

# National Testing Agency

<b>Question Paper Name :</b>	Energy Resources and Conversion Processes 29th August 2021 Shift 1
<b>Subject Name :</b>	Energy Resources and conversion processes
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## Energy Resources and Conversion Processes

<b>Group Number :</b>	1
<b>Group Id :</b>	603489241
<b>Group Maximum Duration :</b>	0
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<b>Show Attended Group? :</b>	No
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<b>Group Marks :</b>	100
<b>Is this Group for Examiner? :</b>	No

## Energy Resources and Conversion Processes-1

<b>Section Id :</b>	603489351
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory

<b>Number of Questions :</b>	50
<b>Number of Questions to be attempted :</b>	50
<b>Section Marks :</b>	100
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	603489667
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 1 Question Id : 60348917132 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The energy coming from the sun for the last billion years is the result of

1. heat reactions
2. nuclear reactions
3. molecular reactions
4. potential reaction

**Options :**

60348964477. 1

60348964478. 2

60348964479. 3

60348964480. 4

**Question Number : 2 Question Id : 60348917133 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The energy obtained from electric cells and batteries as a result of a chemical reaction is called:

1. chemical energy
2. nuclear energy
3. heat energy
4. electrical energy

**Options :**

60348964481. 1

60348964482. 2

60348964483. 3

60348964484. 4

**Question Number : 3 Question Id : 60348917134 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of these is not a major direct energy conversion device?

1. magnetohydrodynamic
2. thermionic
3. geothermal
4. fuel cell

**Options :**

60348964485. 1

60348964486. 2

60348964487. 3

60348964488. 4

**Question Number : 4 Question Id : 60348917135 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of these is not a limitation of conventional energy sources?

1. Resources are limited some are seasonal
2. Most of them emit harmful gases contributing to global warming
3. Situated in remote areas and higher T and D losses
4. Requires small areas

**Options :**

60348964489. 1

60348964490. 2

60348964491. 3

60348964492. 4

**Question Number : 5 Question Id : 60348917136 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of these is not a merit of tidal power generation?

1. free from problems of ecology balance
2. everlasting
3. no extra submerging of land is required
4. uneven operation

**Options :**

60348964493. 1

60348964494. 2

60348964495. 3

60348964496. 4

**Question Number : 6 Question Id : 60348917137 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of these is not a component of natural gas?

1. methanol
2. methane
3. ethane
4. propane

**Options :**

60348964497. 1

60348964498. 2

60348964499. 3

60348964500. 4

**Question Number : 7 Question Id : 60348917138 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Most of the Renewable energy sources are \_\_\_\_\_

1. location-specific
2. universally available
3. highly efficient
4. polluting

**Options :**

60348964501. 1

60348964502. 2

60348964503. 3

60348964504. 4

**Question Number : 8 Question Id : 60348917139 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following has caused global warming?

1. Burning of biomass
2. Burning of fossil fuels
3. Releasing CFCs into the atmosphere
4. Melting metals

**Options :**

60348964505. 1

60348964506. 2

60348964507. 3

60348964508. 4

**Question Number : 9 Question Id : 60348917140 Question Type : MCQ Option Shuffling : No Is**

**Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

How does acid rain affect the environment?

1. By precipitating clean and fresh rainwater only in freshwater bodies
2. By precipitating clean and fresh rainwater in all water bodies at once
3. By consuming all polluted water and precipitate clean water from water cycle
4. By precipitating acidic rainwater

**Options :**

60348964509. 1

60348964510. 2

60348964511. 3

60348964512. 4

**Question Number : 10 Question Id : 60348917141 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following energy sources is affected when energy crops compete with food production?

1. Solar
2. Wind
3. Hydro
4. Biomass

**Options :**

60348964513. 1

60348964514. 2

60348964515. 3

60348964516. 4

**Question Number : 11 Question Id : 60348917142 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is main potential water pollutant from a geothermal reservoir?

1. Carbon
2. Silicon
3. Sulphur
4. Nitrogen

**Options :**

60348964517. 1

60348964518. 2

60348964519. 3

60348964520. 4

**Question Number : 12 Question Id : 60348917143 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the unit of total primary energy supply?

