

Final Exams
2020-2021

Q1 : B- What is green house and then explain greenhouse effect.. (6+8) Marks
B- Explain revolution of earth around the sun in one cycle

Q2: A- The distance between two stars $2.84 \times 10^{15} \text{ Km}$ (4+3+5+6) Marks

Calculate this distance by 1-Light year 2 - parsec.

B- Calculate atmosphere pressure at height 1000 km

C- At 22 April in Eureka city in Canada locate on 79.59 degree north day or night longer

D- The distance between the sun and one comet is $7.48 \times 10^8 \text{ km}$, Determine period time of this comet around the sun.

Q 3 A- -Complete the following statement. 18 Marks

- 1- In the ozone layer temperature ----- with altitude due to-----.
- 2- At winter the distance between the sun and earth is ----- the potential energy ----- .
- 3- The maximum value of earth orbit velocity on its axis is----- at----- and the minimum vale is ----- at -----.
- 4- The ions layer disappears at midnight is -----.
- 5- When the planet at farther distant from the sun has ----- velocity.
- 6- Diurnal is----- and Annual is ----- .
- 7- Latitude is the distance from the ----- along the -----, and Longitude is the distance from the ----- along the -----.
- 8- The declination angle, denoted by δ , varies seasonally due to ----- and -----.

Best wishes

Instructor : Dr Abbas H Rostam
Signature

Date: 30/1/2021

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- Q1 A- Draw layer of the sun by description of works of each layers. (8+6) Marks
B- Draw the change atmosphere pressure with altitude and determine atmosphere pressure at high 5000 km.

- Q2: A- Calculate the distance of Neptune from the sun and the period time of the Neptune around the sun and compare with compute value
B – Explain Hydrostatic equilibrium. (7+5) Marks

- Q 3 A- -Complete the following statement. 14 Marks
- 1- Hottest star is----- and coldest star is -----,-.
 - 2- 16.3 LY is equal ----- parsec and 1264700 AU is equal – – – – – LY .
 - 3- In the chromosphere layer the temperature rises from around ----- to -----, result in -----.
 - 4- In troposphere ----- decrease with altitude.

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Date: 30/1/2021

Q1 A- Draw relationship between Luminosity and spectral of main sequence stars and briefly describe.
B- How Stars Work (14 +8) Marks .

Q2 - Choose the correct answer 20 Marks

- 1- Satellite with low albedo {A- more reflect and hot B- less reflect and hotter C- more reflect and cooler}.
- 2- the hardest for energy to pass through is {A- core B-chromosphere C-Radiative zone}
- 3- The cooler areas on the sun on the photosphere and can affect the Earth's weather.
[A- Flare B- Sunspot C- active region]
- 4- The star is {A- produce B- reflect C-absorbed}light.
- 5- Luminosity of star as a function of {A- Composition and temperature B-Temperature and radius C- Composition and radius] of star}.
- 6- Brightest star has apparent magnitude of {A- (-4) B- (-7) C-(4)}
- 7- Smallest apparent magnitude is {A- Venus B-Full moon C-Sun}.
- 8- In infrared light have {A-more energy low temperature B-more energy high temperature C- less energy high temperature} than microwave .
- 9- M Stars are { A- yellow and $T = 6000 K$ B- red and $T = 3000 K$ C- blue and $T = 3000 K$ }
- 10- Solar constant is { A- $1368 \frac{W}{m^2}$ B- $342 \frac{W}{m^2}$ C- $3.9 \times 10^{26} \frac{J}{sec}$ }

Q3 - Complete the following statement. 20 Marks

- 1- The amount of insolation received at any location on earth depends----- ..
- 2- The B stars ----- colors, and temperature ranges----- and spectral is ----- .
- 3- In Brown Dwarf heat is generated by----- give of a lot of light in -----range.
- 4- Solar energy generation in----- layer and emission on -----
- 5- If temperature of the surface one star 4000 K, wavelength of spectrum is-----.
- 6- Amount of absorbed in coming solar radiation is ----- and amount of reflected by clouds is-----.
- 7- If apparent magnitude difference is 20, brightness ratio is -----.

