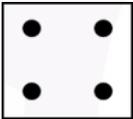
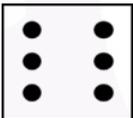
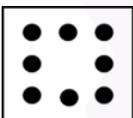
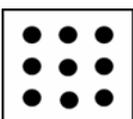


**General Aptitude (GA)**

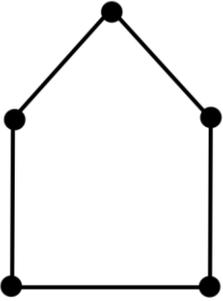
**Q.1 – Q.5 Carry ONE mark Each**

Q.1	Suresh said, “I did it yesterday.”  Which one of the following options is the correct form of this sentence in indirect speech?
(A)	Suresh said that I did it yesterday.
(B)	Suresh says I did it yesterday.
(C)	Suresh says that he did it the day before.
(D)	Suresh said that he had done it the day before.

GATE 2026  
IIT GUWAHATI

<p>Q.2</p>	<p>To continue the sequence of tiles shown, the tile indicated by the question mark should be</p> 
<p>(A)</p>	
<p>(B)</p>	
<p>(C)</p>	
<p>(D)</p>	



Q.3	<p>Consider an art gallery whose walkways are shown as lines in the diagram. A black dot represents a junction of two walkways. A guard may be placed at a junction to watch over the walkways that join at that junction. The minimum number of guards needed to watch all the walkways is _____.</p> 
(A)	2
(B)	3
(C)	4
(D)	5
	<p>GATE 2026 IIT GUWAHATI</p>

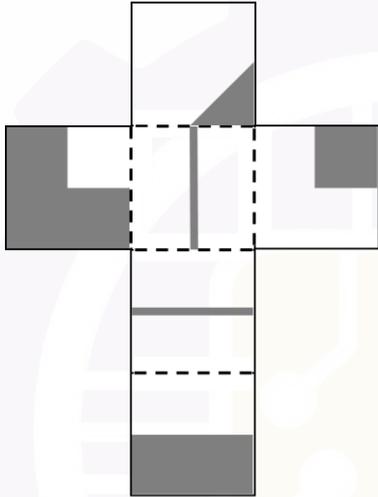
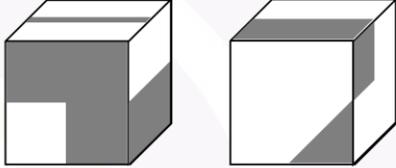
Q.4	The 2 <sup>nd</sup> of June is a Thursday in a certain year. Which day of the week is the 3 <sup>rd</sup> of July in that year?
(A)	Thursday
(B)	Friday
(C)	Saturday
(D)	Sunday

<p>Q.5</p>	<p>A coin with heads facing up is shown as <math>\textcircled{\text{H}}</math> and a coin with tails facing up is shown as <math>\textcircled{\text{T}}</math> .</p> <p>Six coins are placed in the Starting Arrangement, as shown in the figure below. A “step” is defined as interchanging a pair of adjacent coins without flipping them. The minimum number of steps needed to go from the Starting Arrangement to the Final Arrangement, as shown in the figure, is _____.</p> <p style="text-align: center;">Starting Arrangement <span style="margin-left: 200px;">Final Arrangement</span></p> <p style="text-align: center;"> <math>\textcircled{\text{H}} \textcircled{\text{H}} \textcircled{\text{H}} \textcircled{\text{T}} \textcircled{\text{T}} \textcircled{\text{T}}</math> <span style="margin-left: 100px;"> <math>\textcircled{\text{T}} \textcircled{\text{T}} \textcircled{\text{T}} \textcircled{\text{H}} \textcircled{\text{H}} \textcircled{\text{H}}</math> </span> </p>
(A)	3
(B)	6
(C)	9
(D)	12