1. Watts
2. Joules
3. Newtons
4. Watt-hours

**Options :**

60348964521. 1

60348964522. 2

60348964523. 3

60348964524. 4

**Question Number : 13 Question Id : 60348917144 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following sources are amongst the fastest growing energy sources?

1. Solar and wastewater
2. Wind and hydro
3. Hydro and solar
4. Wind and wastewater

**Options :**

60348964525. 1

60348964526. 2

60348964527. 3

60348964528. 4

**Question Number : 14 Question Id : 60348917145 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is an energy policy?

1. A method to address issues of energy development
2. A free and liberal methodology towards energy development
3. A manner in which governments decide to stop energy development
4. A manner in which governments decide to address issues related to energy development

**Options :**

60348964529. 1

60348964530. 2

60348964531. 3

60348964532. 4

**Question Number : 15 Question Id : 60348917146 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**



Which of the following states is known for oil reserves?

1. Jharkhand
2. Odisha
3. Madhya Pradesh
4. Assam

**Options :**

60348964533. 1

60348964534. 2

60348964535. 3

60348964536. 4

**Question Number : 16 Question Id : 60348917147 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What are three relevant bands of solar radiation?

1. UV, infrared and far infrared
2. UV, visible and infrared
3. Ultrasonic, infrared and visible
4. UV, ultrasonic and near infrared

**Options :**

60348964537. 1

60348964538. 2

60348964539. 3

60348964540. 4

**Question Number : 17 Question Id : 60348917148 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is direct solar radiation?

1. Solar radiation directly received by earth's surface from sun
2. Cosmic radiation directly received by earth's surface
3. Solar radiation received by earth's surface after reflection
4. Cosmic radiation received by earth's surface after reflection

**Options :**

60348964541. 1

60348964542. 2

60348964543. 3

60348964544. 4

**Question Number : 18 Question Id : 60348917149 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

How does earth lose its excess solar radiation?

1. By storing the radiation in its core
2. By using the radiation to generate more magma
3. By radiative cooling
4. By conductive cooling

**Options :**

60348964545. 1

60348964546. 2

60348964547. 3

60348964548. 4

**Question Number : 19 Question Id : 60348917150 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the average extraterrestrial irradiance received by earth (solar constant)?

1. 1361 Watts/square meter
2. 1361 Watts
3. 1250 Watts/square meter
4. 1250 Joules

**Options :**

60348964549. 1

60348964550. 2

60348964551. 3

60348964552. 4

**Question Number : 20 Question Id : 60348917151 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Higher the cloud albedo \_\_\_\_\_

1. less is the amount of solar radiation reflected back to earth
2. more is the amount of solar radiation reflected back to earth
3. less is the amount of solar radiation received from sun
4. more is the amount of solar radiation received from sun

**Options :**

60348964553. 1

60348964554. 2

60348964555. 3

60348964556. 4

**Question Number : 21 Question Id : 60348917152 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Global and diffuse solar radiation can be measured by \_\_\_\_\_

1. thermal actinometer
2. heat pumps
3. thermoelectric pyranometers
4. oscilloscopes

**Options :**

60348964557. 1

60348964558. 2

60348964559. 3

60348964560. 4

**Question Number : 22 Question Id : 60348917153 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is solar time?

1. Calculation of passage of time based on sun's position in sky
2. Calculation of passage of time based on moon's position in sky
3. A unit that measures astronomical time
4. A reference unit for time

**Options :**

60348964561. 1

60348964562. 2

60348964563. 3

60348964564. 4

**Question Number : 23 Question Id : 60348917154 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What are the four main types of thermo-chemical processes?

1. Galvanization, photovoltaic effect, chemo-mechanical effect, pyrolysis
2. Pyrolysis, gasification, combustion, hydrothermal processing
3. Pyrolysis, gasification, combustion, doping
4. Photovoltaic effect, gasification, combustion, hydrothermal processing

**Options :**

60348964565. 1

60348964566. 2

60348964567. 3

60348964568. 4

**Question Number : 24 Question Id : 60348917155 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is anaerobic digestion?

1. Produces biogas by heating the biomass
2. Produces biogas using micro-organisms operating in anaerobic conditions
3. Produces biogas by subjecting the biomass to high pressures
4. Produces biogas using micro-organisms operating in aerobic conditions

**Options :**

60348964569. 1

60348964570. 2

60348964571. 3

60348964572. 4

**Question Number : 25 Question Id : 60348917156 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What are the two main units in a circulating fluidized bed?