Q4: mass of sun five time greater than mass of the star and radius of the star twice of the radius of the sun, the sun thousandth time brighter than the star . Determine. 1- Luminosity of star
2- Life time of the star 3- temperature of stars 4- Can you see this star from the earth?
5 -location of the star 18 Marks

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Date: 2/5/2021

Q1 : A- What is solar constant and determine solar constant. (6+6) Marks
B- Explain mechanism of solar energy until reach the earth surface.

Q2- A- Draw electromagnetic spectrum and then describe briefly. (6+6}
B- Calculate the brightness of Sun with respect to Moon.

Q3 Choose the correct answer 12 marks

- 1- If temperature of the surface one star 2000 K, wavelength of spectrum is [A-
145 nm B- 1450 nm C- 14500 A⁰]
- 2- The region in the Sun's atmosphere where the temperature rises very rapidly is [A-
active region B- transition region C-Plasma].
- 3- In hydrostatic equilibrium [A inward gas pressure equals inward gravity B-
outward gas gravity equals inward pressure C-outward gas pressure equals inward gravity]
- 4- A mount of hydrogen mass has been converted to energy is [A-
7% B- 0.7% C- 0.007%].
- 5- The star is lighter with apparent magnitude is [A - zero B - (-5) C - (5)].
- 6- If the difference between apparent magnitude and absolute magnitude is zero, the distance by parsec is
[A- 1 pc B- 10 pc C- 100 pc].

Q 3 A- -Complete the following statement. 14 Marks

- 1- Formula for first step generation solar energy in core is -----.
- 2- Energy generation in the ----- and emission in the----- of the sun.
- 3- ----- is the color sphere layer of the sun. During the ----- this is the one time that you can see this layer.
- 4- When northern hemisphere tilted towards the Sun is called ----- and shortest -----, longest-----.
- 5- On the equinoxes solar declination ----- , the sun is directly over ----- day and night ----- .
- 6- Thermonuclear fusion can take place only----- ,-----.

Best wishes

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Date: 30/1/2021

Exams
2020-2021

Q1 : A- Draw average distribution of incoming solar radiation by percentage and amount (10+10) Marks
B-. If one city located at 77 degree north, at today ,day or night longest .
C- Explain winter and summer solstice briefly.

Q2 Luminosity of the star is 1500 *time greater than the Luminosity of the sun*, if the sun brighter
10000 time than the star Determine 1- Mass of star 2- Life time of the star
3- temperature of the star 4- Can you see this star from the earth?
5- where the location of star from the H-R diagram 18 Mark

Q3– Choose the correct answer 22 Marks

- 1- Calculation of the generation energy in the core by [A- Planck's Law B-Stefan Boltzmann
C- Einstein relationship]
- 2- Satellite with high albedo [A- more reflect and hot B- less reflect and cooler C-
more reflect and cooler].
- 3- Star have more Luminosity is absolute magnetic is (A- (-6) B- (Zero) C-(6))
Ultraviolet light have (A- more energy low Temperature B- more energy high Temperature
C- Less energy low Temperature) than the visible light.
- 4- black body is an ideal body which allows the whole of the incident radiation to pass into its and absorbs
within itself corresponding to (A- all wavelengths and to all angles of incidence. B-
all wavelength and to difference angles of incidence. C- different wavelengths and to all angles of
incidence)
- 5- Latitude is (A- distance from the equator along the Y axis B- the distance from the prime meridian
along the X axis C- distance from the equator along the x axis).
- 6- The amount of light received (Brightness) is (A- proportional to its energy output and to the distance
square B- inversely proportional to its energy output and proportional to the distance square C-
proportional to its energy output and inversely proportional to the distance square)
- 7- Fainter objects of apparent magnitude is (A- (-2) B-(-4) C-(-6))
- 8- Star of class F (A- red and $T = 7000 K$ B- yellow and $T = 5000 K$ C-
Yellow and $T = 7000 K$).
- 9- Stars are classified according to (A- Spectra and mass B- radius and temperature C-
Life time and mass).
- 10- If the difference between apparent magnitude and absolute magnitude is the 8 distance by parsec [A-
40 B- 400 C-.4000] PC
- 11- Apparent magnitude difference ($m_2 - m_1 = 10$) ratio of apparent brightness is
(A- 1000 B- 10000 C-100000)

Best wishes

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Date: 2/5//2021

B- Draw plot apparent magnitude with respect to brighter or fainter of object

1- If the luminosity of one star 100 *time grater than the luminosty* sun the absolute magnetic of the sun -4.8 *magnitude* absolute magnitude of star is -----.

