**ILLUMINATION ENGINEERING**

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|  | In houses the illumination is in the range of   * 1. 2 to 5 lumens per watt   2. 15 to 20 lumens per watt   3. 40 to 45 lumens per watt   4. 60 to 65 lumens per watt   Ans: iv |
|  | For normal reading the illumination level required is around   * 1. 22 to 40 lumens/m2   2. 60 to 100 lumens/m2   3. 200 to 300 lumens/m2   4. Any of the above   Ans:ii |
|  | The unit of luminous flux is   * 1. Watt/metersquare   2. Lumen   3. Lumen/m²   4. Watt   Ans:ii |
|  | The Perfect diffuser surface is one that   1. Transmits all the incident light 2. Absorbs all the incident light 3. Diffuses all the incident light 4. All of the above   Ans:i |
|  | Leak transformer is a sodium vapour lamp initially provides   * 1. High current   2. Low voltage   3. High voltage   4. Low current   Ans:iii |
|  | The colour of light given out by a sodium vapour discharge lamp is   * 1. Pink   2. Bluish green   3. Yellow   4. Blue   Ans:iii |
|  | The ignition voltage for a sodium lamp is about   * 1. 100 to 150 v   2. 200 to 250 v   3. 300 to 400 v   4. 400 to 600 v   Ans:iv |
|  | Filament lamps normally operate at a power factor of   * 1. Unity   2. 0.8 lagging   3. 0.5 lagging   4. 0.9 lagging   Ans:i |
|  | High-pressure mercury vapour lamps   1. Are similar in construction to sodium vapour lamps 2. Need four or five minutes to attend a full brilliancy 3. Are generally used for general industrial lighting railway yards etc. 4. All of the above   Ans:iv |
|  | A fluorescent tube can be operated on   * 1. Both DC and AC supply   2. Only AC supply   3. Only DC supply   4. Satisfactory only on the supply   Ans:i |
|  | Luminous flux is   1. The rate of energy radiation in the form of light waves 2. The part of light energy radiated by sun that is received on earth 3. Measured in lux 4. All of the above   Ans:i |
|  | The illumination is directly proportional to the cosine of the angle made by the normal to the illuminated surface with the direction of the incident flux. Above statement is associated with   1. Planck’s law 2. Macbeth’s law of illumination 3. Bunsen’s law of illumination 4. Lambert’s cosine law   Ans:iv |
|  | Which of the following will need the highest level of illumination?   1. Proofreading 2. Bed Room 3. Hospital wards 4. Railway platforms   Ans:i |
|  | The unit of solid angle is   1. Solid Angle 2. Radian 3. Steradian 4. Candela   Ans:iii |
|  | The illumination at the various points on a horizontal surface illuminated by the same source varies aS   1. Cos θ 2. Cos 2 θ 3. Cos 3 θ 4. 1/cos θ   Ans:iii |
|  | Light is produced in electric discharge lamps by   1. Heating effect of current 2. Magnetic effect of current 3. Ionization in a gas or vapour 4. Carbon electrodes   Ans:iii |
|  | The S.I unit of Luminance is   1. Candela 2. Lux 3. Candela/m2 4. m2/candela   Ans:iii |
|  | Determine the power factor of 230V, 0.5A, 40W fluorescent lamp   1. 0.228 2. 0.348 3. 0.843 4. 0.4038   Ans:ii |
|  | In a fluorescent tube circuit, choke acts as   1. Starter 2. The power factor improving device 3. Source of heat 4. Current limiting device   Ans:i |
|  | . For operation of fluorescent tube on DC supply the additional device incorporated in the Tube circuit is a   1. Transformer 2. Resistor 3. Inductor 4. All of the above   Ans:ii |

1. Luminous efficiency of a fluorescent tube is
2. 10 lumen/watt
3. 20 lumen/watt
4. 40 lumen/watt
5. 60 lumen/watt

Ans:iv

1. Candela is the unit of which of the following?
2. Wavelength
3. Luminous intensity
4. Luminous flux
5. Frequency

Ans:ii

1. Colour of light depends upon
2. Frequency
3. Wave length
4. Both (a) and (b)
5. Speed of light

Ans:iii

1. The filament of a GLS lamp is made of
2. Tungsten
3. Copper
4. Carbon
5. Aluminium

Ans:i

1. What percentage of the input energy is radiated by filament lamps?
2. 2 to 5 percent
3. 10 to 15 percent
4. 25 to 30 percent
5. 40 to 50 percent

Ans:ii

**ELECTRICAL MEASUREMENT**

1. Which of the following method of measurement does a bridge circuit uses?  
a) relative  
b) comparison  
c) absolute  
d) differential

