The state of the s	Genes	ations of matter	The same of
Type	Frist	Sacond	Thisa
Bualks	tot steen		
up-tupe	up (w)	Charmed	top(t)
down-type	down(d)	strange (5)	bothom
Lapiones	e	The transfer of the transfer	201
Characed	e lection (e)	Myon(4)	- Januly
neutral	election neutrinal	(2) Myon newstro (Va)	( ) סחולוטות איבו

	Este   3. Fege
 	Universe:  The universe is all abound us, in our vision and beyond our  Vison. The size of universe is still unknown. Many Constituents of universe are invisible and are colled dark  matter and dark energy.  The branch of Science, which deals with the study  of the origin, evolution a nature of the universe is  Called Cosmology.
· #	Big-Bang:  Big bang themy is the most widely accepted and  popular theory. It explains not only the origin of all  popular theory. It explains not only the large

## Big-Bang:  Ly Big bang themy is the most widely accepted and popular theory. It explains not only the origin of all popular theory. It explains not only the origin of all known matter, the laws of physics and the large known matter, the laws of physics and the large known of universe and broad range of other oxponsion of universe and broad range of other phenomena.  ### Red Shift:-  Dopples affect, there is appearent change in wavelength of waves emitted by source when it is in motion with respect of observer. The wavelength is increased if observer. The wavelength is increased if source is moving away from observer and is decreased if source is moving towards observer.  If the star is moving dowards the earth wavelength of light emitted by star will be decreases and it's colour shifted by star will be decreases and it's colour shifted toward violet and the visible spectrum formed by such process is called blue Shift.  Is, the star in the galary moves away from
Dogs bang theory is the most widey accepting of all popular theory. It explains not only the origin of all known matter, the laws of physics and the large known matter, the laws of physics and the large known matter, the laws of physics and the large of other oxponsion of universe and broad range of other phenomena.  He Red Shift:  According to Dopples affect, there is appearent change in wavelength of waves emitted by Source when it is in motion with respect of observer. The wavelength is increased if observer. The wavelength is increased if the Source is moving away from observer and is decreased if Source is moving towards observer.  If the Star is moving dowards the earth wavelength of light emitted by star will be decreased and it's Colour shifted doward violet and the visible spectrum formed by Such process is called blue shift.  As, the Star in the galaxy moves away from
popular theory. It topians of physics and the large known matter, the laws of physics and the large scale structure of the universe. It also accounts for the apporation of universe and broad range of other phenomena.  **Red Shift:-  **Deples affect, there is appearent change in wavelength of waves emitted by source when it is in motion with respect of observer. The wavelength is increased of the source is moving away from observer and is decreased of source is moving towards observer.  **If the Grar is moving dowards the earth wavelength of light emitted by star will be decreases and it's colour shifted by star will be decreased with the visible specifium formed by such process is called blue shift.  **As, the Star in the galaxy moves away from
Scale Structure of the universe it also accounts for the original of universe and broad range of other.  Phenomena.  Head Shift:  According to Doppler affect, there is appearent change in wavelength of waves emitted by source when it is in motion with respect of observer. The wavelength is increased if source is moving away from observer and is decreased if source is moving towards observer.  If the star is moving dowards the earth wavelength of light emitted by star will be decreased and its colour start wavelength of light emitted by star will be decreased with the start is moving towards the earth wavelength of light emitted by star will be decreased by the start wavelength of the start in the galaxy moves away from the start in the galaxy moves away from
The star is moving towards the earth wave-  Length of light emitted by source is moving towards observer.  If the star is moving towards the earth wave-  Length of light emitted by star will be decreased and its colour shifted by star will be decreased and its decreased if source is moving towards observer.  If the star is moving towards the earth wave-  Length of light emitted by star will be decreased and its colour shifted towards violet and the Visible specifium formed by Such process is called blue shift.  As, the star in the galaxy moves away from
The star is moving dowards the earth wave-  Length of light emitted by source is moving towards observer.  If the star is moving dowards the earth wave-  Length of light emitted by star will be decreased and its colour shifted by star will be decreased and its decreased if source is moving towards observer.  If the star is moving dowards the earth wave-  Length of light emitted by star will be decreased and its colour shifted towards violet and the visible spectrum formed by such process is called blue shift.  As, the star in the galaxy moves away from