B- Why Summer is warmer than winter (in each hemisphere)?

Q2 A - Calculate the brightness of Moon with respect to Jupiter

Q20: mass of sun five time greater than mass of the star and radius of the star twice of the radius of the sun, the sun thousandth time brighter than the star . Determine. 1- Luminosity of star 2- Life time of the star 3- temperature of stars 4- Can you see this star from the earth? 5 -location of the star

Answer

$$Mass_{sun} = 5Mass_{star}$$

$$b_{sun} = 1000b_{star}$$

$$1- \frac{L_{star}}{L_{sun}} = \left(\frac{Mass_{star}}{Mass_{sun}}\right)^{3.5} \quad \frac{L_{star}}{L_{sun}} = \left(\frac{Mass_{star}}{5Mass_{star}}\right)^{3.5} \quad \frac{L_{star}}{L_{sun}} = \left(\frac{1}{5}\right)^{3.5}$$

$$\frac{L_{star}}{L_{sun}} = (0.2)^{3.5} = 0.0035777$$

$$L_{star} = 0.0035777 L_{sun} \text{ or}$$

$$L_{star} = L_{sun} \left(\frac{Mass_{star}}{Mass_{sun}}\right)^{3.5} = 3.9 \times 10^{26} \left(\frac{Mass_{star}}{Mass_{sun}}\right)^{3.5} = 3.9 \times 10^{26} \times 0.003577 = 1.395 \times 10^{24} \text{ watt}$$

$$L_{star} = 1.3577 \times 10^{24} \text{ watt}$$

$$2- \tau_{MS} = \tau_{sun} \times \left(\frac{Mass_{sun}}{Mass_{ms}}\right)^{2.5} \quad \tau_{MS} = 1 \times 10^{10} \times \left(\frac{Mass_{sun}}{Mass_{ms}}\right)^{2.5}$$

$$\tau_{MS} = 1 \times 10^{10} \times \left(\frac{5Mass_{star}}{Mass_{ms}}\right)^{2.5} \quad \tau_{MS} = 1 \times 10^{10} \times (5)^{2.5}$$

$$\tau_{MS} = 1 \times 10^{10} \times 56 = 5.6 \times 10^{11} \text{ years}$$

$$\tau_{star} = 5.6 \times 10^{11} \text{ years}$$

$$\tau_{star} = 56\tau_{sun}$$

$$3- \frac{T_{star}}{T_{Sun}} = \sqrt[4]{\frac{L_{star}}{L_{Sun}}} \sqrt{\frac{R_{sun}}{R_{star}}}$$

$$\frac{T_{star}}{T_{Sun}} = \sqrt[4]{\frac{0.0035777 L_{sun}}{L_{sun}}} \sqrt{\frac{R_{sun}}{2R_{sun}}}$$

$$4- \frac{T_{star}}{T_{Sun}} = \sqrt[4]{\frac{0.0035777}{1}} \sqrt{\frac{1}{2}}$$

$$\frac{T_{star}}{T_{Sun}} = \sqrt[4]{\frac{0.0035777}{1}} \sqrt{\frac{1}{2}} = 0.598 \times 0.707 = 0.4222$$

$$5- \frac{T_{star}}{T_{Sun}} = 0.4222$$

$$T_{star} = 0.4222 T_{Sun}$$

$$T_{star} = 0.4222 \times 5800 K = 2448 K$$

Yes can see this star from earth.

For Evening

Luminosity of the star is 1500 *time greater than the Luminosity of the sun*, if the sun brighter 10000 time than the star determine . 1- Mass of star 2- Life time of the star 3- temperature of the star 4- Can you see this star from the earth? 5- where the location of star from the H-R diagram

