PREVIEW QUESTION BANK

Module Name : nou24-es05 Basic Principles of Energy Management and Energy Audit-ENG
Exam Date : 18-May-2024   Batch : 15:00-18:00

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
		Objective Question		
1	13222001	Which of the following criteria is a responsibility of Designated Consumer? 1. designate or appoint an accredited Energy Auditor 2. adhere to stipulated energy consumption norms and standards as notified 3. submit the status of energy consumption information every three years 4. conduct energy audit through a certified energy auditor periodically A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00
		Objective Question		
2	13222002	Which of the following statements is true? i) reactive current is necessary to build up the flux for the magnetic field of inductive devices ii) some portion of the reactive current is converted into work iii) the cosine of the angle between kVA and kVAr vector is called the power factor iv) the cosine of angle between kW and kVA vector is called power factor 1. i & iv 2. ii & iii 3. i & iii 4. iii & iv A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00
		Objective Question		
3	13222003		2.0	0.00

Which of the following statements regarding evacuated tube collectors (ETC) are true?

i) ETC is used for high temperatures upto 150º C

ii) because of use of vacuum between two concentric glass tube, higher amount of heat is retained in ETC

iii) heat loss due to conduction back to atmosphere from ETC is high

iv) performance of evacuated tube is highly dependent upon the ambient temperature

1. i & iii
2. ii & iii
3. i & iv
4. i & ii

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

4	13222004		2.0	0.00

The internal rate of return is the discount rate for which the NPV is

1. positive
2. zero
3. negative
4. less than 1

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

5	13222005		2.0	0.00

The retrofitting of a variable speed drive in a plant costs Rs, 2 lakh. The annual savings is Rs 0.5 lakh. The maintenance cost is Rs. 5,000/year. The return on investment is

1. 25%
2. 22.5%
3. 24%
4. 27.5%

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 6 | 13222006 | Which of the following statements is correct regarding 'float' for an activity? | 2.0 | 0.00 |

1. Time between its earliest start time and earliest finish time
2. Time between its latest start time and latest finish time
3. Time between latest start time and earliest finish time
4. Time between earliest finish time and latest finish time

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 7 | 13222007 | Which of the following parameters is not considered for external Bench Marking? | 2.0 | 0.00 |

1. scale of operation
2. energy pricing
3. raw materials and product quality
4. vintage of technology

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 8 | 13222008 | To maximize the combustion efficiency, which of the following in the flue gas needs to be done? | 2.0 | 0.00 |

1. maximize O_2
2. maximize CO_3
3. minimize CO_2
4. maximize CO

A1 : 1

A2 : 2

A3 : 3

A4 : 4		

Objective Question			
9	13222009		2.0 0.00

Which of the following is false?

1. electricity is high-grade energy
2. high grade forms of energy are highly ordered and compact
3. low grade energy is better used for applications like melting of metals rather than heating water for bath
4. the molecules of low grade energy are more randomly distributed than the molecules of carbon in coal

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question			
10	13222010		2.0 0.00

Which one is not an energy consumption benchmark parameter?

1. kcal/kWh of electricity generated
2. kg/ °C
3. kW/ton of refrigeration
4. kWh/kg of yarn

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question			
11	13222011		2.0 0.00

The contractor provides the financing and is paid an agreed fraction of actual savings achieved. This payment is used to pay down the debt costs of equipment and/or services. This is known as

1. traditional contract
2. extended technical guarantee/service
3. performance Contract
4. shared savings performance contract

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

12	13222012		2.0	0.00

2000 kJ of heat is supplied to 500 kg of ice at 0°C. If the latent heat of fusion of ice is 335 kJ/kg then the amount of ice in kg melted will be

1. 1.49
2. 83.75
3. 5.97
4. 6.24

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

13	13222013		2.0	0.00

A process electric heater is taking an hour to reach the desired temperature while operating at 440 V. It will take _____ hours to reach the same temperature, if the supply voltage is reduced to 220 V.

1. 2
2. 3
3. 4
4. 5

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

14	13222014		2.0	0.00

_____ is a statistical technique which determines and quantifies the relationship between variables and enables standard equations to be established for energy consumption.

1. linear regression analysis
2. time-dependent energy analysis
3. moving annual total
4. CUSUM

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

15	13222015		2.0 0.00

Which of the following does not apply to liquid fuels?

