Unit I

1. Superposition of Harmonic Oscillations

1) Principle of superposition is obeyed by.....

a) homogeneous equations b)linear equations

c) homogeneous and linear equations d)non - linear equations

2)Beats are produced due to superposition of two ....

a) harmonic oscillator b) collinear oscillations

c) oscillation with slightly different frequencies d) all the above

3)Lissajous figures are produced by superposition of two ....

a)SHM's b) collinear SHM's

c) perpendicular SHM's **d) perpendicular SHM's with frequencies which can be expressed as simple integral ratios**

4)The resultant of two SHM's acting at right angles to each other and having equal frequencies and a phase difference of π is ....

a) a straight line b) an ellipse c) an oblique ellipse d) a circle

5)The resultant of two SHM's acting at right angles to each other and having same frequency,same amplitude but differencing in phase by $\pi/2$ is ...

a) a straight line **b) an ellipse** c)an oblique ellipse d) a circle

6)The resultant of two SHM's acting at right angles to each other and having same frequency

, different amplitudes and a phase difference of $\pi/4$ is ...

a) a straight line b) an ellipse c)an oblique ellipse **d) a circle**

7)The resultant Lissajous figure of two SHM's in phase, acting at right angles to each other and having frequencies in the ratio 2:1 is a...

a)Circle b)figure like number 8 **c)parabola** d) ellipse

8) The beat frequency of two SHM's with frequencies n1 and n2 is given by

a) n1+ n2 **b) n1- n2** c) 1/ n1+ n2 d)1/ n1- n2

Unit I
2. Coupled Oscillations

9) Slow frequency of normal mode of oscillation of two identical pendula is given by ……..

a) √(g/l) b) √(g/l + 2k/m) c) √(l/g) d) √(l/g + 2k/m)

10) Fast frequency of normal mode of oscillation of two identical pendula is given by

a) √(g/l) **b) √(g/l + 2k/m)** c) √(l/g) d) √(l/g + 2k/m)

11)Simple harmonic oscillations are ...

a) periodic b) a periodic **c) sinusoidal** d)non- sinusoidal

12)Normal modes of vibration of a coupled system are...

a)periodic b) a periodic **c) sinusoidal** d)non-sinusoidal

13)In a normal mode of oscillation the oscillating parts have ....

a)same frequency b) same amplitude c)same phase **d)all the above**

Unit I
3.Wave Motion and Ultrasonic Waves

14) Nodes in standing waves are the points where ...

a) Displacement is zero **b) amplitude is zero**

c) Displacement is maximum d) amplitude is maximum

15)Antinodes in standing waves are the points where ....

a) Displacement is zero b) amplitude is zero

c) displacement is maximum **d) amplitude is maximum**

16)Spherical waves are...

a) originated from a point source b) divergent

c) those in which energy goes on decreasing **d)all the above**

17)Plane waves are ...

a) originated from a source at infinitely large distance

b)collimated

c)those in which energy (intensity) remains same

d) all the above

18) Piezoelectric generator uses...

a)the principle of converse piezo -electric effect b)an electrostatic oscillator

c) the idea of resonance vibrations **d) all the above**

19)Ultrasonics are....

a) sound waves with frequency greater than 20,000 hz

b) sound waves with frequency less than 20,000

c) waves travelling with velocity greater than that for sound waves

d) waves travelling with velocity less than that for sound waves

20) The expression for velocity of transverse wave travelling along a stretched string is v=……

a) T/m b) m/T **c) (T/m)^1/2** d) (m/T)^1/2

21)The distance between successive nodes or antinodes is …….

a) λ/4 **b) λ/2** c) λ d) 2λ

22) Phase velocity of a wave is v = …….

a) w/k b) k/w c) dw/dk d) dk/dw

23) group velocity of wave is vg= …….

a) w/k b) k/w **c) dw/dk** d) dk/dw

24) The frequency , n= p/2l *(T/m) ^1/2 is the frequency of …….