Answer

$$1- L_{star} = 1500 L_{sun}$$

$$b_{sun} = 10000 b_{star}$$

$$\frac{L_{ms}}{L_{sun}} = \left(\frac{Mass_{ms}}{Mass_{sun}} \right)^{3.5} \quad \frac{Mass_{ms}}{Mass_{sun}} = \left(\frac{L_{ms}}{L_{sun}} \right)^{\frac{1}{3.5}} \quad \frac{Mass_{ms}}{Mass_{sun}} = \left(\frac{1500 L_{sun}}{L_{sun}} \right)^{\frac{1}{3.5}}$$

$$\frac{Mass_{ms}}{Mass_{sun}} = \left(\frac{1500}{1} \right)^{\frac{1}{3.5}} = 8.88 \quad \mathbf{Mass_{ms} = 8.08 Mass_{sun}}$$

$$\mathbf{Mass_{ms} = 8.08 \times 1.99 \times 10^{30} Kg = 1.6.08 \times 10^{31} Kg}$$

$$2- \frac{\tau_{star}}{\tau_{sun}} = \left(\frac{Mass_{sun}}{Mass_{ms}} \right)^{2.5} \quad \tau_{star} = \tau_{sun} \left(\frac{Mass_{sun}}{Mass_{ms}} \right)^{2.5}$$

$$\tau_{MS} = 1 \times 10^{10} \times \left(\frac{Mass_{sun}}{Mass_{ms}} \right)^{2.5} \quad \tau_{Star} = 1 \times 10^{10} \times \left(\frac{Mass_{sun}}{8.08 Mass_{sun}} \right)^{2.5} \text{ years}$$

$$\tau_{Star} = 1 \times 10^{10} \times \left(\frac{1}{8.08 Mass_{sun}} \right)^{2.5} \text{ years} = 5.3885 \times 10^{-3} \tau_{sun}$$

$$\tau_{Star} = 5.3885 \times 10^{-3} 1 \times 10^{10} \text{ years} = 5.3885 \times 10^7 \text{ years}$$

$$\mathbf{\tau_{Star} = 5.3885 \times 10^7 \text{ years} = 53.885 \times 10^6 \text{ years} = 53.885 \text{ million years}}$$

$$3- \frac{T_{star}}{T_{Sun}} = \sqrt[4]{\frac{L_{star}}{L_{sun}}} \sqrt{\frac{R_{sun}}{R_{star}}} \quad \frac{T_{star}}{T_{Sun}} = \sqrt[4]{\frac{1500 L_{sun}}{L_{sun}}} \sqrt{\frac{R_{sun}}{4 R_{sun}}}$$

$$\frac{T_{star}}{T_{Sun}} = \sqrt[4]{\frac{1500}{1}} \sqrt{\frac{1}{4}} \quad \frac{T_{star}}{T_{Sun}} = 6.2233 \times \frac{1}{2} = 3.111 \quad T_{star} = 3.111 T_{Sun}$$

$$T_{star} = 3.111 \times 5800 K = 18044 K$$

$$m_{star} - m_{sun} = 2.5 \text{Log}_{10} \frac{b_{sun}}{b_{star}}$$

$$4- m_{star} - m_{sun} = 2.5 \text{Log}_{10} \frac{10000 b_{star}}{b_{star}} \quad m_{arst} - (-26.8) = 2.5 \text{Log}_{10} 10000$$

$$m_{star} = -26.8 + 2.5 \log_{10} 10000$$

$$m_{star} = -26.8 + 2.5 \times 4$$

$$m_{star} = -26.8 + 10$$

$$m_{star} = -16.8$$

5- see can by eye

location of stars at group B and is blue.

1-

12- B- Draw the original magnitude scale for brightness of stars

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College of Basic Education
Department : General Science

Module : Astronomy morning
Stage : Third
Round: first
Time : 60 min

Exams
2020-2021

Q1 : A- Draw average distribution of incoming solar radiation by percentage and amount (14+6) Marks

B-Draw the original magnitude scale was limited to naked-eye stars.

Q2- Mass of the stars is 12 *times than the mass of the sun*. With radius seventh times than the sun
Determine 1- Luminosity of star 2- Life time of the star
3- temperature of the star location of stars 15 M arks

Q3- Choose the correct answer

15 Marks

- 1- Calculation of the generation energy in the core by [A- Planck's Law B-Stefan Boltzmann
C- Einstein relationship]
- 2- Star have more Luminosity is absolute magnetic is (A- (-6) B- (Zero) C-(6))
- 3- Ultraviolet light have (A- more energy low Temperature B- more energy high Temperature
C- Less energy low Temperature) than the visible light.
- 4- The amount of light received (Brightness) is (A- proportional to its energy output and to the distance
square B- inversely proportional to its energy output and proportional to the distance square C-
proportional to its energy output and inversely proportional to the distance square)
- 5- Fainter objects of apparent magnitude is (A- (-2) B-(-4) C-(-6))
- 6- Stars are classified according to (A- Spectra and mass B- radius and temperature C-
Life time and mass).
- 7- Apparent magnitude difference ($m_2 - m_1 = 10$) ratio of apparent brightness is
(A- 1000 B- 10000 C-100000)