1. the viscosity of a liquid fuel is a measure of its internal resistance to flow.
2. the viscosity of all liquid fuels decreases with an increase in their temperature
3. higher the viscosity of liquid fuels, higher will be its heating value
4. viscous fuels need heat tracing

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

16	13222016		2.0 0.00

Which of the following equations is used to calculate the future value of the cash flow

1. $NPV / (1+i)^n$
2. $NPV / (1-i)^n$
3. $NPV * (1+i)^n$
4. $NPV * (1-i)^n$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

17	13222017		2.0 0.00

The amount of CO_2 produced in complete combustion of 18 kg of carbon is _____.

1. 792
2. 44
3. 66
4. 50

A1 : 1

A2 : 2

A3 : 3

A4 : 4

	Objective Question		
18	13222018	2.0	0.00

Fuel cell using methanol as anode and oxygen as cathode is

1. proton exchange membrane fuel cell
2. phosphoric acid fuel cell
3. alkaline fuel cell
4. direct methanol fuel cell

A1 : 1

A2 : 2

A3 : 3

A4 : 4

	Objective Question		
19	13222019	2.0	0.00

For expressing the primary energy content of a fuel in tonnes of oil equivalent (toe) which of the following conversion factors is appropriate

1. toe=1x106 kcal
2. toe=116300 kwh
3. toe=41.870 GJ
4. toe = 41265 GJ

A1 : 1

A2 : 2

A3 : 3

A4 : 4

	Objective Question		
20	13222020	2.0	0.00

ESCerts cannot be

1. bought
2. sold
3. banked for next cycle
4. traded directly between DCs

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question					
21	13222021	An activity has an optimistic time of 15 days, a most likely time of 18 days and a pessimistic time of 27 days. What is the expected time		2.0	0.00

1. 60 days
2. 20 days
3. 19 days
4. 18 days

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question					
22	13222022	Assume CO_2 equivalent emissions by the use of a 60 W incandescent lamp are of the order of 60 g/hr. If it is replaced by a 5 W LED lamp then the equivalent CO_2 emissions will be		2.0	0.00

1. nil
2. 5 g/hr
3. 12 g/hr
4. 300 g/hr

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question					
23	13222023	The power generation potential in mini hydro power plant for a water flow of 3 m^3/sec with a head of 14 meters and with a system efficiency of 55% is		2.0	0.00

1. 226.6 kW
2. 76.4 kW
3. 23.1 kW
4. 30.2 kW

A1 : 1

A2 : 2

A3 : 3

		A4 : 4	

Objective Question				
24	13222024	The force field analysis in energy action planning considers 1. No forces 2. Negative forces only 3. Both negative and positive forces 4. Positive forces only A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00

Objective Question				
25	13222025	Which of the following designated consumer has the lowest energy intensity? 1. Chlor alkali 2. Iron and Steel 3. Cement 4. Aluminium A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00

Objective Question				
26	13222026	Energy sources which are inexhaustible are known as 1. commercial energy 2. primary energy 3. renewable energy 4. secondary energy A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00

Objective Question

| 27 | 13222027 | | 2.0 | 0.00 |

The process of capturing CO_2 from point sources and storing them is called

1. carbon sequestration
2. carbon sink
3. carbon capture
4. carbon adsorption

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 28 | 13222028 | | 2.0 | 0.00 |

The term missing in the following equation $(KVA)^2 = (KVA\ COS\ \phi)^2 + (?)^2$ is ?

1. cos φ
2. sin φ
3. kVA sin φ
4. kVArh

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 29 | 13222029 | | 2.0 | 0.00 |

Which of the following GHGs has the longest atmospheric life time?

1. CO_2
2. CFC
3. Sulfur Hexafluoride (SF6)
4. perfluorocarbon (PFC)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question					
30	13222030	An electric heater consumes 1000 Joules of energy in 5 seconds. Its power rating is: 1. 200 W 2. 1000 W 3. 5000W 4. 2000 W A1 : 1 A2 : 2 A3 : 3 A4 : 4		2.0	0.00

Objective Question					
31	13222031	The Energy Conservation Act,2001 requires that all designated consumers should get energy audits conducted periodically by 1. certified energy manager 2. certified energy auditor 3. accredited energy auditor 4. state Designated Agencies A1 : 1 A2 : 2 A3 : 3 A4 : 4		2.0	0.00