GATE 2026  
IIT GUWAHATI

**Q.6 – Q.10 Carry TWO marks Each**

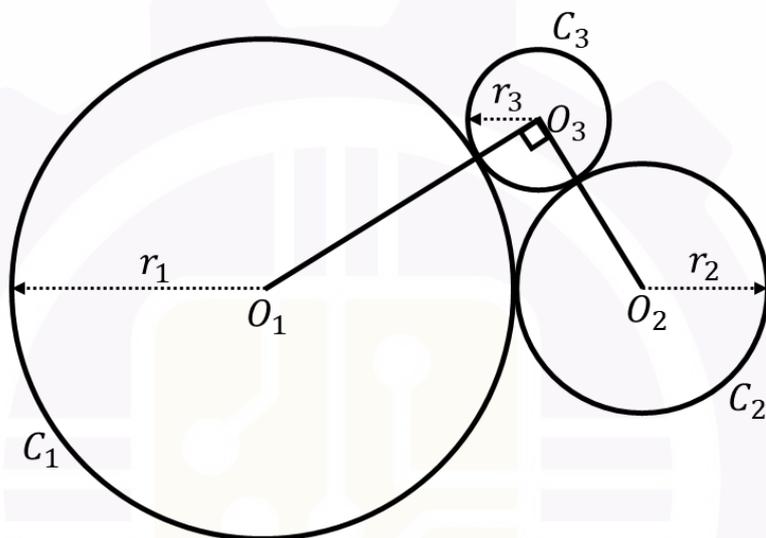
Q.6	Exacerbate : Mitigate :: _____ Choose the option with the correct pair of words to fill the blank.
(A)	Aggravate : Alleviate
(B)	Alleviate : Precipitate
(C)	Aggravate : Precipitate
(D)	Emancipate : Exonerate

<p>Q.7</p>	<p>A paper shown in Panel I is folded along the dashed lines ( - - - ) to construct a cube. The shaded regions shown in Panel I appear on the outer surface of the cube. Referring to cubes shown in Panel II, which one of the options is correct?</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Panel I</p>  </div> <div style="text-align: center;"> <p>Panel II</p>  <p>(i)                  (ii)</p> </div> </div>
<p>(A)</p>	<p>Only (i) can correspond to the unfolded cube in Panel I.</p>
<p>(B)</p>	<p>Only (ii) can correspond to the unfolded cube in Panel I.</p>
<p>(C)</p>	<p>Both (i) and (ii) can correspond to the unfolded cube in Panel I.</p>
<p>(D)</p>	<p>Neither (i) nor (ii) can correspond to the unfolded cube in Panel I.</p>



Q.8	<p>In a population, patients who have high cholesterol also have high blood-pressure (BP). Some patients with high BP also have diabetes. There are no patients who have both high cholesterol and diabetes. Furthermore,</p> <ol style="list-style-type: none"><li>1. the total number of patients with at least one of these conditions is 75,</li><li>2. the number of patients with high cholesterol is 10,</li><li>3. the number of patients with high BP is 45, and</li><li>4. the number of patients with only high BP and no other conditions is 20.</li></ol> <p>Then the number of patients who have both diabetes and high BP is _____</p>
(A)	0
(B)	15
(C)	20
(D)	10
	<p style="text-align: center;">GATE 2026 IIT GUWAHATI</p>

Q.9	Four people P, Q, R, and S, of different ages, make the following observations. P – I am younger than S. Q – I am neither the youngest nor the oldest. R – P is older than me. Based on these observations, the youngest person is _____.
(A)	P
(B)	Q
(C)	R
(D)	S

<p>Q.10</p>	<p>Circles <math>C_1</math>, <math>C_2</math>, and <math>C_3</math>, with centers <math>O_1</math>, <math>O_2</math>, and <math>O_3</math>, and radii <math>r_1</math>, <math>r_2</math>, and <math>r_3</math>, respectively, touch each other as shown in the following figure. Given <math>r_1 = 2</math> cm, <math>r_2 = 1</math> cm and the angle <math>\angle O_1O_3O_2</math> is <math>90^\circ</math>, <math>r_3 = \underline{\hspace{2cm}}</math> cm.</p> 
<p>(A)</p>	<p><math>\frac{1}{2}(-3 + \sqrt{17})</math></p>
<p>(B)</p>	<p><math>\frac{1}{2}(3 + \sqrt{17})</math></p>
<p>(C)</p>	<p><math>\frac{1}{2}(-2 + \sqrt{17})</math></p>
<p>(D)</p>	<p><math>\frac{1}{2}(-3 + 2\sqrt{17})</math></p>

**Q.11 – Q.35 Carry ONE mark Each**

Q.11	The largest integer value of $x$ for which the trace of the following matrix is less than 10 is _____.
	$\begin{bmatrix} 2 & 1 & 0 \\ 0 & x & 2 \\ 0 & 0 & 4 \end{bmatrix}$
(A)	1
(B)	2
(C)	3
(D)	4
Q.12	The sum of the coefficients of the second degree Taylor polynomial of the function $f(x) = \ln(1 + \sin(x))$ centred at $x = 0$ is _____.
(A)	0.5
(B)	1.0
(C)	1.5
(D)	2.0