Best wishes

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Date: 10/5//2021

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Ministry of Higher Education & Scientific Research
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College of Basic Education
Department : General Science

Module : Astronomy morning
Stage : Third
Round: first
Time: 3 hours

Exams
2020-2021

Q1 : A-. Explain the layers of earth atmosphere briefly.

(6+8) Marks

B- Draw layer of the sun by description of works of each layers.

Q2- Choose the correct answer : **Notes (9 and 10) each one of them on 2 marks** 12 Marks

- 1- Star have more Luminosity is absolute magnetic is (A- (-8) B- (Zero) C-(8))
- 2- Ultraviolet light have (A- more energy low Temperature B- more energy high Temperature C- Less energy low Temperature) than the visible light.
- 3- a region in the Sun's outer atmosphere that appears darker because there is less hot gas there (A- Plage B- Sunspot C- coronal hole)
- 4- The ions layer disappears by mid night is (A- D B-E C-F) Layer.
- 5- More effect in greenhouse gas is (A-Carbon dioxide B-Ozone C-Water vapor).
- 6- When the sunlight strikes the Northern Hemisphere directly, (A- the days are longer and hotter B- days are longer and winter C-days are shorter and hotter)
- 7- Equator is (A- Zero degree longitude B-Zero degree latitude C- pole latitude).
- 8- Star with temperature is 4000 kelvin is in group (A- G B- M C -K) stars
- 9- If the difference between apparent magnitude and absolute magnitude is the 7 distance by parsec (A- 25 B-250 C-2500) PC
- 10- Apparent magnitude difference ($m_2 - m_1 = 15$) ratio of apparent brightness is (A- 10^4 B- 10^6 C- 10^8).

Q3 - A- Compare between the Terrestrial and the Jovian Planets. (6+6) Marks

B-- Explain how stars generate their light's only the first step with equation

Q4 A- What is Luminosity and lifetime of star with mass is $50 m_{sun}$ (4+4+5+5+4) Marks

B- Calculate distance between the sun and Jupiter and periodic time of the Jupiter around sun.

C- 1- Drive an age-luminosity relationship for main sequence stars. 2- If luminosity of star twenty time than the sun's luminosity calculate the age of star.

D- At the one city that located at 50-degree South. Calculate length of night at today.

E- If brightness of star 100 time brighter the than the moon. Can you see this star.

Best wishes

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Date: 23/5//2021

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College of Basic Education
Department : General Science

Module : Astronomy morning
Stage : Third
Round: second
Time: 3 hours

Exams
2020-2021

Q1 : Answer only two branches

(7+7) Marks

- A- Explain revolution of earth around the sun in one cycle.
- B- Compare between summer and winter solstice.
- C- What is greenhouse and explain greenhouse effect.

Q2- Choose the correct answer

12 Marks

- 1- Short term variability of the atmosphere (A- Climate B- Weather C-Meteorology) .
- 2- Coldest layer of atmosphere is A-troposphere B-stratosphere C- mesosphere) .
- 3- Theory that the sun is the center of the solar system (A- Heliocentric B-Geocentric C-Geometry).
- 4- The branch of astronomy that deals with the origin, large-scale properties.
(A-Galaxy B-Cosmology C- Universe).
- 5- Terrestrial planets are (A- widely spaced orbits and small radii B- Closely spaced orbits and small radii C-Closely spaced orbits and large radii).
- 6- It is the hottest planet in our Solar System is (A- Venous B-Mars C - Jupiter)
- 7- In the layer of the sun that the hot gases rise from the bottom to the top is called (A-Core B- Convective C-photosphere).
- 8- If surface temperature of star 20000 Kelvin wavelength is (A-14500 B- 1450 C-145) nm
- 9- The amount of absorbed solar radiation by atmosphere is (A-54.72 B-10.26 C- 13.68) $\frac{W}{m^2}$.

Q3 - A- Explain mechanism of solar energy generation until reach the earth surface. (6+8) Marks

B- Draw relationship between Luminosity and spectral of main sequence stars.