Answer: b

2. Which of the following is the most popular method for measuring low resistance?  
a) ducter ohmmeter method  
b) kelvin double bridge method  
c) ammeter-voltmeter method  
d) potentiometer method

Answer: b

3. Which of the following method is used for the measurement of Medium Resistance?  
a) Direct-Deflection method  
b) Anderson Bridge  
c) Kelvin’s double bridge method  
d) Carey-Foster bridge method

Answer: d

4. Which of the following is the most sensitive detector for single frequency value?  
a) oscillator  
b) headphone  
c) tuned detector  
d) vibration galvanometer

Answer: c

5. Under which of the following conditions a bridge is balanced?  
a) When no current flows  
b) When the temperature of the circuit is high  
c) When power dissipation is high  
d) When no voltage drop across the circuit

Answer: a

6. Unknown capacitance value is obtained by \_\_\_\_\_\_\_\_\_  
a) using a vibration galvanometer  
b) using capacitance of other ratio arms  
c) comparison with standard  
d) using a tuned detector

Answer: c

7. Which of the following is a balance equation for computing the resistance?  
a) R1 = R2 ⁄ R4  
b) R1 = R3 ⁄ R4  
c) R1 = R2 R3  
d) R1 = R2 R3⁄R4

Answer: d

8. Inductance control is obtained by \_\_\_\_\_\_\_\_\_  
a) using R5  
b) using R4  
c) using R2  
d) using Lx

Answer: c

9. A Schering bridge can be used for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_  
a) protecting the circuit from temperature rises  
b) testing capacitors  
c) measuring voltages  
d) measuring currents

Answer: b

10. What is the dependence of frequency on the balance equation?  
a) Varies by a factor of 2  
b) depends on the detector used  
c) independent  
d) depends on the supply magnitude

Answer: c

11. Which of the following is the guarding arm?  
a) capacitance C  
b) resistance R  
c) parallel RC combination  
d) series RC combination

Answer: c

12. Which of the following can be measured using Maxwell’s Inductance Capacitance Bridge?  
a) Capacitance  
b) Frequency  
c) Mutual Inductance  
d) Inductance

Answer: d

13. A multiplier is \_\_\_\_\_\_\_\_\_\_  
a) non-capacitive  
b) capacitive  
c) non-inductive  
d) resistive

Answer: c

14. The windings of a C.T. are \_\_\_\_\_\_\_\_  
a) tied together  
b) shorted  
c) wound over one another  
d) grounded

Answer: c

15. How is the voltage ratio dependent on the frequency?  
a) they aid each other  
b) depends on the setup of the circuit  
c) they are independent of each other  
d) they oppose each other

Answer: d

16. Increasing secondary burden \_\_\_\_\_\_\_\_\_\_\_\_\_  
a) decreases Is  
b) keeps Is constant  
c) decreases Ip  
d) increases Is  
View Answer

Answer: d

17. Which of the following device is used to measure power in A.C. circuits?  
a) ammeter  
b) wattmeter  
c) voltmeter  
d) ohmmeter

Answer: c

18. When the moving coil in a Dynamometer type wattmeter deflects \_\_\_\_\_\_\_\_  
a) pointer doesn’t move  
b) current flows  
c) voltage is generated  
d) pointer moves

Answer: d

19. What is the effect of capacitance on wattmeter reading?  
a) opposite to that of resistance  
b) aiding the capacitance  
c) aiding the inductance  
d) opposite to that of inductance

Answer: d

20. Which of the following compares the output in a successive approximation type DVM?  
a) comparator  
b) diode  
c) op amp  
d) rectifier

Answer: a  
21. Which of the following is the main device used in the linear ramp technique?  
a) non-linear ramp  
b) linear ramp  
c) asymptotic ramp  
d) exponential ramp

Answer: b

22. Which of the following determines the rate of measurement cycles?  
a) multivibrator  
b) oscillator  
c) oscilloscope  
d) amplifier

Answer: c

23. Which of the following determines light intensity in a CRT?  
a) current  
b) fluorescent screen  
c) voltage  
d) momentum of electrons

Answer: d

24. Which of the following technique of a Dual Trace Oscilloscope maintains the phase between the signals?  
a) Mixed mode  
b) Alternate mode  
c) Analog mode  
d) Chop mode

Answer: b

25. Which of the following oscilloscope is used in a digital storage oscilloscope?  
a) dual trace  
b) conventional  
c) multi trace  
d) modern

Answer: b

**RENEWABLE ENERGY SOURCES**

1. Which of the following energy has the greatest potential among all the sources of renewable energy?  
a) Solar energy  
b) Wind Energy  
c) Thermal energy  
d) Hydro-electrical energy

Answer: a

2. What is the rate of solar energy reaching the earth surface?  
a) 1016W  
b) 865W  
c) 2854W  
d) 1912W

Answer: a

3. What is total amount of solar energy received by earth and atmosphere?  
a) 3.8 X 1024 J/year  
b) 9.2 X 1024 J/year  
c) 5.4 X 1024 J/year  
d) 2.1 X 1024 J/year

Answer: a

4. Which is most common source of energy from which electricity is produced?  
a) Hydroelectricity  
b) Wind energy  
c) Coal  
d) Solar energy

Answer: c.