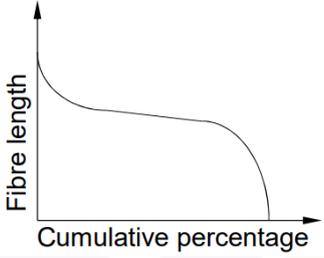
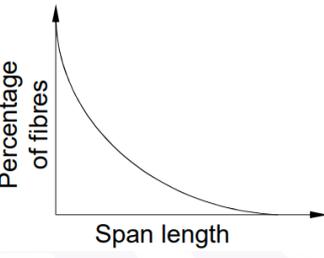
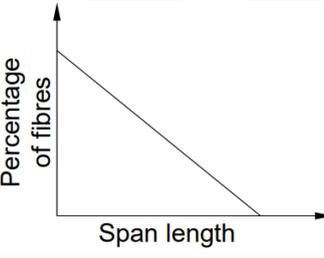
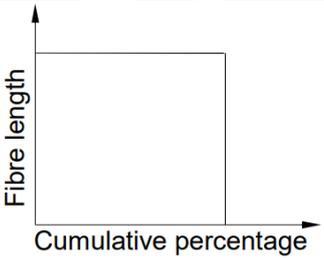


Q.13	For the linear differential equation $\frac{dy}{dx} + 2y = 4x$ with the initial condition $y(0) = 1$ , the value of $y(3)$ is nearest to _____.
(A)	4
(B)	5
(C)	6
(D)	7
Q.14	Amongst the following, the fibre which <b>CANNOT</b> be manufactured using melt spinning is _____.
(A)	nylon 6
(B)	poly(ethylene terephthalate)
(C)	polynosic
(D)	polypropylene

Q.15	Amongst the following, the fibre which contains lignin is _____.
(A)	cotton
(B)	wool
(C)	silk
(D)	jute
Q.16	Amongst the following, the spinning system in which one revolution of the twisting element generates several turns of twist to the strand of fibres is _____.
(A)	ring
(B)	rotor
(C)	friction
(D)	compact

Q.17	A drawframe autoleveller corrects the variation in the linear density of a sliver by altering _____.
(A)	draft
(B)	doubling
(C)	roller setting
(D)	roller pressure
Q.18	In a drum-driven winding machine, if the drum diameter is $D$ and the package diameter is $d$ , then the wind per double traverse (traverse ratio) is directly proportional to _____.
(A)	$\frac{d}{D}$
(B)	$\frac{D}{d}$
(C)	$D$
(D)	$Dd$

Q.19	For a given cone angle of a sectional warping machine drum, the traverse velocity of warp band depends on _____.
(A)	yarn strength
(B)	yarn modulus
(C)	yarn hairiness
(D)	yarn diameter
Q.20	In a Shirley Fabric Stiffness Tester, the bending length of a fabric is found to be 3 cm. The overhanging length, which is the length of fabric projecting out, would be _____ cm.
(A)	1.5
(B)	3.0
(C)	6.0
(D)	9.0

Q.21	Which one of the following graphs shows the typical Fibrogram for polyester staple fibres cut to equal length?
(A)	
(B)	
(C)	
(D)	

Q.22	Amongst the following, the oxidising agent used for desizing of cotton fabric is _____.
(A)	H <sub>2</sub> O <sub>2</sub>
(B)	Na <sub>2</sub> S <sub>2</sub> O <sub>4</sub>
(C)	HCl
(D)	NaOH
Q.23	NaCl is used as a levelling agent for dyeing of _____.
(A)	polyamide fibre with acid dye
(B)	cotton fibre with reactive dye
(C)	cotton fibre with direct dye
(D)	PET fibre with disperse dye

Q.24	Given the pairs of values of $(X, Y)$ as $(2, 60)$ , $(4, 70)$ and $(6, 90)$ , $m$ is the slope of the linear regression plot of $Y$ on $X$ . The value of $m$ is _____.
(A)	6.5
(B)	7.0
(C)	7.5
(D)	8.0
Q.25	Which one or more of the following techniques can provide information on the chemical structure of a fibre?
(A)	Differential Scanning Calorimetry (DSC)
(B)	Dynamic Mechanical Analysis (DMA)
(C)	Infrared (IR) Spectroscopy
(D)	Thermo-gravimetric Analysis (TGA)