1. Bubbling fluidized bed and dual fluidized bed
2. Bubbling fluidized bed and gasifier unit
3. Circulating unit and gasifier unit
4. Circulating unit and dual fluidized bed

**Options :**

60348964573. 1

60348964574. 2

60348964575. 3

60348964576. 4

**Question Number : 26 Question Id : 60348917157 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

How does air enter and exit in a cross-draft gasifier?

1. Air enters from one of the sides and exits from the top
2. Air enters from one side and exits from the other
3. Air enters from one of the sides and exits from the bottom
4. Air enters from the bottom and exits from the top

**Options :**

60348964577. 1

60348964578. 2

60348964579. 3

60348964580. 4

**Question Number : 27 Question Id : 60348917158 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

How does geothermal energy work?

1. Uses water from the earth
2. Uses potential energy
3. Uses heat from the core of earth
4. Uses heat from atmosphere

**Options :**

60348964581. 1

60348964582. 2

60348964583. 3

60348964584. 4

**Question Number : 28 Question Id : 60348917159 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the earth's core made up of?

1. Gamma rays
2. Nitrogen
3. Iron
4. Gold

**Options :**

60348964585. 1

60348964586. 2

60348964587. 3

60348964588. 4

**Question Number : 29 Question Id : 60348917160 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is continental drift?

1. Tectonic plates pushing against each other
2. Continents being pulled due to gravitational force
3. Continents being pulled due to nuclear force
4. Tectonic plates expanding

**Options :**

60348964589. 1

60348964590. 2

60348964591. 3

60348964592. 4

**Question Number : 30 Question Id : 60348917161 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The reservoir rock in Puga valley is made up of \_\_\_\_\_

1. Sulphite
2. Nitrogen
3. Carbon
4. granite

**Options :**

60348964593. 1

60348964594. 2

60348964595. 3

60348964596. 4

**Question Number : 31 Question Id : 60348917162 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**



Tidal barrage is similar to \_\_\_\_\_

1. wind plant
2. dam
3. wind turbines
4. coal plant

**Options :**

60348964597. 1

60348964598. 2

60348964599. 3

60348964600. 4

**Question Number : 32 Question Id : 60348917163 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What are the three ways to harness tidal energy?

1. Tidal streams, tidal barrages and wind
2. Tidal barrages, wind and sun
3. Tidal lagoons, river streams and geothermal reservoirs
4. Tidal lagoons, tidal streams and tidal barrages

**Options :**

60348964601. 1

60348964602. 2

60348964603. 3

60348964604. 4

**Question Number : 33 Question Id : 60348917164 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

How many high tides occur every day?

1. One
2. Two
3. Four
4. Three

**Options :**

60348964605. 1

60348964606. 2

60348964607. 3

60348964608. 4

**Question Number : 34 Question Id : 60348917165 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Why is ocean thermal energy conversion a renewable resource?

1. Because the temperature gradient lasts for a short period of time
2. Because the upwelling of cold water from the deep ocean is replaced by downwelling of surface waters
3. Because ocean water is available in plenty
4. Because of sun's heat

**Options :**

60348964609. 1

60348964610. 2

60348964611. 3

60348964612. 4

**Question Number : 35 Question Id : 60348917166 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In terms of green house gas emissions, how good or bad is hydrogen fuel?

1. Major contributor of greenhouse gas emissions
2. Zero-emission fuel
3. Lowest contributor of greenhouse gas emissions
4. Hydrogen cannot be used as fuel

**Options :**

60348964613. 1

60348964614. 2

60348964615. 3

60348964616. 4

**Question Number : 36 Question Id : 60348917167 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Why is hydrogen hazardous as fuel?

1. Because of high ignition and low combustion energy
2. Because of high ignition and high combustion energy
3. Because low ignition and low combustion energy
4. Because of low ignition and high combustion energy

**Options :**

60348964617. 1

60348964618. 2

60348964619. 3

60348964620. 4

**Question Number : 37 Question Id : 60348917168 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the main problem in using hydrogen as fuel for vehicles?