Phenomena.  Red Shift:-  According to Dopples effect, there is appearent change in wavelength of waves emitted by source when it is in motion with respect of Observer. The wavelength is increased if the Source is moving away from observer and is decreased if source is moving towards observer.  If the star is moving dowards the earth wavelength of light emitted by star will be decreased and its colour shifted toward violet and the Visible spectrum formed by Such process is called blue shift.  As, the star in the galaxy moves away from
Phenomena.  Red Shift:-  According to Dopples affect, there is appearent change in wavelength of waves emitted by source when it is in motion with respect of observer. The wavelength is increased if the Source is moving away from observer and is decreased if source is moving towards observer.  If the star is moving dowards the earth wavelength of light emitted by star will be decreased and its colour shifted toward violet and the Visible spectrum formed by Such process is called blue shift.  As, the star in the galaxy moves away from
According to Doppler effect, there is appeared change in wavelength of waves emitted by source when it is in motion with respect of observer. The wave-length is increased if the source is moving away from observer and is decreased if source is moving towards observer.  If the star is moving dowards the earth wave-length of light emitted by star will be decreased and its colour shifted toward violet and the visible spectrum formed by such process is called blue shift.  As, the star in the galaxy moves away from
According to Doppler effect, there is appeared change in wavelength of waves emitted by source when it is in motion with respect of observer. The wave-length is increased if the source is moving away from observer and is decreased if source is moving towards observer.  If the star is moving dowards the earth wave-length of light emitted by star will be decreased and its colour shifted toward violet and the visible spectrum formed by such process is called blue shift.  As, the star in the galaxy moves away from
in wavelength of waves emented of source. The wave- is in motion with respect of observer. The wave- length is increased if the Source is moving away from observer and is decreased if source is moving towards observer.  If the star is moving dowards the earth wave- Length of light emitted by star will be decreases and it's Colour shifted toward violet and the Visible spectrum formed by Such process is Colled blue shift.  As, the star in the galaxy moves away from
in wavelength of waves emerce of observer. The wave- is in motion with respect of observer. The wave- length is increased if the Source is moving away from observer and is decreased if source is moving towards observer.  If the star is moving dowards the earth wave- Length of light emitted by star will be decreases and it's Colour shifted toward violet and the Visible spectrum formed by Such process is Colled blue shift.  As, the star in the galaxy moves away from
length is increased of the Source is moving away from observer and is decreased if source is moving towards observer.  If the star is moving towards the earth wave-length of light emitted by star will be decreased and it's colour shifted toward violet and the visible spectrum formed by Such process is called blue shift.  As, the star in the galaxy moves away from
from observer and is decreased if source is moving towards observer.  If the star is moving towards the earth wave- Length of light emitted by star will be decreased and it's Colour shifted toward violet and the Visible spectrum formed by Such process is Called blue shift.  As, the star in the galaxy moves away from
If the star is moving towards the earth wave- Length of light emitted by star will be decreased and 12/5 Colour shifted toward violet and the Vissible spectrum formed by Such process is Called blue shift.
If the star is moving towards the earth wave- Length of light emitted by star will be decreased and 12/5 Colour shifted toward violet and the Vissible spectrum formed by Such process is Called blue shift.
Length of light emitted by star will be decreased and 12th Colour shifted toward usolet and the Vissbie spectrum formed by Such process is Colled blue shift.  As, the star in the galaxy moves away from
Length of light emitted by star will be decreased and 17th Colour shifted toward violet and the visible spectrum formed by Such process is Called blue shift.  As, the star in the galaxy moves away from
And Pis Colour shifted toward violet and the Visible spectrum formed by Such process is Called blue shift.  As, the star in the galaxy moves away from
And Pis Colour shifted toward violet and the Visible spectrum formed by Such process is Called blue shift.  As, the star in the galaxy moves away from
Wissible spectrum formed by Such process is Called blue Shift.  As, the star in the galaxy moves away from
As, the star in the galaxy moves away from
As, the stree in the galaxy moves away from
earth and coovelength of Light emitted by char
earth and wavelength of Light emitted by stor