Q4 A- At altitude 6 km of atmosphere calculate the pressure. (4+5+4+5) Marks

B-. At the one city that located at 75-degree South. At 10 November day or night longest

C- if the distance between two stars $1.42 \times 10^{14} km$. Determine this distance by 1- Ly, 2- parsec

E- if lifetime of star is 1×10^{-5} of life time of the sun. determine luminosity and mass of star.

Best wishes

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Date: 23/5//2021

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Department : General Science

Module : Astronomy evening
Stage : Third
Round:
Time : 60 min

Final Exams
2020-2021

Q1 A- Draw relationship between Luminosity and mass of main sequence stars and briefly describe. 5 Marks .

Q2 - Choose the correct answer

10 Marks

-
- 1- Luminosity of star as a function of (A- Composition and temperature B-Temperature and radius C- Composition and radius] of star).
- 2- Brightest star has apparent magnitude of (A- (-4) B- (-7) C-(4))
- 3- This star generation energy by contraction of gases (A-Giants B-White dwarfs C-Super-giants)
- 4- In infrared light have {A-more energy low temperature B-more energy high temperature C-less energy high temperature} than microwave) .
- 5- Hottest star is in group (A- G B-F C-A)

Q3: A- mass of star ten time greater than mass of the sun, Determine. (10+5) Marks

1- Luminosity of star 2- Life time of the star

B- If difference between apparent magnitude two stars 4 find the ration between brightness

Best wishes

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Date: 17/5/2021

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Department : General Science

Module : Astronomy evening
Stage : Third
Round: first
Time :3 hours

Exams
2020-2021

Q1 A- Compare between latitude and longitude earth surface coordinate (6+6) Marks

A- Explain summer and winter solstice.

Q2– Choose the correct answer : **Notes 14 each of them on 2 marks**

18 Marks

- 1- Earth orbit the sun at perihelion have (A- Short day and hottest Short day and cooler) B-long day hottest C-
- 2- Important for weather and climate (A-Nitrogen B- Carbon Dioxide C- Oxygen).
- 3- Strong temperature increase with height, due to absorption of UV-radiation by O₂ and N₂ in (A-Stratosphere B- Thermosphere C-mesosphere) layer .
- 4- Two byproduct in generation of energy in the core are (electron and photon B- electron and positron C- positron and neutrino).
- 5- In greenhouse effect process the warm ground radiates (A-Visible B-infrared C-UV) light.
- 6- Maximum frequency wave reflected by (A- F B- D C-E) ion layer.
- 7- An object which orbits a planet (A- Moon B-Star C-Comet).
- 8- Brightest objects of apparent magnitude is (A- (-2) B-(2) C-(-6))
- 9- More luminosity star is (A-More mass and long age B- More mass and short age C- Less mass and short age).
- 10- Jovian planets have (A- smaller masses and slower rotation B- smaller masses and faster rotation C- large masses and faster rotation).
- 11- Star with temperature 20000 kelvin and blue from the group (A-G B- F C- B).
- 12- The star of group A (A- more energy a long age B- more energy and short age C- less energy and short age) than the group M from main sequence stars.
- 13- 1 Light year is (A- 3.26 PC B- 63235 Au C- 206265 Au)
- 14- Solar energy emission in the (A-radiative B- chromosphere C- photosphere) layer.
- 15- If the difference between apparent magnitude and absolute magnitude is the 10 distance by parsec (A- 100000 B-10000 C-1000) PC
- 16- If wavelength of one spectra 4000 nm temperature is [A- 72.5 B- 725 C-.7250) nm.

Q3 A- Why Pluto not planet? (4+6) M arks

B-How sun works

Q4: (4+6+6+4) Marks

- A- At altitude 12 km of atmosphere calculate pressure
- B- Calculate distance between the sun and Saturn. Then calculate periodic time of the Saturn around sun.
- C- Calculate ratio of apparent brightness of the sun with respect to the moon.
- D- -.If mass of the star 40 times than the mass of sun. Determine 1-Luimonisity of star 2-age of the star.

