

National Testing Agency

Question Paper Name : PGQP45 15th Sep 2021 Shift 1
Subject Name : PGQP45
Creation Date : 2021-09-15 17:32:45
Duration : 120
Total Marks : 400
Display Marks: Yes

PGQP45

Group Number : 1
Group Id : 19088920
Group Maximum Duration : 0
Group Minimum Duration : 120
Show Attended Group? : No
Edit Attended Group? : No
Break time : 0
Group Marks : 400
Is this Group for Examiner? : No

PART A - General

Section Id : 19088959
Section Number : 1
Section type : Online
Mandatory or Optional : Mandatory

Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	19088995
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 1908892399 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 4 Wrong Marks : 1

Select the correct word that can best complete the given sentence:

A well-balanced diet can be a/an _____ for stress.

- | | |
|--------------|--------------|
| (1) spirit | (2) buffer |
| (3) antidote | (4) medicine |

Options :

1908899501. 1

1908899502. 2

1908899503. 3

1908899504. 4

Question Number : 2 Question Id : 1908892400 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

From the choices given below, select the pair which exhibits the same relationship as the one in capitalized pair of words:

HERBS : MEDICINE

- | | |
|-----------------------|--------------------|
| (1) books : knowledge | (2) sound : radio |
| (3) time : watch | (4) juice : orange |

Options :

- 1908899505. 1
- 1908899506. 2
- 1908899507. 3
- 1908899508. 4

Question Number : 3 Question Id : 1908892401 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the most suitable synonym:

ADEPT

- | | |
|-------------|---------------|
| (1) devious | (2) wily |
| (3) clumsy | (4) dexterous |

Options :

- 1908899509. 1
- 1908899510. 2
- 1908899511. 3
- 1908899512. 4

Question Number : 4 Question Id : 1908892402 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the part of the body with which the disease is associated:

Hepatitis

- | | |
|------------------|---------------|
| (1) gall bladder | (2) diaphragm |
| (3) stomach | (4) liver |

Options :

- 1908899513. 1
- 1908899514. 2
- 1908899515. 3

1908899516. 4

Question Number : 5 Question Id : 1908892403 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the expression below from the options given:

ex officio

- | | |
|------------------------|---------------------------------|
| (1) unofficial | (2) as a result of one's status |
| (3) a retired official | (4) make public |

Options :

1908899517. 1

1908899518. 2

1908899519. 3

1908899520. 4

Question Number : 6 Question Id : 1908892404 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the underlined word:

Confidence in government hospitals has eroded considerably in the past decade.

- | | |
|-------------------------|--------------------|
| (1) gradually destroyed | (2) been reimposed |
| (3) corroded | (4) withered |

Options :

1908899521. 1

1908899522. 2

1908899523. 3

1908899524. 4

Question Number : 7 Question Id : 1908892405 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the phrase below from the options given:

A person who helps others specially those who are poor or in trouble

- | | |
|-----------------|--------------------|
| (1) philhellene | (2) philadelphus |
| (3) philanderer | (4) philanthropist |

Options :

1908899525. 1

1908899526. 2

1908899527. 3

1908899528. 4

Question Number : 8 Question Id : 1908892406 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the most suitable antonym:

ERRATIC

- | | |
|-------------|------------|
| (1) loose | (2) faulty |
| (3) regular | (4) brave |

Options :

1908899529. 1

1908899530. 2

1908899531. 3

1908899532. 4

Question Number : 9 Question Id : 1908892407 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the idiom from the options given:

A bird's-eye view

- | | |
|---------------------|----------------------|
| (1) without care | (2) within the walls |
| (3) an overall view | (4) out of place |

Options :

1908899533. 1

1908899534. 2

1908899535. 3

1908899536. 4

Question Number : 10 Question Id : 1908892408 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the correct word from the answer:

Farmers know that changing winds _____ rain or drought.