Q.26	Which one or more of the following yarn characteristics is/are dimensionless?
(A)	Packing density
(B)	Twist multiplier
(C)	Twist contraction
(D)	Index of irregularity
Q.27	With reference to knitting, which of the following statements is/are correct?
(A)	A fabric with tuck loop is thinner than that with knit loop
(B)	A fabric with tuck loop is wider than that with knit loop
(C)	A fabric with tuck loop is thicker than that with knit loop
(D)	A fabric with tuck loop is narrower than that with knit loop

Q.28	With reference to fibres with circular cross-section, which of the following statements is/are correct?
(A)	A finer fibre has higher bending rigidity than a coarser fibre
(B)	A finer fibre has lower bending rigidity than a coarser fibre
(C)	A finer fibre has higher specific surface area than a coarser fibre
(D)	A finer fibre has lower specific surface area than a coarser fibre
Q.29	Which of the following thickening agents is/are used for direct style of printing of cotton fabric with a reactive dye?
(A)	Starch
(B)	Oil-in-water emulsion
(C)	Sodium alginate
(D)	British gum

Q.30	A fair coin is tossed 6 times. The probability of getting at least 5 heads is _____ . (rounded off to two decimal places)
Q.31	A PET filament is extended by 100 % in the first stage of drawing, then 50 % in the second stage of drawing, and subsequently allowed to shrink by 10 % during the heat-setting process. The ratio of final length to initial length (overall draw ratio) of the filament is _____. (rounded off to one decimal place)
Q.32	A ring spun yarn is prepared from a roving of 450 tex linear density and with a draft of 30 in ring frame. The length of yarn wound on each cop is 4 km. Considering no wastage, the number of cops needed to wind the yarn prepared from 1.5 kg of roving is _____. (answer in integer)
Q.33	In a knitted fabric, if the loop shape factor is 1.25 and the wales per cm is 10, then the courses per cm is _____. (rounded off to one decimal place)
Q.34	A sample of yarn bobbins is tested and the standard deviation of linear density is found to be 3 tex. If the nominal standard deviation of yarn linear density is 1.5 tex, then the calculated 'F-value' would be _____. (answer in integer)
Q.35	A PET fabric is dip-padded with 20 % (w/w) concentration of a fire retardant chemical. If the wet pick-up is 90 %, then the concentration (w/w) of the chemical on the fabric after drying (add-on) is _____. (answer in integer)

GATE 2026  
IIT GUWAHATI

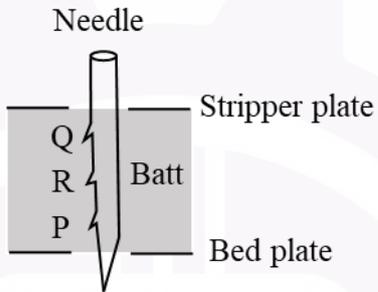


**Q.36 – Q.65 Carry TWO marks Each**

Q.36	For the non-linear differential equation $\frac{dy}{dx} = y^2 - y$ with the initial condition $y(0) = 0.5$ , the value of $y(3)$ is nearest to _____.
(A)	0.269
(B)	0.119
(C)	0.047
(D)	0.076
Q.37	The number of trousers sold per hour by a clothing store follows the Poisson distribution with a mean of 5. The probability of at least 3 trousers being sold per hour is nearest to _____.
(A)	0.72
(B)	0.78
(C)	0.82
(D)	0.88

Q.38	Amongst the following factors, the one which decreases the glass transition temperature ( $T_g$ ) of a polymer is _____.
(A)	presence of bulky side groups
(B)	aromatic groups in polymer backbone
(C)	aliphatic linear polymer backbone
(D)	presence of polar groups
Q.39	Which one of the following is the correct combination of monomers used for the synthesis of nylon 66 polymer?
(A)	$\text{NH}_2\text{-(CH}_2\text{)}_2\text{-NH}_2$ and $\text{HOOC-(CH}_2\text{)}_4\text{-COOH}$
(B)	$\text{NH}_2\text{-(CH}_2\text{)}_6\text{-NH}_2$ and $\text{HOOC-(CH}_2\text{)}_6\text{-COOH}$
(C)	$\text{NH}_2\text{-(CH}_2\text{)}_6\text{-NH}_2$ and $\text{HOOC-(CH}_2\text{)}_4\text{-COOH}$
(D)	$\text{NH}_2\text{-(CH}_2\text{)}_6\text{-NH}_2$ and $\text{HOOC-(CH}_2\text{)}_2\text{-COOH}$

