

Part – II: Short type Questions and answers

1.	<p>The successful energy management programme is possible with four vital elements. Name them?</p> <p>The four vital elements for a successful energy management are: Technical Ability, Monitoring System, Strategy Plan and Top management support</p>
2.	<p>How force field analysis can be useful for energy action planning. ?</p> <p>Force field analysis involves classifying the goal to be achieved, assessing the barriers that are to be overcome and what influences exist in organisation that work towards achievement of goal.</p>
3.	<p>With force field analysis as a tool, give any one positive and negative force acting on achievement of goal.</p> <p>One of the positive forces could be high price of energy. One of the negative forces could be insufficient financial resources to fund measures.</p>
4.	<p>Explain how an energy policy helps for industry?</p> <p>An energy policy acts both as</p> <ul style="list-style-type: none"> • A commitment to energy conservation and environmental protection • A working document to guide energy management practices
5.	<p>List down at least three responsibilities of an Energy Manager?</p> <p>The responsibilities of an Energy Manager are:</p> <ul style="list-style-type: none"> • Prepare an annual activity plan and present to management concerning financially attractive investments to reduce energy costs • Establish an energy conservation cell within the firm with management's consent about the mandate and task of the cell. • Initiate activities to improve monitoring and process control to reduce energy costs.
6.	<p>Name any four requirements for energy action planning?</p> <p>The requirements for energy action planning include Personal involvement, Competition, Budgets, Energy Coordination. (The other issues could be capital and human resources, cost centre accountability, Training, Metering, Publicity etc.)</p>
7.	<p>Name three different ways to publicize the energy conservation program?</p> <p>The different ways to publicize the energy conservation program are:</p> <ul style="list-style-type: none"> • Signs and posters displayed in the factory or office • Progress charts showing targets and achievements • Energy conservation stickers on light switches and thermostats <p>(others include-Information on bulletin boards, Articles in in-house magazines)</p>
8.	<p>Give at least two steps involved in the tool 'Force field analysis'</p> <p>Stating organisational goal and Identifying barriers.</p>

9.	<p>Give any two technical barriers to the use of energy management information?</p> <p>The technical barriers to the use of energy management information are:</p> <ul style="list-style-type: none"> • monitoring and targeting is not integrated with financial accounting • output is not reported to either users or senior managers in a form they can readily understand and use.
10.	<p>List any two key objectives in promoting energy management?</p> <p>Promoting energy management involves:</p> <ul style="list-style-type: none"> • Raising awareness of the importance of energy efficiency to cost control and environmental conservation • Publishing achievements in energy management inside and outside the organization
11.	<p>Give two features of formal written energy Policy?</p> <p>A formal written energy policy acts both as</p> <ul style="list-style-type: none"> • a public expression of organisation's commitment to energy conservation and environmental protection • a working document to guide energy management practices and provide continuity.
12.	<p>What are the vital elements for a successful energy management programme?</p> <p>The four vital elements for a successful energy management program are:</p> <ul style="list-style-type: none"> ♦ Top management support ♦ Well charted strategy plan ♦ An effective monitoring system, and ♦ Adequate technical ability for analysing and implementing energy saving options
13.	<p>Briefly explain your views on “the roles of top management” taking the industry/sector you are working in four lines.</p> <p>The decision of company management to control energy costs is a vital first step.</p> <p>Senior management should participate in all energy committee meetings.</p> <p>The top management is to publish a formal statement of its energy policy</p> <p>Commitment is to appoint the responsible organisation for implementing the energy management programme.</p>
14.	<p>Describe briefly in three or four lines the actions which you take to bring awareness on energy management program?</p> <p>One of the most successful means of motivating employees is through “awareness”.</p> <p>Inform them of</p> <p>(1) the amount of energy they are using (2) the costs involved (3) the critical part that energy plays in the continued viability of their job (4) the many ways they can save energy in their operation (5) the relationship between production rate and energy consumption.</p>
15.	<p>From energy conservation act-2001, list four important duties of an Energy manager.</p> <ul style="list-style-type: none"> • Report to BEE and State level Designated Agency once a year with regard to the energy consumed and action taken on the recommendation of the accredited energy auditor, as per BEE Format. • Establish an improved data recording, collection and analysis system to keep track of