- | | |
|-----------|-------------|
| (1) bring | (2) create |
| (3) form | (4) present |

Options :

1908899537. 1

1908899538. 2

1908899539. 3

1908899540. 4

Question Number : 11 Question Id : 1908892409 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The H.C.F. (Highest Common Factor) of 3556 and 3444 is :

- | | |
|--------|--------|
| (1) 23 | (2) 25 |
| (3) 26 | (4) 28 |

Options :

1908899541. 1

1908899542. 2

1908899543. 3

1908899544. 4

Question Number : 12 Question Id : 1908892410 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $a + b = 5$ and $3a + 2b = 20$, then $(3a + b)$ will be :

- | | |
|--------|--------|
| (1) 10 | (2) 15 |
| (3) 20 | (4) 25 |

Options :

1908899545. 1

1908899546. 2

1908899547. 3

1908899548. 4

Question Number : 13 Question Id : 1908892411 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the sum of a number and its square is 182, what is the number?

- | | |
|--------|-------------------|
| (1) 15 | (2) 26 |
| (3) 28 | (4) None of these |

Options :

1908899549. 1

1908899550. 2

1908899551. 3

1908899552. 4

Question Number : 14 Question Id : 1908892412 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$$88\% \text{ of } 370 + 24\% \text{ of } 210 - ? = 118$$

(1) 256

(2) 258

(3) 268

(4) 358

Options :

1908899553. 1

1908899554. 2

1908899555. 3

1908899556. 4

Question Number : 15 Question Id : 1908892413 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the correct alternative based on relationship:

Tractor : Trailer :: Horse : ?

(1) Stable

(2) Cart

(3) Saddle

(4) Engine

Options :

1908899557. 1

1908899558. 2

1908899559. 3

1908899560. 4

Question Number : 16 Question Id : 1908892414 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the word which is least like the other words in the group:

(1) Geometry

(2) Algebra

(3) Trigonometry

(4) Mathematics

Options :

1908899561. 1

1908899562. 2

1908899563. 3

1908899564. 4

Question Number : 17 Question Id : 1908892415 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the number which is different from others in the group.

(1) 8314

(2) 2709

(3) 1315

(4) 2518

Options :

1908899565. 1

1908899566. 2

1908899567. 3

1908899568. 4

Question Number : 18 Question Id : 1908892416 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If PALE is coded as 2134, EARTH is coded as 41590, how is PEARL coded in that code?

- (1) 29530 (2) 24153
(3) 25413 (4) 25430

Options :

1908899569. 1

1908899570. 2

1908899571. 3

1908899572. 4

Question Number : 19 Question Id : 1908892417 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Rahul told Anand, 'Yesterday I defeated the only brother of the daughter of my grandmother.' Whom did Rahul defeat?

- (1) Son (2) Father
(3) Brother (4) Father-in-law

Options :

1908899573. 1

1908899574. 2

1908899575. 3

1908899576. 4

Question Number : 20 Question Id : 1908892418 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Arrange the given words in alphabetical order and choose the one that comes first.

- (1) Science (2) Scrutiny
(3) Scripture (4) Scramble

Options :

1908899577. 1

1908899578. 2

1908899579. 3

1908899580. 4

Question Number : 21 Question Id : 1908892419 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If Atul finds that he is twelfth from the right in a line of boys and fourth from the left, how many boys should be added to the line such that there are 28 boys in the line?

(1) 12

(2) 13

(3) 14

(4) 20

Options :

1908899581. 1

1908899582. 2

1908899583. 3

1908899584. 4

Question Number : 22 Question Id : 1908892420 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The India Energy Outlook 2021 is a new special report from the

(1) NITI Aayog

(2) Ministry of Power

(3) International Energy Agency

(4) Ministry of New and Renewable Energy

Options :

1908899585. 1

1908899586. 2

1908899587. 3

1908899588. 4

Question Number : 23 Question Id : 1908892421 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Who among the following wrote the famous book titled 'We the people'?