a) fundamental mode b) p^{th} overtone **c) p^{th} harmonics** d) none of the above

Unit II
1: Sound and Acoustics of Building

25) The devices which convert non-electrical signal into corresponding electrical signal or vice versa are called ……

a) microphones b) loudspeakers **c) transducers** d) amplifiers

26) Microphones are ……

a) active transducers **b) passive transducers** c) transducers d) amplifiers

27) Intensity of sound waves is proportional to …….

a) square of the amplitude b) square of the frequency

c) density of the medium **d) all of the above**

28) Unit of intensity level is ……..

a) decibel b) erg/cm/s c) j/m/s d) all of the above

29) The pleasant effect produced by notes produced one after another is called ….

a) chord b) dis-chord c) harmony **d)melody**

30) The interval between two notes is …… of their frequencies

a) the ratio b)product c) sum d) difference

31) When sounding source in a closed space like half is cut off the intensity of sound ……..

a) suddenly falls down to zero b) decreases linearly with time

c) decreases exponentially with time d) remains constant with time

32) Reverberation time is …….

a) proportional to the volume of the hall

b) inversely proportional to the absorbing surface area in the hall

c) inversely proportional to the avg. Coefficient of absorption

d) all of the above

33) Standard unit of absorption of sound is ……

a) one square foot b) one square meter

c) one square meter of open window d**) one square foot of open window**

34) Reverberation time should be ……. for good acoustics

a) optimum b) very small c) very large d) zero

35) If (s) is actual surface area, (a) is coeff. Of absorption then effective absorbing area (a) is given by ……

a) A=s/a b) A= a/s c) A=(as)^2 d**) A = as**

Unit II
2 : Viscosity

36) The CGS unit of coeff of viscosity is …….

a) erg b) dyne **c) poise** d) erg / cm

37) The viscous drag in a liquid is given by the equation F= ……..

a) ηA* dv/dz b) η/A* dv/dz c) η/(A dv/dz) d) A/(η dv / dz)

38) Which assumptions are made while deriving the Poiseuille's formula for coeff of viscosity

a) the flow of liquid is streamline b) there is no any radial flow

c) the liquid in contact with the sides of the capillary tube is stationary

d) all of the above

39) Following is the Poiseuille's equation for the coeff of a liquid

a) η=πVa^4/ 8lP **b) η=πPa^4/ 8lV** c) η=πPV/8l a^4 d) η=8lV/πPa^4

40) In Poiseuille's experiment to determine coeff of viscosity of a liquid the capillary is always kept ……

a) horizontal b)vertical c)slanted d)making an angle of 45 ^{o} with the horizontal

41) The viscosity of a liquid …..…… with increasing temperature

a) increases **b) decreases** c) remains constant d) changes abnormally

42) For water the coefficient of viscosity is ……..at 80^{o} C of its value at 10^{o}C

a) double b) triple c) one forth **d) one third**

43) Liquids used as lubricants are of …….viscosity

a) low **b) high** c) zero d) infinite

1. Superposition of Harmonic Oscillations

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6)The resultant of two SHM's acting at right angles to each other and having same frequency

, different amplitudes and a phase difference of $\pi/4$ is ...

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7)The resultant Lissajous figure of two SHM's in phase, acting at right angles to each other and having frequencies in the ratio 2:1 is a...

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8) The beat frequency of two SHM's with frequencies n1 and n2 is given by

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Unit I
2.Coupled Oscillations

9) The antis ymmetric mode of oscillation in coupled oscillatory system has angular frequency ……..

a) $\omega= \sqrt{(g/l)}$ b) $\omega=\sqrt{(g/l + k/m)}$ c) $\omega=\sqrt{(g/l + 2k/m)}$ d) $\omega=\sqrt{(g/l + 3k/m)}$

10) In coupled oscillations , symmetric mode of oscillation has frequency….

a) $\omega= \sqrt{(g/l)}$ b) $\omega=\sqrt{ l/g}$ c) $\omega=\sqrt{(g/l + 2k/m)}$ d) $\omega=\sqrt{(g/l + m/2k)}$