Q.40	<p>Yarn diameter (<math>D</math>) is related to yarn linear density (<math>T</math>) as per the following equation.</p> $D = K\sqrt{T}$ <p>where <math>K</math> is a coefficient which depends on fibre density (<math>\rho</math>) and yarn packing density (<math>\mu</math>). The value of <math>K</math> increases with _____.</p>
(A)	increase in $\rho$ and increase in $\mu$
(B)	increase in $\rho$ and decrease in $\mu$
(C)	decrease in $\rho$ and increase in $\mu$
(D)	decrease in $\rho$ and decrease in $\mu$
Q.41	<p>Determine the correctness or otherwise of the following Assertion [a] and Reason [r].</p> <p>Assertion: The yarn from a cop can be unwound smoothly at high speeds.</p> <p>Reason: The cross windings on the cop prevent sloughing off.</p>
(A)	Both [a] and [r] are true and [r] is the correct reason for [a]
(B)	Both [a] and [r] are true but [r] is not the correct reason for [a]
(C)	Both [a] and [r] are false
(D)	[a] is true but [r] is false

<p>Q.42</p>	<p>The following figure shows the position of a needle at its lowest position during needlepunching operation. If P, Q and R are barbs on the needle, then which is the correct order of barbs in terms of workload?</p> 
<p>(A)</p>	<p><math>Q &gt; P &gt; R</math></p>
<p>(B)</p>	<p><math>P &gt; R &gt; Q</math></p>
<p>(C)</p>	<p><math>P &gt; Q &gt; R</math></p>
<p>(D)</p>	<p><math>R &gt; P &gt; Q</math></p>
	<p style="text-align: center; font-size: 2em; opacity: 0.5;">GATE 2026 IIT GUWAHATI</p>

Q.43	During air-jet weft insertion, a pick is uniformly accelerated till the middle of reed width and then its velocity remains constant. If the reed width is 2 m and the uniform acceleration of the pick is $18 \text{ m/s}^2$ , then the average pick velocity in the entire duration of weft insertion is _____ m/s.
(A)	3
(B)	4
(C)	6
(D)	8
Q.44	<p>Determine the correctness or otherwise of the following Assertion [a] and Reason [r].</p> <p>Assertion: Reactive dyes containing dichlorotriazine (DCT) group are considered homo-bifunctional reactive dyes.</p> <p>Reason: Both the chlorine atoms of DCT group react simultaneously with cotton at the room temperature.</p>
(A)	Both [a] and [r] are true and [r] is the correct reason for [a]
(B)	Both [a] and [r] are true but [r] is not the correct reason for [a]
(C)	Both [a] and [r] are false
(D)	[a] is true but [r] is false

Q.45	<p>Determine the correctness or otherwise of the following Assertion [a] and Reason [r].</p> <p>Assertion: 1,2,3,4-butanetetracarboxylic acid (BTCA) along with sodium hypophosphite is used for anti-crease finishing of cotton fabric.</p> <p>Reason: Sodium hypophosphite as a catalyst facilitates fast reaction of BTCA with cotton at the room temperature.</p>
(A)	Both [a] and [r] are true and [r] is the correct reason for [a]
(B)	Both [a] and [r] are true but [r] is not the correct reason for [a]
(C)	Both [a] and [r] are false
(D)	[a] is true but [r] is false
Q.46	Which of the following features is/are related to a wool fibre?
(A)	Cuticle
(B)	Amide linkages
(C)	Cortex
(D)	Ester linkages

Q.47	As per the noil theory of Gégauff, which one or more of the following options will reduce the noil percent in combing process?
(A)	Wider detachment setting in forward feed
(B)	Narrower detachment setting in backward feed
(C)	Higher feed length per combing cycle in forward feed
(D)	Lower feed length per combing cycle in backward feed
Q.48	Which is/are the characteristic(s) of multiphase weaving?
(A)	Limited choice of weaves
(B)	Low beat-up force
(C)	Low productivity
(D)	High weft tension

Q.49	With reference to the guarded hotplate method for measuring the thermal transmission characteristics of fabrics, which of the following statements is/are correct?
(A)	The temperatures of test plate, guard ring and bottom plate are kept same
(B)	The temperatures of test plate, guard ring and bottom plate are kept different
(C)	The heat flow only from the test plate is taken into consideration
(D)	The heat flow only from the guard ring is taken into consideration
Q.50	In the context of spectrogram, which of the following statements is/are correct?
(A)	It helps in identifying imperfections in yarns
(B)	It helps in identifying periodic variations in yarns
(C)	It helps in identifying random variations in yarns
(D)	It helps in locating faulty machine parts in a staple yarn manufacturing line