- | | |
|-------------------------|---------------------|
| (1) T. N. Seshan | (2) KiranBedi |
| (3) Nanabhoy Palkhivala | (4) Khushwant Singh |

Options :

1908899589. 1

1908899590. 2

1908899591. 3

1908899592. 4

Question Number : 24 Question Id : 1908892422 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of following committees is related to 'Personal Data Protection'?

- | | |
|--------------------------------|-----------------------------|
| (1) B. N. Srikrishna Committee | (2) C. Rangarajan Committee |
| (3) Bimal Jalan Committee | (4) Bhurelal Committee |

Options :

1908899593. 1

1908899594. 2

1908899595. 3

1908899596. 4

Question Number : 25 Question Id : 1908892423 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Galathea National Park is located in

(1) Andaman and Nicobar

(2) Lakshadweep

(3) Coromandel Coast

(4) Konkan Coast

Options :

1908899597. 1

1908899598. 2

1908899599. 3

1908899600. 4

PART B - ENERGY ENGINEERING

Section Id :	19088960
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	75
Number of Questions to be attempted :	75
Section Marks :	300
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	19088996
Question Shuffling Allowed :	Yes

Question Number : 26 Question Id : 1908892424 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is meant by Frenkel defect?

- (1) Defect in which interstitial position is occupied by missing atoms
- (2) Defect in which positive and negative ions are missing
- (3) Defect in which interstitial position is occupied by extra atom in the crystal without disorganizing the parent atom
- (4) None of the above

Options :

1908899601. 1

1908899602. 2

1908899603. 3

1908899604. 4

Question Number : 27 Question Id : 1908892425 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is an amorphous material?

- | | |
|----------|------------|
| (1) Mica | (2) Silver |
| (3) Lead | (4) Glass |

Options :

1908899605. 1

1908899606. 2

1908899607. 3

1908899608. 4

Question Number : 28 Question Id : 1908892426 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the energy radiated per second per sq. cm. of the surface for wave lengths lying between λ , and $\lambda + d\lambda$ is represented by $(E_\lambda \cdot d\lambda)$, then E_λ is called

- | | |
|----------------------|-----------------------|
| (1) Absorptive power | (2) Emissive power |
| (3) Emissivity | (4) None of the above |

Options :

1908899609. 1

1908899610. 2

1908899611. 3

1908899612. 4

Question Number : 29 Question Id : 1908892427 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A composite slab has two layers of different materials with thermal conductivities k_1 and k_2 .

If each layer has the same thickness, then the equivalent thermal conductivity of the slab will be

- | | |
|-----------------------------|-------------------------------|
| (1) $k_1 k_2$ | (2) $(k_1 + k_2)$ |
| (3) $(k_1 + k_2) / k_1 k_2$ | (4) $2 k_1 k_2 / (k_1 + k_2)$ |

Options :

1908899613. 1

1908899614. 2

1908899615. 3

1908899616. 4

Question Number : 30 Question Id : 1908892428 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Two balls of same material and finish have their diameters in the ratio of 2: 1 and both are heated to same temperature and allowed to cool by radiation. Rate of cooling by big ball as compared to smaller one will be in the ratio of

- (1) 1:1 (2) 2:1
(3) 1:2 (4) 4:1

Options :

1908899617. 1

1908899618. 2

1908899619. 3

1908899620. 4

Question Number : 31 Question Id : 1908892429 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Depending on the radiating properties, body will be transparent when

(Where a = absorptivity, p = reflectivity, x = transmissivity)

- (1) $p = 0, x = 0$ and $a = 1$ (2) $p=1, x = 0$, and $a = 0$
(3) $p = 0, x= 1$, and $a = 0$ (4) $x = 0, a + p = 1$

Options :

1908899621. 1

1908899622. 2

1908899623. 3

1908899624. 4

Question Number : 32 Question Id : 1908892430 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The process of heat transfer from one particle of the fluid to another by the actual movement of the fluid particles due to difference of density caused by temperature of the particle is known as

- | | |
|-----------------------|---------------------|
| (1) Conduction | (2) Free convection |
| (3) Forced convection | (4) Radiation |