11) Normal coordinates in coupled oscillatory system involve ...frequency

a) one b) two c) three d)two or three

12)Period of energy transfer in coupled oscillations is ...

a) $T= 2\pi/(\omega_1-\omega_2)$ b) $T= \pi/(\omega_1-\omega_2)$ c) $T= 3\pi/(\omega_1-\omega_2)$ d) $T= 4\pi/(\omega_1-\omega_2)$

14) Potential energy due to stretching of a spring in a coupled oscillation is……

a) $k(X_2-X_1)/2$ b) $k (X_2-X_1)^2/2$ c) $k (X_2^2/-X_1^2/)/2$ d) $k(X_2+X_1)/2$

13)Anti symmetric mode of oscillations has....frequency than symmetric mode

a) half b) one third c) two third d) higher

14)The normal coordinates of coupled oscillations are…

a) $X_1=X_1$,$X_2=X_2$ b) $X1=(X_1+X_2)/2$, $X_2=(X_1-X_2)/2$

c) $X_1=X_1+X_2$, $X_2=X_1-X_2$ d) $X_1=X_1/2$,$X_2=X_2/2$

3.Wave Motion And Ultrasonic Waves

15)waves travelling on string are …….

a) Transverse waves b) Longitudinal waves c) Pressure waves d) matter waves

16) The equation of travelling wave on string is……..

a) $d^2y/dx^2 = v^2 * d^2y/dt^2$ b) $d^2y/dx^2 = y/v^2 * d^2y/dt^2$

c) $d^2y/dt^2 = v^2 * d^2y/dx^2$ d) $d^2y/dt^2 = y/v^2 * d^2y/dx^2$

17) Velocity of wave on string subjected to tension T and linear density m is ……

a) $v=\sqrt{(m/T)}$ b) $v=\sqrt{(T/m)}$ c) $v= T^2/m$ d) $v= m/ T^2$

18) The fundamental mode of vibration of string is nothing but …….mode of vibration .

a) First harmonic b) First overtone c) First octave d) second harmonics

19) When the length of wire is divided into four segments then the normal mode of vibration of string is called ……..

a) third harmonic b) second overtone c) **third overtone** d) first overtone

20) Frequency of vibration of a string is related to its tension as……

a) $n \alpha T$ b) $n \alpha \sqrt{T}$ c) $n \alpha T^2$ d) $n \alpha \sqrt{T^3}$

21) For a dispersive medium , phase velocity of wave is……

a) Independent of wavelength b) Independent of frequency

c) Independent of amplitude d) Dependent on wavelength or frequency

22) The sound waves of frequencies ……are called ultrasonic waves .

a) Less than 20 Hz b) Greater than 20 Hz Less than 20 kHz

c) Greater than 20 k Hz d) Less than 100Hz

23) ……is the unit of loudness of sound

a) photon b) phonon c) proton d) phon

24) Ultrasonic waves are produced by …….

a) Mechanical method b) magnetostriction generator

c) Piezoelectric generator d) All of the above

25) According to piezoelectric effect , electric charges are developed on the faces of crystal due to change of ……on the pair of opposite faces of the crystal

a)Intensity b)Pressure c) temperature d) Illumination

26) The frequency of ultrasonic wave is …….of the material of slab

a) Directly proportional to Young's modulus
b) Directly proportional to Density
c) Directly proportional to square root of Young's modulus
d) Inversely proportional to Young's modulus

27) The velocity of ultrasonic wave is …… the constant of slab

a) More in vacuum b) maximum in vacuum

c) more in denser medium d) less in denser medium

28) Ultrasonic waves are …….. waves

a)Electromagnetic b) Transverse c) Sound d)Matter

29) Ultrasonic waves are not used for ……

a) Medical applications b) Flaw detection

c) Under water signaling d) crystal structure analysis

30) When the thickness of crystal slab producing ultrasonic waves by piezoelectric generator is increased then frequency of ultrasonic wave ……

a) Increases b) decreases c) may Increase or decrease d) remains constant

31) Frequency of vibration of string is given as ……..