Objective Question					
32	13222032	A building intended to be used for commercial purpose will be required to follow Energy conservation building code under Energy Conservation Act, 2001 provided its 1. connected load is 120 kW and above 2. contract demand is 100 kVA and above 3. connected load is100 kW and above or contract demand is 120 kVA and above 4. connected load is 500 kW and contract demand is 600 kVA A1 : 1 A2 : 2 A3 : 3 A4 : 4		2.0	0.00

Objective Question				
33	13222033	The electrical power unit Giga Watt (GW) may be written as 1. 1,000,000 MW 2. 1,000 MW 3. 1,000 kW 4. 1,000,000 W A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00

Objective Question				
34	13222034	Stroboscope is an instrument for measuring 1. steam flow 2. composition of flue gas 3. speed 4. pressure A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00

Objective Question				
35	13222035	An induction motor with 11 kW rating and a rated power factor of 0.9 in its name plate means 1. it will draw 12.22 kW at full load 2. it will draw 11 kW at full load 3. it will draw 9.9 kW at full load 4. it will deliver 11 kW at full load A1 : 1 A2 : 2 A3 : 3 A4 : 4	2.0	0.00

Objective Question				
36	13222036		2.0	0.00

Which one of the following is not a Designated Consumer category under PAT ?

1. Paper and Pulp Industries
2. Cement Plants
3. Chlor Alkali Plants
4. Sugar Plants

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question		
37	13222037	2.0 0.00

Which of the following has the lowest energy content in terms of MJ/kg?

1. LPG
2. Diesel
3. Furnace Oil
4. Coal

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question		
38	13222038	2.0 0.00

The cost of an economizer is Rs. 2 lakhs. The simple payback period (SPP) in years considering annual savings of Rs 1,10,000 and annual maintenance cost of Rs 10,000 is _____.

1. 1.8
2. 2.5
3. 2
4. 0.5

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question		
39	13222039	2.0 0.00

Energy consumption per GDP is termed as _____.

1. Energy factor
2. Energy intensity
3. Energy efficiency index
4. All of the above options

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question		

40	13222040		2.0	0.00

Which of the following type of collector is used for low temperature systems?

1. Flat plate collector
2. Line focusing parabolic collector
3. Parabolic trough collector
4. None of any given option

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question		

41	13222041		2.0	0.00

What is shale Oil?

1. Combustible brownish-black sedimentary rock
2. Heavy black viscous oil combination of clay, sand, water and bitumen
3. A form of naturally compressed peat
4. Sedimentary rock containing solid bituminous materials

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question		

42	13222042		2.0	0.00

The sector consuming major share of energy in India is

1. Domestic Sector
2. Transport Sector
3. Industrial Sector
4. Agriculture Sector

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

43	13222043		2.0	0.00

The kW or HP of a motor given on the name plate indicates

1. The input power to the motor at any load
2. The shaft output of the motor at full load
3. The input power to the motor at the best efficiency point
4. The shaft output of the motor at part load

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

44	13222044		2.0	0.00

In India power sectors consumes about_____% of the coal produced

1. 75%
2. 50%
3. 25%
4. 90%

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

45	13222045		2.0	0.00

If we heat the air without changing absolute humidity, % relative humidity will

1. increase
2. decrease
3. no Change
4. can't say

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 46 | 13222046 | | 2.0 | 0.00 |

A sling psychrometer is used to measure:

1. only dry bulb temperature
2. only wet bulb temperature
3. dry and wet bulb temperature
4. relative humidity

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 47 | 13222047 | | 2.0 | 0.00 |

Frequency of energy audit for designated consumers is_____

1. Once in five years
2. Once in two years
3. Once in three years
4. Once in a year

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 48 | 13222048 | | 2.0 | 0.00 |

From Voltage, Amps and Power factor given in the name plate of a motor, one can calculate _____.

1. Shaft and rated input power
2. Shaft power
3. Rated input power
4. Rated output power

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 49 | 13222049 | | 2.0 | 0.00 |

Which equipment does not come under mandatory labelling program?

1. Distribution transformer
2. Frost free refrigerator
3. Induction motors
4. Room Air conditioners

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

| 50 | 13222050 | | 2.0 | 0.00 |

The quantity of heat required to raise the temperature of a given substance by 1^0C is known as:

1. sensible heat
2. specific heat
3. heat capacity
4. latent heat

A1 : 1

A2 : 2

A3 : 3

A4 : 4