<b>_</b>	CVL 100: Environmental Science Major Examination		Max Marks: 30
	Time 1:00 Hour		Date: 28-03-2018
	Note: All the answers are to be written on question paper only		
		23	
	Question 1-5 carry 25% negative marking	•	(1×5=5)
	Q 1. Air (Prevention and Control of Pollution	on) act was laid down in?	
	a) 1974 b) 1976		D) 1984
	Q 2. In Bhopal gas tragedy (1984), major c	ulprit was:	
•	(a) Methyl isocyanate b) Phosphate carbar	ryl (c) Carbon monoxide (	d) Mercuric Sulphate
	Q 3. Pasquill- Gifford Stability Class "E" sig		
	a) Very Unstable b) Unstable e) Sta	able d) Neutral	
	4.Which is the major human health effe	ct because of benzene ai	r pollution:
_	a) Cardiovascular 👂 Leukemia c) Respiratory d) Brain & Kidney		
	Q5 For a completely unstable meteorolog	ical condition, which rela	tionship holds true:
ľ	a) ELR=DALR b) ELR> DALR c) DA	ALR>ELR d) DALR>>ELR	. ·
			3
	Q6. Attempt only one out of 6(a) and 6(b)		
	6(a). Define air pollution definition based of	on system approach?	(1x5=5)
	6(b). Write down the features/assumption	s of Gaussian plume mod	del?
	(5) Mixing of harmful or		
	(i) Steady-state		
	· ·	A = 10	
	(ii) farming Normal distribut	on of pollutant	In the plane
	(iii) Passive pollular		· · · · · · · · · · · · · · · · · · ·
	(IV) follutat cogestion with	in the plume	i.e. il is
	Constrained within the	Plume	
	$\frac{1}{5}$		

PANE

Mercum -1

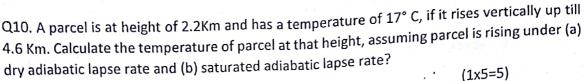
No No

(1x4=4)Q8. Mention four indoor sources and corresponding pollutants in a typical household?

Aerosals Jaz Copies module PerJums Paints Carpers

(1x3=3)Q9. How marble is affected by  $SO_2$ ? Briefly describe with chemistry reaction.

Somos ar reach with it with rain 203 When W?W (asou + GSO, Hr0 + CO2 G CO3 50° + gernally



(1x5=5)





$$dz = 4.6 - 2.2 = 2.4 \text{ km} = 2400 \text{ m}$$

$$dT = (T - 17)^{\circ} C$$

$$\frac{dT}{dz} = \frac{-1}{100} \frac{9}{5} / m \Rightarrow \frac{(T-17)}{2400} = \frac{-1}{100} \Rightarrow T = -7^{\circ} C$$

$$\frac{dT}{dz} = -\frac{0.6}{100}C_{/m} \Rightarrow \frac{T-17}{1400} = -0.6 \Rightarrow T = 2.6^{\circ}C$$

Q11. a) Write down the Gaussian plume equation and define every parameter

b) What would be the maximum ground level concentration at centre line when emission rate from a stack is 20 g/s and average wind speed is 4 m/s. Consider horizontal and vertical dispersion coefficient to be 30 m and 50 m? (1x4=4)

(9) 
$$\chi(\eta, y, z, H_s) = \frac{Q_m}{2\pi G_z G_y U} \left\{ \left( exp\left( \frac{-y^2}{2G_y^2} \right) \right) \left[ exp\left( -\frac{(z-H)^2}{2G_z^2} \right) + exp\left( -\frac{(z+H)^2}{2G_z^2} \right) \right] \right\}$$

when 
$$\chi \to (\text{conch}(g/m^3))$$

On  $\Rightarrow$  strength of source (g/s),  $6z = \text{Vertical}(g/m) = 0$  the strength of source (g/s),  $6z = \text{Vertical}(g/m) = 0$  the strength of special (m),  $1+1+1$  stack hightents  $z \to \text{height of plum}(g/m) = 0$ 
 $y \to \text{distance}(g/m)$ 
 $y \to \text{distance}(g/m)$ 
 $y \to \text{distance}(g/m)$ 

(b) 
$$Q_{m=20g/3}$$
  $\overline{U} = 4m/3$   $G_{z} = 50m$   $4 G_{y} = 30m$   
Ground Level  $CONC^{m} = 20$   $= 5.305 \times 10^{-1} \text{g/m}^{2}$