a) n= (l/2P * √(m/T)) b) n= (l/2P * √(T/m)) c) n= (P/2l * √(m/T)) d) n= (P/2l * √(T/m))

32) The group velocity and phase velocity of wave is equal when $\mathbf{dv/d\lambda}$ is ….

a) Zero b) positive c) negative d) infinity

33) The relation between group velocity (Vg) and phase velocity (v) is ……..

a) **$Vg = v+\lambda * dv/d\lambda$** b) **$Vg = v+\lambda * d\lambda /dv$**

c) **$Vg = v-\lambda * dv/d\lambda$** d) **$Vg = v-\lambda * dv/d\lambda$**

34) The frequency (n) of ultrasonic wave produced by piezoelectric generator is given as ……..

a) $n= (d/2l * \sqrt{(Y/\rho)})$ b) $n= (l/2d * \sqrt{(Y/\rho)})$ c) $n= (l/2d * \sqrt{(Y/\rho^2)})$ d) $n= (1/2d * \sqrt{(Y/\rho^2)})$

1. Superposition of Harmonic Oscillations
2.

35) The differential equation representing SHM is easy to solve if it is .....

a) linear non homogenous equations b)linear homogenous equations

c) non linear homogenous equations d)non - linear equations non homogenous equations

36)The differential equation for SHM of a particle is ……

a) $dy/dt =- \omega y$ b) $dy/dt =- \omega^2 y$ c) $d^2y/dt^2 =- \omega y$ d) $d^2y/dt^2 =- \omega^2 y$

37)Two Simple harmonic oscillations travelling along same line and have slightly different frequencies produce…. ....

a)Lissajous figures b) beats

c) both Lissajous figures and beats d) neither Lissajous figures nor beats

38)when two collinear harmonic oscillations each of amplitude a and frequencies n and m act on a particle simultaneously then maximum amplitude of a resultant oscillation varies …….

a) from a to zero b) from 2a to zero c) from 4a to zero d) from 4a to a

39)The phenomenon of beats is used to ……

i) Determine unknown frequency of tuning fork

ii) Determine difference of two frequencies

iii)tune musical instruments

a) only (i) is correct b) only (i) and (ii) are correct

c) only (ii) and (iii) are correct d) all (i) (ii) (iii) are correct

40)When a particle is subjected to two simple harmonic oscillations at right angle to each other than it produces….

a) beats b)Lissajous figures c) echo d) echo and beats

41)Nature of Lissajous figures formed depends upon….

a)only amplitude of constituent waves

b) only frequencies of constituent waves

c) only phase difference of constituent waves

d) amplitude frequencies and phase difference of constituent waves

42)Lissajous figures are produced by….

a)only mechanical vibrations b) only electrical vibrations

c) either mechanical or electrical vibrations d) neither mechanical nor electrical vibrations

43)When two harmonic oscillations of equal amplitude and same frequency act at right angle to each other and they have a phase difference $\Phi = \pi / 2$ then the Lissajous figure formed is …….

a) a straight line b) symmetric ellipse c)an oblique ellipse d) a circle

44)When the two constituent waves producing Lissajous figures have amplitude a (along x axis) and b (along y axis) and phase difference of $\Phi = \pi$ then the Lissajous figure formed is …..

a) a straight line b) symmetric ellipse c)an oblique ellipse d) a circle

45) When two tuning forks of frequencies n and m are sounded together to produce beats, then number of beats formed is……..

a) n + m b) n - m c) n * m d) n / m)

46) Two harmonic oscillations have same frequency and phase difference of $\pi/4$ radians acts simultaneously on a particle at right angle to each other then path traced by the particle is …..

a) a straight line b) symmetric ellipse c)an oblique ellipse d) a circle

47) The Lissajous figure formed is symmetrical ellipse when the two constituent waves have …….