Options :

1908899625. 1

1908899626. 2

1908899627. 3

1908899628. 4

Question Number : 33 Question Id : 1908892431 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Plutonium (Pu_{239}) is produced

- | | |
|-------------------------------------|---|
| (1) artificially | (2) when U_{238} is irradiated by neutrons |
| (3) by fission of Th_{232} | (4) as basic raw material |

Options :

1908899629. 1

1908899630. 2

1908899631. 3

1908899632. 4

Question Number : 34 Question Id : 1908892432 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If petrol is used in a diesel engine, then

- | | |
|--------------------------------|----------------------------------|
| (1) Low power will be produced | (2) Efficiency will be low |
| (3) Higher knocking will occur | (4) Black smoke will be produced |

Options :

1908899633. 1

1908899634. 2

1908899635. 3

1908899636. 4

Question Number : 35 Question Id : 1908892433 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Gross and net calorific value of a fuel will be the same

- (1) if its ash content is zero
- (2) if its carbon content is very low
- (3) if its hydrogen/hydrogen compound content is zero
- (4) under no circumstances

Options :

1908899637. 1

1908899638. 2

1908899639. 3

1908899640. 4

Question Number : 36 Question Id : 1908892434 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Equal masses of CH_4 and H_2 are mixed in an empty container. The partial pressure of hydrogen in this container expressed as the fraction of total pressure is

- (1) $1/9$
- (2) $8/9$
- (3) $1/2$
- (4) $5/9$

Options :

1908899641. 1

1908899642. 2

1908899643. 3

1908899644. 4

Question Number : 37 Question Id : 1908892435 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which type of diode is used for tuning receivers, operate with reverse bias and derived its name from voltage-variable capacitor?

- | | |
|--------------------|-------------------|
| (1) Zener diode | (2) Tunnel diode |
| (3) Varactor diode | (4) Crystal diode |

Options :

1908899645. 1

1908899646. 2

1908899647. 3

1908899648. 4

Question Number : 38 Question Id : 1908892436 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Tensile strain is equal to

- | | |
|-------------------------------|---------------------------|
| (1) force per unit area | (2) force per unit volume |
| (3) extension per unit length | (4) force per unit length |

Options :

1908899649. 1

1908899650. 2

1908899651. 3

1908899652. 4

Question Number : 39 Question Id : 1908892437 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Hall voltage is directly proportional to

- | | |
|---------------------------|--------------------|
| (1) Current | (2) Electric field |
| (3) Magnetic flux density | (4) All of above |

Options :

1908899653. 1

1908899654. 2

1908899655. 3

1908899656. 4

Question Number : 40 Question Id : 1908892438 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the temperature of a black body is decreased from very high to low, the spectral emissive power will increase towards

- | | |
|----------|---------------|
| (1) UV | (2) Red |
| (3) Blue | (4) Microwave |

Options :

1908899657. 1

1908899658. 2

1908899659. 3

1908899660. 4

Question Number : 41 Question Id : 1908892439 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Avalanche breakdown occur in diode junctions with _____ doping due to _____ of the matrix atoms.

- | | |
|-----------------------------|----------------------------|
| (1) low, impact ionization | (2) high, field ionization |
| (3) high, impact ionization | (4) low, field ionization |

Options :

1908899661. 1

1908899662. 2

1908899663. 3

1908899664. 4

Question Number : 42 Question Id : 1908892440 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The peak wavelength of radiation emitted by a black body at a temperature of 2000K is $1.45 \mu\text{m}$. If the peak wavelength of the emitted radiation changes to $2.90 \mu\text{m}$, the temperature(in K) of the black body is

- | | |
|-----------|-----------|
| (1) 500 K | (2) 1000K |
| (3) 4000K | (4) 8000K |

Options :

1908899665. 1

1908899666. 2

1908899667. 3

1908899668. 4

Question Number : 43 Question Id : 1908892441 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the maximum proportion of volume available in FCC arrangement of Spheres?

