

(a) 0.01745 **(b)** 57

(c) 0.1745 **(d)** 0.2

100. If $r = 1$ m and $\theta = 1°$ then what is value of S:

(a) 0.01745 m **(b)** 1 m

(c) 2 m **(d)** None

101. Dimensions of angular velocity:

(a) $[LT^{-1}]$ **(b)** $[T^{-1}]$

(c) [LT] **(d)** None

102. An electric fan rotating at 3 rev/s is switched off. It comes to rest in 18 s. Assuming deceleration to be uniform. What is its value?

(a) $0.167\ rev/s^2$ **(b)** $-0.167\ rev/s^2$

(c) $-0.176\ rev/s^2$ **(d)** $0.176\ rev/s^2$

103. Unit of moment of inertia is:

(a) kg/m^2 **(b)** $kg\ m^2$

(c) gm^2 **(d)** $kg\ cm^2$

104. The product of linear momentum and moment arm for momentum is called:

(a) Momentum **(b)** Angular momentum

(c) Torque **(d)** Moment of inertia

105. The axis of rotation of an object will not change its orientation unless an external ———— causes it to do so.

(a) Force **(b)** Torque

(c) Both (a), (b) **(d)** None

106. Moment of inertia of a thin rod of mass 'm' and length 'L' is:

(a) $\frac{2}{5}mL^2$ **(b)** $\frac{1}{12}mL^2$

(c) $\frac{1}{12}mL$ **(d)** $\frac{1}{12}m^2L$

107. If an artificial satellite move with 30000 km/h then it follow:

(a) Circular orbit **(b)** Elliptical orbit

(c) Escape **(d)** None of these

108. Global positioning system can be formed by ———— artificial satellites.

(a) 22 **(b)** 42

(c) 3 **(d)** 24

109. When the lift is moving upwards with an acceleration $\vec{a}$ then weight of the object appears to be ———— than real weight.

(a) Less **(b)** More

(c) No change **(d)** None

110. If distance between satellite and centre of Earth is 2R then orbital velocity of satellite:

(a) $\sqrt{2gR}$ **(b)** $\sqrt{\frac{gR}{2}}$

(c) $\sqrt{\frac{GM}{r}}$ **(d)** None of these

111. To create artificial gravity spaceship rotates with frequency:

(a) $2\pi\sqrt{\frac{g}{R}}$ **(b)** $\frac{1}{2\pi}\sqrt{\frac{R}{g}}$

(c) $\frac{1}{2\pi}\sqrt{\frac{g}{R}}$ **(d)** All

112. The Earth rotates on its axis once a day. Suppose by some process the Earth contracts so that its radius is only half as large as at present. The Earth would complete its rotation in:

(a) 24 h **(b)** 6 h

(c) 12 h **(d)** 18 h

113. The minute hand of a large clock is 3.0 m long. What is its mean angular speed?

(a) 1.4×10^{-4} rad s^{-1} **(b)** 1.7×10^{-3} rad s^{-1}

(c) 5.2×10^{-3} rad s^{-1} **(d)** 1.0×10^{-1} rad s^{-1}

114. When an aircraft is moving in a horizontal plane at a constant speed of 650 ms^{-1}, its turning circle has a radius of 80 km. What is the ratio of the centripetal force to the weight of the aircraft?

(a) 8.3×10^{-4} **(b)** 0.54

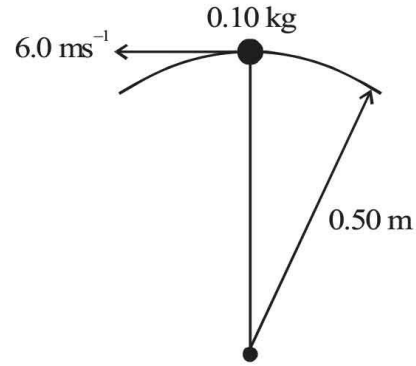
(c) 1.9 **(d)** 52

115. An object travels at constant speed around a circle of radius 1.0 m in 1.0 s. What is the magnitude of its acceleration?

(a) Zero **(b)** 1.0 ms^{-2}

(c) 2π ms^{-2} **(d)** $4\pi^2$ ms^{-2}

116. A ball of mass 0.10 kg is attached to a string and swung in a vertical circle of radius 0.50 m, as shown. Its speed at the top of the circle is 6.0 ms^{-1}. (Take g as 10 ms^{-2})



What is the tension in the string at this moment?

(a) 1.0 N **(b)** 6.2 N

(c) 7.2 N **(d)** 8.2 N

117. An object on the end of a spring oscillates with simple harmonic motion of angular frequency 2.0 rad s^{-1}. What is the period of the oscillation?

(a) 0.080 s **(b)** 0.32 s

(c) 0.50 s **(d)** 3.1 s

118. An object is travelling in a circle of radius r with angular velocity ω and speed v. Which expression gives the centripetal acceleration?