	<p>energy consumption.</p> <ul style="list-style-type: none"> • Provide support to Accredited Energy Audit Firm retained by the company for the conduct of energy audit • Provide information to BEE as demanded in the Act, and with respect to the tasks given by a mandate, and the job description
16.	<p>Briefly explain the importance of “energy information systems” in energy action planning.</p> <p>Information is data that has been processed so that it is meaningful to users and helps them make decisions. When designing information systems, the objective is to reduce the amount of data that decision makers receive while increasing the quality of relevant information at their disposal. The questions to ask when one reviews the existing information system are:</p> <ul style="list-style-type: none"> ✓ Who has an interest in the information it produces? ✓ What are they interested in knowing? ✓ Are they getting the right information in the form that is most useful? <p>Information needs to be ‘accurate, timely and relevant’. But of these three requirements, the most important is relevance; information has to be appropriate to the decision to be made.</p>
17.	<p>In your own words, explain the role of training in energy management?</p> <p>Training includes the complex technical issues that relate to energy efficient technologies. It also includes the training of general staff to create:</p> <ul style="list-style-type: none"> • Awareness of energy efficiency as a corporate priority • Understanding of the issue • Commitment to achievement of goals • Understanding the need for a team & its role on energy conservation
18.	<p>Briefly indicate the steps involved in using “force field analysis” for energy action planning?</p> <p>The following are the steps involved in force field analysis.</p> <ol style="list-style-type: none"> Define organisation goal Identifying barriers Identify influence factor Identify strength and weakness
19.	<p>Explain with your experience the technical barriers to the use of energy information system?</p> <p>The main barriers to the use of energy management information are:</p> <ul style="list-style-type: none"> ✓ getting accurate data on time is a key problem ✓ Inter-division cooperation for implementation ✓ monitoring and targeting is not integrated with financial accounting ✓ users have no information on how to make savings
20.	<p>From Energy Conservation Act-2001, list four important duties of an Energy manager.</p> <ul style="list-style-type: none"> • Prepare an annual activity plan and project budgets to reduce energy costs • Establish an energy conservation cell within the firm with management’s consent about the mandate and task of the cell.

<ul style="list-style-type: none"> • Initiate activities to improve monitoring and process • Analyze equipment performance with respect to energy efficiency
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Part – III: Long type Questions and answers

1.	<p>Briefly explain about “Force field Analysis” as a tool for achieving goals of Energy action planning. Give two examples each of positive and negative forces acting towards achieving the goal in an industry.</p> <p>Before creating the action plan, it can be a useful exercise to clarify the goal to be achieved, and to assess what barriers must be overcome and what influences exist in the organization that works towards the achievement of the goal. These barriers and influences can be thought of as negative and positive forces, respectively.</p> <p>The simple tool, called “force field analysis” can be used to gain additional insight into the change process to be pursued. The steps involved in using it are:</p> <p>State the organizational goal and indicate the direction (say, left to right) that signifies moving towards that goal:</p> <p>Identify barriers that tend to work against the achievement of the goal: these may be internal to the organization</p> <p>Identify positive influences or forces that tend to work towards achievement of the goal;</p> <p>Estimate the relative strength of the negative and positive forces</p> <p>Prioritize those forces that can be strengthened or weakened through an action plan with the greatest effect on achieving the goal.</p> <p>Positive forces: High price of energy, Energy efficient technology available</p> <p>Negative forces: Absence of corporate energy policy, Lack of awareness throughout company</p>
2.	<p>Explain the need for an Energy policy?</p> <p>Many organisations have not felt it necessary to adopt a formal energy policy. However, a formal written energy policy acts both as:</p> <ul style="list-style-type: none"> • A public expression of your organization’s commitment to energy conservation and environmental protection • A working document to guide your energy management practices and provides continuity. <p>It is in the company's best interest that support for energy management is expressed in a formal written declaration of commitment accompanied by a set of stated objectives, an action plan for achieving them, and a clear specification of responsibilities</p> <p>Format of an Energy Policy</p> <p>Part 1</p> <ul style="list-style-type: none"> • Declaration of top management's commitment to, and senior and middle management's involvement in energy management. • Statement of policy. • Statement of objectives, separated into short and long-term goals. <p>Part 2</p> <ul style="list-style-type: none"> • An action plan, specifying a timetabled programme of work.

	<ul style="list-style-type: none"> • Cost resource requirements, including staffing complement, investment and training needs, necessary to achieve the programme. • Assigned responsibility and accountability for actions outlined, specifying individuals by name and post. • Description of any energy management committee's remit, structure, membership and reporting mechanisms. • Named committee representative for each department and specification of internal and external lines of communication <p>Statement of review procedure, defining milestones and mechanisms for assessing overall progress and value for money, as well as appraising the performance of individual members of staff.</p>
<p>3.</p>	<p>Explain in brief the “position of energy manager” and “Energy committee” in an organisation? In your own words, explain what do you expect as support from top management?</p> <p>The energy management function, whether vested in one “energy manager or coordinator” or distributed among a number of middle managers, usually resides somewhere in the organization between senior management and those who control the end-use of energy. Exactly how and where that function is placed is a decision that needs to be made in view of the existing organisational structure.</p> <p>Because energy concerns different departments within a firm, an effective energy management programme must involve a number of people. In many companies, a committee is formed to include representatives of important departments.</p> <p>It can encourage communications and the sharing of ideas amongst various departments throughout the company. It can serve to obtain agreements on energy conservation projects, which affect more than one department. It can provide a stronger voice to the top management than a single manager normally could. The composition of the energy committee will vary from one company to another, depending on the existing management structure, the type and quantity of energy used and other company-specific factors.</p> <p>One of the roles of the top management is to publish a formal statement of its energy policy, which can be used to define company activities in energy matters for its employees.</p> <p>Further, top managements must,</p> <ul style="list-style-type: none"> • Involve in all energy committee meetings. • Empower those given with responsibility for implementing the energy management programme. • Ensure resources of manpower, budgets etc. • Encourage discussion on energy in Staff/employee meetings
<p>4.</p>	<p>Describe about 5 items each of responsibilities and duties of Energy Manager as assigned under The Energy Conservation Act, 2001?</p> <p>The responsibilities & duties assigned under The Energy Conservation Act, 2001 for Energy Manager are:</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Prepare an annual activity plan and present to management concerning financially attractive investments to reduce energy costs • Establish an energy conservation cell within the firm with management’s consent about the mandate and task of the cell.