Q.51	Keeping all other parameters constant, which of the following factors is/are responsible for higher tear strength of woven fabrics?
(A)	Higher thread density
(B)	Lower thread density
(C)	Higher yarn to yarn friction
(D)	Higher float length of yarn in fabrics
Q.52	Which one or more of the following conditions can be used for fixation in printing of PET fabric with disperse dye in absence of carrier?
(A)	Dry heat at about 200 °C
(B)	High pressure saturated steam at about 130 °C
(C)	Batching for 24 hour at the room temperature
(D)	Steam at 100 °C to 105 °C

Q.53	Which one or more of the following fibre-dye combinations can be dyed in acidic pH?
(A)	Acrylic fibre with basic dye
(B)	PET fibre with disperse dye
(C)	Wool fibre with acid dye
(D)	Cotton fibre with vinylsulphone dye
Q.54	A rectangular box with an open top has an outer surface area of $12 \text{ m}^2$ . The length of the base is twice the width. If the volume of the box is to be maximised, then the ratio of length to height should be _____. ( <i>answer in integer</i> )
Q.55	The value of the integral $\int_0^2 x^2 dx$ calculated using the trapezoidal rule with $n = 2$ (two subintervals) is _____. ( <i>answer in integer</i> )
Q.56	High molecular weight PET is synthesised by maintaining two monomers in 1:1 molar ratio. If the mass of terephthalic acid ( $\text{C}_8\text{H}_6\text{O}_4$ ) is taken as 100 g, then the mass of ethylene glycol ( $\text{C}_2\text{H}_6\text{O}_2$ ) needed would be _____ g. ( <i>rounded off to two decimal places</i> )
Q.57	Polyacrylonitrile (PAN) polymer was dissolved in dimethylformamide (DMF) at a concentration of 16 % (w/w) and extruded into a filament of $100 \mu\text{m}$ diameter. The filament was allowed to coagulate and dry while keeping its length constant. Assuming the specific gravities of both PAN and DMF as 1, the diameter of the final dried filament would be _____ $\mu\text{m}$ . ( <i>answer in integer</i> )
Q.58	On applying a constant force by an opening roller on a tuft of 16 g mass, the velocity of the tuft changes from 0.25 m/s to 27 m/s in 0.002 s. The magnitude of the force applied on the tuft is _____ N. ( <i>answer in integer</i> )

Q.59	In the first drawframe passage, 4 cotton slivers and 4 polyester slivers of same linear density are blended to produce cotton-polyester blended sliver. In the second drawframe passage, 3 cotton-polyester blended slivers taken from the first passage are blended with 2 viscose slivers to produce cotton-polyester-viscose blended sliver. Considering all slivers fed to the second passage are of same linear density, the content of cotton fibres in the cotton-polyester-viscose blended sliver is _____ %. <i>(answer in integer)</i>
Q.60	For a jammed square plain woven fabric with yarns of circular cross-section, the fractional fabric cover is _____. <i>(rounded off to two decimal places)</i>
Q.61	The acceleration of the sley is given as $Kr\omega^2$ , where $K$ is a function of angular position of crank, $r$ is the radius of crank and $\omega$ is the angular velocity of crank shaft. When the angular position of crank is $45^\circ$ , the value of $K$ is _____. <i>(rounded off to two decimal places)</i>
Q.62	For a textile material, if the numerical value of the moisture regain (%) is double the numerical value of the moisture content (%), then the moisture content is _____ %. <i>(answer in integer)</i>
Q.63	A 20 tex cotton yarn is tested on a tensile tester keeping a gauge length of 100 mm. The load-elongation behaviour of the yarn follows the relationship: $L = 2.5 \times E$ , where $L$ is load (cN) and $E$ is elongation (mm). The tensile modulus of the yarn is _____ cN/tex. <i>(answer up to one decimal place)</i>
Q.64	During cotton fibre maturity test using caustic soda and microscope, all the fibres are found to be dead. The maturity ratio of the cotton fibre sample would be _____. <i>(answer up to one decimal place)</i>
Q.65	A cotton fabric is dyed by continuous method using 20 g/L solution of a reactive dye. The final shade of 1.5 % on the weight of the fabric is achieved after removal of all the unreacted and hydrolysed dye. Considering 100 % wet expression and specific gravity of the solution to be 1, the percentage of dye fixed on the fabric is _____. <i>(answer in integer)</i>