(a) $r\omega$ **(b)** $v\omega$

(c) v/r **(d)** v/r^2

119. When brakes of a car are applied, angular velocity of a flywheel reduces from 900 cycle/min. to 720 cycle/min. in 6sec. Angular retardation is:

(a) π rad/s^2 **(b)** 9π rad/s^2

(c) 8π rad/s^2 **(d)** None of these

120. A motor operates at 20 rev/s. What is power delivered by it? If it supply a torque of 75 Nm:

(a) 75 W **(b)** 85 W

(c) 90 W **(d)** 9.4×10^3 W

121. A wheel starts from rest and gets a rotational speed of 240 rev/s in time 2 min. Its average acceleration will be:

(a) 1 rev/s^2 **(b)** 2 rev/s^2

(c) 5 rev/s^2 **(d)** 8 rev/s^2

122. Ratio of magnitude of angular velocity of hour hand of a watch to that of earth's rotation about its own axis is:

(a) 3 : 1 **(b)** 1 : 3

(c) 2 : 1 **(d)** 1 : 4

123. If a solid sphere rolls on a horizontal surface, the ratio of its rotational K.E. to its total K.E. is:

(a) 1 : 3 **(b)** 2 : 7

(c) 7 : 3 **(d)** None of these

124. A solid cylinder rolls down an inclined plane of height 1 m in 10 s. Its acceleration is:

(a) 0.3 m/s^2 **(b)** 0.7 m/s^2

(c) 5 m/s^2 **(d)** 1 m/s^2

125. A particle of mass m tied to a string of length l is rotating in a circular path with constant speed v. Torque on it is:

(a) Zero **(b)** mv$l$

(c) $\frac{mv}{l}$ **(d)** $\frac{mv^2}{l}$

126. A motor runs at 20 rev/s and supplies a torque of 75 Nm. Power delivered by it is:

(a) 6.12 hp **(b)** 12.6 hp

(c) 7.3 hp **(d)** 8.3 hp

127. A body is executing uniform circular motion. Its angular acceleration is:

(a) 2 **(b)** 4

(c) Zero **(d)** None of these

ANSWERS

1.	(b)	**2.**	(b)	**3.**	(a)	**4.**	(c)
5.	(a)	**6.**	(b)	**7.**	(d)	**8.**	(b)
9.	(c)	**10.**	(b)	**11.**	(a)	**12.**	(a)
13.	(c)	**14.**	(b)	**15.**	(c)	**16.**	(b)
17.	(a)	**18.**	(a)	**19.**	(b)	**20.**	(b)
21.	(a)	**22.**	(d)	**23.**	(b)	**24.**	(a)
25.	(d)	**26.**	(d)	**27.**	(b)	**28.**	(a)
29.	(c)	**30.**	(a)	**31.**	(b)	**32.**	(a)
33.	(c)	**34.**	(b)	**35.**	(b)	**36.**	(b)
37.	(b)	**38.**	(a)	**39.**	(c)	**40.**	(d)
41.	(b)	**42.**	(c)	**43.**	(a)	**44.**	(d)
45.	(d)	**46.**	(c)	**47.**	(a)	**48.**	(c)
49.	(d)	**50.**	(b)	**51.**	(a)	**52.**	(c)
53.	(d)	**54.**	(a)	**55.**	(a)	**56.**	(a)
57.	(d)	**58.**	(a)	**59.**	(b)	**60.**	(a)
61.	(c)	**62.**	(a)	**63.**	(b)	**64.**	(a)
65.	(c)	**66.**	(a)	**67.**	(a)	**68.**	(a)
69.	(b)	**70.**	(c)	**71.**	(c)	**72.**	(c)
73.	(b)	**74.**	(b)	**75.**	(c)	**76.**	(b)
77.	(d)	**78.**	(b)	**79.**	(a)	**80.**	(c)
81.	(a)	**82.**	(c)	**83.**	(c)	**84.**	(d)
85.	(b)	**86.**	(c)	**87.**	(b)	**88.**	(c)
89.	(c)	**90.**	(d)	**91.**	(d)	**92.**	(a)
93.	(d)	**94.**	(b)	**95.**	(d)	**96.**	(a)
97.	(b)	**98.**	(c)	**99.**	(a)	**100.**	(a)
101.	(b)	**102.**	(b)	**103.**	(b)	**104.**	(b)
105.	(b)	**106.**	(b)	**107.**	(a)	**108.**	(d)
109.	(b)	**110.**	(b)	**111.**	(c)	**112.**	(b)
113.	(b)	**114.**	(b)	**115.**	(d)	**116.**	(b)
117.	(d)	**118.**	(b)	**119.**	(a)	**120.**	(d)
121.	(b)	**122.**	(c)	**123.**	(c)	**124.**	(a)
125.	(a)	**126.**	(b)	**127.**	(c)		