- | | |
|---------|---------|
| (1) 10% | (2) 20% |
| (3) 26% | (4) 30% |

Options :

1908899669. 1

1908899670. 2

1908899671. 3

1908899672. 4

Question Number : 44 Question Id : 1908892442 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Dry ice is

(1) solid CO₂

(2) solid N₂

(3) solid CH₄

(4) solid H₂

Options :

1908899673. 1

1908899674. 2

1908899675. 3

1908899676. 4

Question Number : 45 Question Id : 1908892443 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Raman effect is due to

(1) scattering of light

(2) total internal reflection

(3) dispersion effect

(4) interference of light

Options :

1908899677. 1

1908899678. 2

1908899679. 3

1908899680. 4

Question Number : 46 Question Id : 1908892444 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the principle of thermopile?

- | | |
|---------------------|--------------------|
| (1) Crompton effect | (2) Seebeck effect |
| (3) Peltier effect | (4) Zeeman effect |

Options :

1908899681. 1

1908899682. 2

1908899683. 3

1908899684. 4

Question Number : 47 Question Id : 1908892445 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The amount of magnetic field to counterbalance the residual magnetism of a magnetic material is known as

- | | |
|-----------------|------------------|
| (1) Reluctivity | (2) Susceptivity |
| (3) Coercivity | (4) Retentivity |

Options :

1908899685. 1

1908899686. 2

1908899687. 3

1908899688. 4

Question Number : 48 Question Id : 1908892446 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Semiconductors have _____ coefficient of resistance.

- | | |
|--------------|--------------|
| (1) positive | (2) negative |
| (3) zero | (4) infinite |

Options :

1908899689. 1

1908899690. 2

1908899691. 3

1908899692. 4

Question Number : 49 Question Id : 1908892447 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In RLC circuit

- (1) increasing the frequency decreases resistance.
- (2) increasing the frequency increases resistance.
- (3) both X_L and X_C change as frequency changes.
- (4) impedance will always decrease.

Options :

1908899693. 1

1908899694. 2

1908899695. 3

1908899696. 4

Question Number : 50 Question Id : 1908892448 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Kirchoff's laws are applicable to

- | | |
|-------------------------------|----------------------------|
| (1) DC circuits | (2) AC circuits |
| (3) DC as well as AC circuits | (4) passive networks alone |

Options :

1908899697. 1

1908899698. 2

1908899699. 3

1908899700. 4

Question Number : 51 Question Id : 1908892449 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the hot wire resistance of a 100W, 220 V incandescent bulb?

- | | |
|------------------|-------------------|
| (1) 2.2 Ω | (2) 22 Ω |
| (3) 484 Ω | (4) 4.84 Ω |

Options :

1908899701. 1

1908899702. 2

1908899703. 3

1908899704. 4

Question Number : 52 Question Id : 1908892450 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the complex impedance of a circuit with an absolute resistance of 300 Ω ?

- | | |
|------------------------|-------------------------|
| (1) 0 + j 300 Ω | (2) 300 + j 90 Ω |
| (3) 0 - j 300 Ω | (4) 300 + j 0 Ω |

Options :

1908899705. 1

1908899706. 2

1908899707. 3

1908899708. 4

Question Number : 53 Question Id : 1908892451 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the conductance of three resistances of 10Ω in parallel ?

(1) 3.33Ω

(2) 30 S

(3) 0.3 S

(4) 3.33 S

Options :

1908899709. 1

1908899710. 2

1908899711. 3

1908899712. 4

Question Number : 54 Question Id : 1908892452 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A coil of inductance L has reactive inductance reactance of X_L in an AC circuit in which the effective current is I . The coil is made from a superconducting material. The rate at which the power is dissipated in the coil is

(1) 0

(2) $I^2 X_L$

(3) $I X_L$

(4) $I X_L^2$

Options :

1908899713. 1

1908899714. 2

1908899715. 3

1908899716. 4

Question Number : 55 Question Id : 1908892453 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

There are two mechanisms by which holes and electrons move through a silicon crystal.
They are

- | | |
|-------------------------------------|------------------------------|
| (1) covalent bond and recombination | (2) drift and diffusion |
| (3) free and charged particles | (4) forward and reverse bias |

Options :

1908899717. 1

1908899718. 2

1908899719. 3

1908899720. 4

Question Number : 56 Question Id : 1908892454 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

When the emitter junction is forward biased and the collector junction is reverse biased, the transistor is at _____ region.