a) same frequency , same amplitudes and zero phase difference

b) same frequency , different amplitudes and zero phase difference

c) same frequency , different amplitudes and $\pi/2$ phase difference

d) same frequency , same amplitudes and $\pi/2$ phase difference

48) According to superposition principle when two simple harmonic vibrations acting a a given point give displacements of the particle y1 and y2 respectively then the resultant displacement at that point is ……

a) $y^2=y_1^2- y_2^2$ b) $y = y_1+ y_2$ c) $y^2 = (y_1-y_2)^2$ d) $y^2 = (y_1+y_2)$

49) The resultant vector (amplitude) R due to two simple harmonic oscillations travelling in a same line and of same frequency is given as……

a) $R^2= a_1^2 + a_2^2+ 2a_1a_2 \cos\Phi$

b) $R^2= a_1^2 + a_2^2+ 2a_1a_2 \tan\Phi$

c) $R^2= (a_1^2 + a_2^2+ 2a_1a_2 \cos\Phi)^2$

d) $R^2= (a_1^2 + a_2^2+ 2a_1a_2 \tan\Phi)^2$

50) Two simple harmonic oscillations having same frequency and travelling in the same line superimpose .When the initial phase of two oscillations are Φ_1 and Φ_2 then the initial phase of resultant oscillation $\boldsymbol{\theta}$ is given by…

a) $\tan\boldsymbol{\theta} = (a_1\tan\boldsymbol{\theta}_1+a_2\tan\boldsymbol{\theta}_2)/(a_1 + a_2)$

b) $\tan\boldsymbol{\theta} = (a_1 + a_2)/ (a_1 - a_2)$

c) $\tan\boldsymbol{\theta} = (a_1\sin \Phi_1+a_2\sin \Phi_2)/(a_1\cos \Phi_1+a_2\cos \Phi_2)$

d) $\tan\boldsymbol{\theta} = (a_1\tan\Phi_1+a_2\tan\Phi_2)$

51) When two simple harmonic oscillations having same frequency travel in a same line and have a phase difference $\Phi = 0$ then the amplitude of resultant oscillation is…..(where a_1 and a_2 are amplitudes of individual oscillations)

a) $R = a_1 / a_2$ b) $R = a_1 * a_2$ c) $R = a_1 + a_2$ d) $R = a_2 / a_1$

52) Two simple harmonic oscillations of amplitude a_1 and a_2 and having same frequency travel in same line and have initial phase difference of $\pi/2$ so that the resultant amplitude at a point is given as…….

a) $R = a_2 / a_1$ b) $R = \sqrt{(a_1^2 + a_2^2)}$ c) $R = a_1 + a_2$ d) $R = a_1 / a_2$

53) Two simple harmonic oscillations of amplitude a_1 and a_2 travel in same line and have same frequency but their initial phases are $\Phi_1 = 0$ and $\Phi_2 = \pi/2$ then the initial phase $\boldsymbol{\theta}$ of resultant vibration is given as

a) $\tan\boldsymbol{\theta} = a_1 * a_2$ b) $\tan\boldsymbol{\theta} = \sqrt{(a_1^2 + a_2^2)}$ c) $\tan\boldsymbol{\theta} = a_2 / a_1$ d) $\tan\boldsymbol{\theta} = a_1 / a_2$

54) When the initial phase difference of two simple harmonic oscillations of amplitude a_1 and a_2 travelling in the same direction and having same frequency as π then the amplitude of resultant vibration is ……

a) $R = a_1/a_2$ b) $R = \sqrt{(a_1 a_2)}$ c) $R = a_1+a_2$ d) $R = a_1-a_2$

55) When two tuning forks sounded together to produce beats, then the time interval between two consecutive mxima is ……

a) n - m b) 1/(n + m) c) 1/(n * m) d) 1/(n - m)

56) When two collinear harmonic oscillations of frequency n and m act on a particle then frequency of resultant vibration is given as ……..