5. Oil is estimated to last for \_\_\_\_\_\_\_\_ more.  
a) 100 years  
b) 500 years  
c) A decade  
d) 800 years  
View Answer

Answer: a

6. Calculate the air density, when 10m/s wind is at 1std atmospheric pressure and 15oC?  
a) 1.226 kg/m3  
b) 1.033 kg/m3  
c) 2.108 kg/m3  
d) 0.922 kg/m3

Answer: a

7. Calculate the air density when 18m/s wind is at 1std atmospheric pressure and 34oC?  
a) 1.149 kg/m3  
b) 1.9 kg/m3  
c) 2.88 kg/m3  
d) 5.89 kg/m3

Answer: a

8. What is the total power produced if the turbine diameter is 120m?  
a) 0.277 KW  
b) 1.224 KW  
c) 4.28 KW  
d) 0.89 KW

Answer: a

9. What is the total power produced if the turbine diameter is 90m?  
a) 0.155KW  
b) 0.982 KW  
c) 1.452 KW  
d) 3.12 KW

Answer: a

10. What is the diameter of wind turbine blades?  
a) 320 feet  
b) 220 feet  
c) 80 feet  
d) 500 feet

Answer: b

What is the movement of water generated by or associated with the change in mean sea level called?  
a) Tidal Variation  
b) Tidal volume  
c) Tidal Range  
d) Tidal Current

Answer: d.

12. What is the movement of water away from the shore called?  
a) Flood tide  
b) Spring tide  
c) Ebb tide  
d) Neap tide

Answer: c

13. What is the term used for transport of non-cohesive sediments?  
a) Dirt drop  
b) Flick  
c) Littoral drift  
d) Droplet drifts

Answer: c

14. Name the process of excavation activity usually carried underwater of purpose of gathering up bottom sediments.  
a) Police drag  
b) Dredging  
c) Auger suction  
d) Anti-eutrophication

Answer: b

15. One Terra-watt is equal \_\_\_\_\_\_\_\_\_\_\_\_\_\_  
a) 1 trillion-watts  
b) 100 trillion-watts  
c) 5 trillion-watts  
d) 10 trillion-watts

Answer: a

16. Which is an organic matter produced by plants in direct or indirect forms?  
a) Solar energy  
b) Biomass  
c) Wind energy  
d) Bio-fuel

Answer: b

17. What type of energy is biomass energy?  
a) Conventional energy  
b) Non renewable  
c) Commercial energy  
d) Sustainable energy

Answer: d

18. The use of biomass energy has the potential to greatly reduce greenhouse gas emissions.  
a) True  
b) False

Answer: a

19. \_\_\_\_\_\_\_\_\_\_ is made by combining alcohol with vegetable oil, animal fat or recycled cooking grease.  
a) Biodiesel  
b) Biomass  
c) Bioelectricity  
d) Syngas

Answer: a

20. Angle made by plane surface with horizontal is called \_\_\_\_\_\_\_\_  
a) Slope  
b) Altitude angle  
c) Zenith angle  
d) Hour Angle

Answer: a

21. The angle of deviation of the normal to the surface from the local meridian is called as \_\_\_\_\_\_\_\_\_  
a) Surface azimuth angle  
b) Solar azimuth angle  
c) Solar altitude  
d) Hour angle

Answer: a

22. The angle being measured from a plane and which is equal to angle between the beam of rays and normal to the plane is called \_\_\_\_\_\_\_\_\_\_  
a) Incident angle  
b) Azimuth angle  
c) Hour angle  
d) Declination  
View Answer

Answer: a

23. The vector sum of the components along the line normal of the titled surface in a direction normal to the tilted surface is called as \_\_\_\_\_\_\_\_\_\_  
a) Solar intensity  
b) Declination  
c) Incident angle  
d) Hour angle

Answer: a

24. The time from sunrise to sunset is termed as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
a) Slope  
b) Day length  
c) Local solar time  
d) Solar intensity

Answer: b

25. LST stands for \_\_\_\_\_\_\_\_\_\_  
a) Local standard time  
b) Local solar temperature  
c) Low surface temperature  
d) Land surface temperature

Answer: b