	Page   9
	will gocreases and shifts . dowards red and such_
<u> </u>	To vissible Spectrum downed and end is Called red
	Shift.
	Let us consider a galaxy moving away from us
	with a velocity 'v'. Then.
	red Shift $(z) = \overline{c} =(i)$
	Where c'is velocity of light Pn vaccum.
	If it be the wave length of emitted radiation by
-	galaxy and to be the observed wave length on earth.
	then, 2-20
	then, ded shift (z) = 2 - 10
	× 6,
	From eqn(i) & (ii)
	$\frac{V - \lambda - \lambda_0}{C} \rightarrow \frac{V - \Delta \lambda}{C} \left[ \frac{\cdot \cdot \Delta \lambda = \lambda - \lambda_0}{\lambda} \right]$
	-: \\ \Delta 2 = \forall 2
	(C)
-11-	Mal Male Laure
	Hubble's Lawin
	Red Shift Shows that galaxy are moving away from us. This gives rise the theory a universe is
	growth as the salary and taled form
	expanding the velocity with which galaxy moves
	from earth. This Law is given by Hubble. Hence
	of the earth . This Law is given by Hubbit . Hence

7 77		_
#	Hubble's Law:	-5
_ L>	Red Shift Shows that Solary and mice	-
	THE THE THE PARTY OF THE PARTY	1
	togenoung the velocity with which balaxy mount	_
- ,	from earth. This Law is given by Hubble. Hence	-
	The knoton as thupples ram.	-
	According to Hubble's law the cond	3
	with which galaxy moves away from us is dire-	_
	coly proportional to it's distance from earth.	<u> </u>

If 'v'be the speed with which a galaxy news and from us and is be the defonce of spiny from each of then.

You he is the speed with which a galaxy news and is be the defonce of spiny from the hour is sainty.

Hhere. He is the block constant. It's value is sainty.

The Significance of Hubble's Constant:

Descriptions of Universe and it'be the age.

Suppose is he the circ of universe and it'be the age.

The universe of goldand of the universe ment during the universe of the property.

	Date   11_Page
ij	Size of Universe:
H	If the Size of Universe so P and Good of
	grand occomes speed of light. Then by Hubble's
	Law. V = Hop
	C=HOR
	R = C
	R= 6000 Mega par secs (MPC)
	= 6000 ×10° pC
	=6000 x 10 x 3.2 Light year
	T 4 Mac = 10 C 11
	1 WbC = 10c bc
	L 1 pc = 3.2 Light Kear
#	Critical density:
-77	the denote of emission when he are
-50	The density of universe which determine the
- 1	xpanding nature of universe is called critical
	nsity. It is denoted by se.
	us consider the universe as a
SP	herical. Volume of radius R and mass'm'. If 'm'
b€	the mass of radius Balaxy and v' be A's
- 120	cape velocity— then from the universe then As
	cape velocity— then from the universe then its
	Caram 1 12
	i.e., R = 2 m > 26m=V'R 0
1	Accelored to the second

# Critical density:	
17 The density of universe which determine the	
expanding nature of universe is called critical	
density. It is denged by s.	
Let us consider, the universe as	
Spherical volume of radius 'R' and mass'm' . If 'm	y S
be the mass of radius Balaxy and'v' be A's escape velocity— then from the universe then As	
escape velocity then from the universe then As	
growflational p.c. should be equal to k.E.	
	, l
i.e., R = 1 mV2 => 26M=V2R 0	
According to Hubble's law; Also,	
According to Hubbe's law; Also.  V = Hop (3) M= \frac{1}{3}772e (6)	<b>ジ</b>
Using earling an earling	3
2G. 4753 = H2. 83	
	5-
5c = 376   This gives value of critical density, i.e., 5.8x10-27 kg/m3. =1	

Date 12
Fage

Dark matter: The average density of all the matter in the writing is about 27 % of crasical density but average density Vissible matter is about 4% and most of matter of universe are invessible and doesn't emit any kind of radiation, the invissible matter in the universe with does not emit any kind of radiation is called does matter. The invisible form of energy which can be source of a repulsive force causing the expansion of the universe to accelerate is known as derk energy Black Hole: 4 If a spherical non-rotating body with mass M has a radius less than es nothing not even light can escape from the surface of the body, such body is called blackhole.