a) (n – m)/2 b) (n + m)/2 c) (n * m)/2 d) 1/(n - m)

57) Which of the following statement/s is/are true ?

i) beats are produced when constituent wave act at right angle to each other .

ii) Lissajous figures are produced when the constituent waves are collinear .

iii) Simple harmonic motion is represented by linear differential equation.

a) only (i) (ii) (iii) are correct b) only (iii) is correct

c) only (ii) and (iii) are correct d) (i) (ii) are correct

58)When the two constituent waves producing lissajous figures have phase difference $\Phi=0$ radian then the equation of the resultant path traced by the particle is ……

a) $y= (b/a)* x$ b) $y^2= (b/a)* x$ c) $y= (b/a)* x^2$ d) $y= (b/a)* \sqrt{x}$

Unit II
1: Sound and Acoustics of Building

59) The function of loudspeaker compared with microphone is …..

a) the same b) opposite c) independent d) different

60) Microphone converts……energy into electrical energy

a) sound b) optical c) mechanical d) potential

61) loudspeaker converts……energy into electrical energy …….

a) sound b) optical c) mechanical d) electrical

62) a moving coil microphone works on the principle of ….. ……..

a)electromagnetic induction b)motor action c) amplifier d) transformer

63) self generating transducers are called …… transducers

a) active b) passive c) resistor d)capacitor

64) Acoustic transducers converts …… energy into another form and vice versa

a) sound b) optical c) electrical d) potential

65) Sabine in this experiment on reverberation used organ pipe of a frequency ……..

a) 512 Hz b) 315 Hz c) 412 Hz d) 612 Hz

66) a hall free from reverberation is called as ……. hall

a) live b) dead c) good . d) none of these

67) zone sof a silence in a hall are created due to …….

a) diffraction of sound b) refraction of sound c) interference of sound d) resonance of sound

68) According to sabin's formula, the time of reverberation T is related the volume V of the hall as ……..

a) $T \alpha V$ b) $T \alpha 1/V$ c) $T \alpha \sqrt{V}$ d) $T \alpha V^2$

69)Reverberation phenomenon is due to ……..

a) multiple reflections of sound waves in a hall

b) interference of sound waves in a hall

c) diffraction of sound waves in a hall

d) resonance of sound waves in a hall

70) Intensity of sound wave is given by …….

a) $I = P_{max} \rho / 2v$ b) $I = P^2_{max} \rho / 2v$ c) $I = P^2_{max} \rho^2 / 2v$ d) $I = P_{max} / 2 \rho v$

71) The unit of intensity of sound is …….

a) watt/m^2-s b) joule/m^2-s c) watt/sec^2 d) erg/cm^2

72)The loudness of sound related to its intensity I by relation……

a) $s = k \log I$ b) $I = k \log s$ c) $s = I \log k$ d) $I = s \log k$

73) Intensity level of sound is measured in …….

a) watt b) decibels c) joule d) erg

74) The loudness of sound related to its intensity I by relation..

a)S=K log I b) I= K log S c) S=I log K d) I=S log K

75)The loudest sound that can be heared without pain is…..

a)50 db b) 70 db c) I=120 db d) I=150 db

76)when two or more notes are sounded simultaneously to produce pleasant effect on ear then resulting note is called….

a)melody b) dischord c) harmony d) interval

77) when two or more notes are sounded one after the other then the combined note producing pleasant effect on the ear is called….

a)melody b) dischord c) harmony d) interval

78) The musical interval for octave is ……..

a)1 b) 2 c) 8 d) 3

79)The Musical interval for unison is ……

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

80) The Musical interval for major tone is ……

a)10/9 b) 9/10 c) 8/9 d) 9/8

81) The Musical interval for fifth tone is ……

a)4/3 b) 3/4 c) 3/2 d) 2/3

82) Pitch of sound refers to its ……..