	<ul style="list-style-type: none"> • Initiate activities to improve monitoring and process control to reduce energy costs. Analyze equipment performance with respect to energy efficiency • Ensure proper functioning and calibration of instrumentation required to assess level of energy consumption directly or indirectly. • Prepare information material and conduct internal workshops about the topic for other staff. • Improve disaggregating of energy consumption data down to shop level or profit center of a firm. • Establish a methodology how to accurately calculate the specific energy consumption of various products/services or activity of the firm. • Develop and manage training programme for energy efficiency at operating levels. • Co-ordinate nomination of management personnel to external programs. • Create knowledge bank on sectoral, national and inter-national development on energy efficiency technology and management system and information denomination • Develop integrated system of energy efficiency and environmental up gradation. • Co-ordinate implementation of energy audit/efficiency improvement projects through external agencies. • Establish and/or participate in information exchange with other energy managers of the same sector through association <p>Duties</p> <ul style="list-style-type: none"> • Report to BEE and State level Designated Agency once a year the information with regard to the energy consumed and action taken on the recommendation of the accredited energy auditor, as per BEE Format. • Establish an improved data recording, collection and analysis system to keep track of energy consumption. • Provide support to Accredited Energy Audit Firm retained by the company for the conduct of energy audit Provide information to BEE as demanded in the Act, and with respect to the tasks given by a mandate, and the job description.
5.	<p>List all the requirements of energy action planning?</p> <p>The areas requiring attention for energy action planning.</p> <p>Personal involvement</p> <p>Individuals must be educated as on need for energy conservation, and then personally involved in some way in the conservation programme.</p> <p>Competition</p> <p>Competition can be employed to good effect as a motivating factor in energy conservation. With energy monitoring in place, similar production lines can compete with each other on energy efficiency with rewards of financial bonuses or sometimes-just simple honour. Equally the use of energy management competitions can lead to competition between different companies - for example for 'Energy Manager of the Year' again with some prize involved together with the honour of winning.</p> <p>Budgets</p> <p>Budgets for energy use within each activity centre in an organisation should be treated separately like labour or raw material budgets and accounted for in similar fashion.</p> <p>Assessing managerial performance</p> <p>As part of overall policy, energy management can be included in the performance</p>

	<p>assessment of a manager.</p> <p><i>Energy coordination</i></p> <p>In certain energy intensive industries, it might be corporate policy to assign an engineer to each manufacturing facility with primary responsibility for energy management and conservation.</p> <p><i>Capital and human resources</i></p> <p>Having made each division of an organisation responsible for its energy use, the senior management should ensure that the requisite personnel and capital funds are made available to undertake the energy programme.</p> <p><i>Cost centre accountability</i></p> <p><i>Each discrete activity would be accountable for its energy use separately and the individual manager answerable for the same. This entails detailed sub-metering of energy use to each such</i></p> <p><i>Energy representative</i></p> <p>Each department would assign responsibility to an individual (preferably an engineer) to act as delegate to the plant energy management committee activity.</p> <p><i>Training</i></p> <p>Sufficient training for the energy representative and engineers involved in energy conservation activities should be carried out</p> <p><i>Metering</i></p> <p>Metering is one of the management tools for energy conservation. At the individual's level, there is a psychological impact involved with metering - Just having meters installed and monitored is in itself an inducement to reduce unnecessary energy consumption.</p> <p><i>Publicity</i></p> <p>One of the best ways of promoting an energy conservation programme is a publicity programme aimed at the worker on the job. Among the ways of publicizing such a programme are:</p> <ul style="list-style-type: none"> • Signs and posters displayed in the factory or office • Progress charts showing targets and achievements • Energy conservation stickers on light switches and thermostats • Information on bulletin boards • Articles in in-house magazines <p>In conclusion, involving people in energy conservation means changing habits. Senior managers must be willing participant in all programmes and lead by example. All employees must learn to practice energy conservation in all areas of their daily routines.</p>
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