Best wishes

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Signatur

Date: 6/6//2021

C-Write equations in generation process of energy in the core of the suns for all steps

1- In hydrostatic equilibrium (A- outward: gravity pressure B- inward: gravity outward: pressure C- inward: gravity inward pressure)

D- If energy per unit time per area for fixed star $907200 \frac{W}{m^2}$.. calculate the surface temperature of star

In greenhouse effect process earth gives off (A- infrared B-visible C-UV) radiation

Most abundant molecules present (A- Nitrogen in F2 B- Oxygen in F2 C- Oxygen in F1) sub layer

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Department : General Science

Module : Astronomy morning
Stage : Third
Round: second
Time: 3 hours

Exams
2020-2021

Note : Draw the figure if necessary

Q1 : Answer only two branches

(7+7) Marks

- A- Explain revolution of earth around the sun in one cycle.
- B- Compare between summer and winter solstice.
- C- What is greenhouse and explain greenhouse effect.

Q2– Choose the correct answer: Notes from 7 each of them on 2 marks

14 Marks

- 1- Short term variability of the atmosphere (A- Climate B- Weather C-Meteorology).
- 2- Coldest layer of atmosphere is A-troposphere B-stratosphere C- mesosphere).
- 3- Theory that the sun is the center of the solar system (A- Heliocentric B-Geocentric C-Geometry).
- 4- The branch of astronomy that deals with the origin, large-scale properties.
(A-Galaxy B-Cosmology C- Universe).
- 5- Terrestrial planets are (A- widely spaced orbits and small radii B- Closely spaced orbits and small radii
C-Closely spaced orbits and large radii).
- 6- It is the hottest planet in our Solar System is (A- Venous B-Mars C - Jupiter)
- 7- If the difference between apparent magnitude and absolute magnitude is the 5 distance by parsec
(A- 10 B-100 C-1000).
- 8- If surface temperature of star 20000 Kelvin wavelength is (A-14500 B- 1450 C-145) nm
- 9- The amount of absorbed solar radiation by atmosphere is (A-54.72 B-10.26 C- 13.68) $\frac{W}{m^2}$.
- 10- Apparent magnitude difference ($m_2 - m_1 = 25$) ratio of apparent brightness is
(A- 10^6 B- 10^8 C- 10^{10}).

Q3 - A- Explain mechanism of solar energy generation until reach the earth surface. (6+8) Marks

B- Draw relationship between Luminosity and spectral of main sequence stars.

Q4 A- At altitude 6 km of atmosphere calculate the pressure. (4+5+4+5) Marks

B-. At the one city that located at 75-degree South. At 10 November day or night longest

C- If the distance between two stars $1.42 \times 10^{14} \text{ km}$. Determine this distance by 1- Ly, 2- parsec

D- If lifetime of star is 1×10^{-5} of life time of the sun. determine luminosity and mass of star.

Best wishes

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Signature

Date: / //2021

Note : Draw the figure if necessary

Q1 A- Draw relation between luminosity and masses of the main stars sequence. (6+8) Marks
B- Draw the layers of the sun by distance.

Q2– Choose the correct answer of the following 16 Marks

- 1- Ozone gas is at (A- Troposphere B- Stratosphere C- Thermosphere) layer
- 2- Incoming solar radiation in greenhouse effect gases in spectrum of (A-Visible B-infrared C-UV).
- 3- A planet moves faster when it is (A- Closer B-Farther C- at same distance) to the sun..
- 4- Hemisphere tilted towards the Sun a (A- Equinoxes B-Winter solstice C- Summer solstice).
- 5- Terrestrial planets have (A- close to the sun and slower rotation B- far from the sun and faster rotation C- far from the sun and slower rotation).
- 6- Star with temperature 8000 kelvin from the group (A-G B- F C- A).
- 7- Incoming solar radiation by parentage reflected by atmosphere (A-3% B-4% C-6%).
- 8- 1 Light year (A- 3.26 PC B-63235 Au C- 206265 Au).

Q3 A- What is the second layer of atmosphere and why temperature increase with altitude? (4+6) Marks

B- -Write equations in generation process of energy in the core of the suns for all steps

Q4 A- If wavelength of one spectra 4000 nm, calculate the temperature (4+5+5+6) Marks

B--The planet with distance from sun 30 Au calculate the revolution time around the sun.

C-Calculate ratio of apparent brightness of the moon with respect to the Venus.

D-If mass of the sun 100 times than the mass of star. Determine 1-Luimonisity of star 2-age of the star.

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Signature

Date:/ /2020-2021