a)amplitude b) phase c) frequency d) loudness

83) Intensity of sound (I) at a distance from source is ……

a) $I \alpha r$ b) $I \alpha 1/r^2$ c) $I \alpha 1/r$ d) $I \alpha r^2$

Unit II

2 : Viscosity

84) The SI unit of coefficient of viscosity is …….

a) millipoise b) decapoise c) kilopoise d) megapoise

85) Viscocity is ……. Force acting on liquid layer

a) tangential b) radial c) tangential or radial d) sum of tangential and radial

Viscosity

1)Viscosity is …… force acting on the liquid layer.

a)tangential b)radial

c)tangential or radial d)sum of tangential and radial

2)Velocity gradient is written as ……

a)dv/dt b)dv/dy c)d^2v/dy^2 d) $d2v/dt^2$

3)Viscous force F is related to area A of the fluid layer as …….

a)$F\alpha 1/A$ b)$F\alpha 1/A^2$ c)$F\alpha A^2$ d)$F\alpha A$

4)The velocity of liquid at which streamline flow terminates and turbulent flow starts is called as…….

a)escape velocity b) r.m.s. velocity

c)critical velocity d)average velocity

5)Critical velocity of liquid depends on ……..

a)only η of liquid b) only ρ of liquid

c)only radius a of the tube c)η, ρ and a

6)Which of the following statement /s is/are correct ?

i)critical velocity depends on the value of coefficient of viscosity of liquid flowing through the tube .

ii)critical velocity is independent of radius of the tube.

iii)critical velocity is independent of density of the liquid.

a)(i),(ii),(iii)are correct b)only (i) is correct

c)(i) and (iii) are correct d)only (iii) is correct

7)According to Poiseuille's formula , the coefficient of viscosity is given as……..

a)$\eta=\pi Pa^2/8lV$ b)$\eta=\pi Pa^3/8lV$ c)$\eta=\pi Pa^4/8lV$ d)$\eta=\pi Pa4/8l^2V$

9)Poiseuille's formula giving rate of flow of liquid through a capillary tube is …….

a)$V=\pi Pa^2/8\eta l$ b) $V= \pi Pa^4/8\eta l^2$ c)$V=\pi P^2a^4/8\eta l$ d)$V=\pi Pa^4/8\eta l$

10)Viscosity of liquid layer in contact with the walls of the tube is …….

a)zero b)maximum c) constant d) infinity

11)Velocity of liquid layer at the axis of the tune is …….

a)minimum b)infinity c) zero d)maximum

12)In Poiseuille's method of determining coefficient of viscosity of a liquid if h is the height difference in the manometric arms andρ is the density of the liquid in the manometer then ……

a)P=h/ρg b)P=ρ/hg c)P=hρgd)P= g/ρh

13)The length l in the Poiseuille's formula is corrected as ……..

a) l – 1.2 b) l + 1.2 a c) l + 1.64 a d) l – 1.64 a

14)The pressure correction in Poiseuille's formula is due to ……..

a) velocity and kinetic energy of escaping liquid

b) temperature of escaping liquid

c) entropy of escaping liquid

d) surface tension of escaping liquid

15)In general, viscosity of liquid ……

a) decreases with increase of its temperature

b) decreases with decrease of its temperature

c) remain constant with change of temperature

d) tends to infinity with increase of temperature

16)Lubrication results due to …… property of fluid .

a) surface tension b)conductivity

c) resistivity d) viscosity

17)At sufficiently high value of pressure difference h in Poiseuille's method , the flow becomes ……

a) laminar b) streamline c) turbulent d) steady

18)The critical velocity of liquid flow is related to radius r of the capillary tube as …….

a) $V_c \alpha\ r$ b) $V_c \alpha\ r^2$ c)$V_c \alpha\ 1/r$ d)$V_c \alpha\ 1/r^2$

19)The critical velocity of liquid flowing through a tube is related to density of liquid as ……..

a) $V_c \alpha 1/\rho$ b)$V_c \alpha 1/\rho^2$ c)$V_c \alpha \rho$ d) $V_c \alpha \rho^2$