1. Capital intensive
2. Storage
3. Fuel cell technology is not well established
4. Cars will become heavy

**Options :**

60348964621. 1

60348964622. 2

60348964623. 3

60348964624. 4

**Question Number : 38 Question Id : 60348917169 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What are the main components of a fuel cell?

1. Anode, cathode, electrolyte
2. Anode, cathode, membrane and electrolyte (including fuel)
3. Anode, cathode
4. Anode, cathode, electrolyte and connecting wires

**Options :**

60348964625. 1

60348964626. 2

60348964627. 3

60348964628. 4

**Question Number : 39 Question Id : 60348917170 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the basic requirement of hydroelectric power station?

1. Reservoir
2. Turbine
3. Power house
4. Penstock

**Options :**

60348964629. 1

60348964630. 2

60348964631. 3

60348964632. 4

**Question Number : 40 Question Id : 60348917171 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is used to prevent the entry of debris into turbine?

1. Wiper
2. Fore bay
3. Trash rack
4. Filter

**Options :**

60348964633. 1

60348964634. 2

60348964635. 3

60348964636. 4

**Question Number : 41 Question Id : 60348917172 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What happens to wind speed when many turbines operate collectively?

1. Wind speed reduces
2. Wind speed increases
3. Wind speed does not change
4. Wind speed increases exponentially and then decreases linearly

**Options :**

60348964637. 1

60348964638. 2

60348964639. 3

60348964640. 4

**Question Number : 42 Question Id : 60348917173 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is cut-in wind speed?

1. Wind turbine stops generating output power
2. Wind turbine starts generating output power
3. Wind turbine stops functioning
4. Wind turbine starts functioning

**Options :**

60348964641. 1

60348964642. 2

60348964643. 3

60348964644. 4

**Question Number : 43 Question Id : 60348917174 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

In which type of fuel given below, risk of fire hazard is greatest?

1. Solid fuel
2. Gaseous fuel
3. Liquid fuel
4. Peat

**Options :**

60348964645. 1

60348964646. 2

60348964647. 3

60348964648. 4

**Question Number : 44 Question Id : 60348917175 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

The lowest temperature to which the fuel must be preheated so that it starts burning smoothly is called \_\_\_\_\_ temperature.

1. Ignition
2. Combustion
3. Boiling point of fuel
4. Preheating

**Options :**

60348964649. 1

60348964650. 2

60348964651. 3

60348964652. 4

**Question Number : 45 Question Id : 60348917176 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following fuel cannot be used in the internal combustion engine?

1. Gasoline
2. Diesel
3. fuel oil
4. anthracite coal

**Options :**

60348964653. 1

60348964654. 2

60348964655. 3

60348964656. 4

**Question Number : 46 Question Id : 60348917177 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Total energy of the universe is always \_\_\_\_\_

1. Increasing
2. Decreasing
3. Constant
4. Cannot say

**Options :**

60348964657. 1

60348964658. 2

60348964659. 3

60348964660. 4

**Question Number : 47 Question Id : 60348917178 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**



A stone has initial potential and kinetic energy as 10 J and 5 J respectively if the final potential energy of the stone is 15 J what is its final kinetic energy?

1. 0
2. 5 J
3. 10 J
4. 15 J

**Options :**

60348964661. 1
60348964662. 2
60348964663. 3
60348964664. 4

**Question Number : 48 Question Id : 60348917179 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

Which of the following nonrenewable energy is not classified under a fossil fuel?

1. Nuclear
2. Petroleum
3. Oil
4. Natural gas

**Options :**

60348964665. 1
60348964666. 2
60348964667. 3
60348964668. 4

**Question Number : 49 Question Id : 60348917180 Question Type : MCQ Option Shuffling : No**  
**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

What is the main reason for ozone depletion?

1. Releasing of oxygen
2. Releasing of chemicals
3. Releasing of CFCs
4. Releasing of nitrogen

**Options :**

60348964669. 1

60348964670. 2

60348964671. 3

60348964672. 4

**Question Number : 50 Question Id : 60348917181 Question Type : MCQ Option Shuffling : No**

**Is Question Mandatory : No**

**Correct Marks : 2 Wrong Marks : 0**

When did India sign the Montreal Protocol?

1. 1990
2. 1991
3. 1992
4. 1993

**Options :**

60348964673. 1

60348964674. 2

60348964675. 3

60348964676. 4