- | | |
|---------------|----------------|
| (1) active | (2) cut-off |
| (3) breakdown | (4) saturation |

Options :

1908899721. 1

1908899722. 2

1908899723. 3

1908899724. 4

Question Number : 57 Question Id : 1908892455 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A measure of ability of an LED to produce desired number of lumens generated per applied watt of electrical energy is

- (1) Luminous intensity
- (2) Luminous efficiency
- (3) Luminous efficacy
- (4) Luminous ability

Options :

1908899725. 1

1908899726. 2

1908899727. 3

1908899728. 4

Question Number : 58 Question Id : 1908892456 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A diode that has a negative resistance region and is widely used in the design of oscillators, switching networks and pulse generator is

- (1) Hot-carrier diode
- (2) Tunnel diode
- (3) LED
- (4) Schottky diode

Options :

1908899729. 1

1908899730. 2

1908899731. 3

1908899732. 4

Question Number : 59 Question Id : 1908892457 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Impedance matching of a circuit is important for _____ transfer of energy.

- (1) maximum
- (2) limited
- (3) minimum
- (4) enough

Options :

1908899733. 1

1908899734. 2

1908899735. 3

1908899736. 4

Question Number : 60 Question Id : 1908892458 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A 48Ah battery is rated at 12 V. If it must deliver a current at 2 A, how long the battery last before it needs recharging?

(1) 48 hrs

(2) 4 hrs

(3) 96 hrs

(4) 24 hrs

Options :

1908899737. 1

1908899738. 2

1908899739. 3

1908899740. 4

Question Number : 61 Question Id : 1908892459 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What increases the resistance of wire at high frequency?

(1) Temperature

(2) Voltage

(3) Skin effect

(4) Insulation

Options :

1908899741. 1

1908899742. 2

1908899743. 3

1908899744. 4

Question Number : 62 Question Id : 1908892460 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A capacitor of $0.5 \mu\text{F}$ charged to 220 V is connected across an uncharged capacitor of $0.5 \mu\text{F}$.
What is the voltage across each capacitor?

- (1) 220V (2) 150 V
(3) 110 V (4) 22 V

Options :

1908899745. 1

1908899746. 2

1908899747. 3

1908899748. 4

Question Number : 63 Question Id : 1908892461 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A semiconductor with more number of free electrons at room temperature is

- (1) an intrinsic semiconductor (2) a p-type semiconductor
(3) an n-type semiconductor (4) all the above

Options :

1908899749. 1

1908899750. 2

1908899751. 3

1908899752. 4

Question Number : 64 Question Id : 1908892462 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A catalyst increase the rate of chemical reaction by

- (1) increasing the activation energy
- (2) decreasing the activation energy
- (3) reacting with reactant
- (4) reacting with products

Options :

1908899753. 1

1908899754. 2

1908899755. 3

1908899756. 4

Question Number : 65 Question Id : 1908892463 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

High percentage of carbon monoxide presence in the flue gas of boiler is an indicator of

- (1) high excess air
- (2) complete combustion
- (3) good control of pollutants
- (4) low excess air

Options :

1908899757. 1

1908899758. 2

1908899759. 3

1908899760. 4

Question Number : 66 Question Id : 1908892464 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The Paris Agreement 2015 adopted in Paris on 12 December 2015, strives to keep the global temperature rise within from the pre-industrial levels?

- (1) 3 degrees Celsius (2) 1 degree Celsius
(3) 1.5 degrees Celsius (4) 0.5 degree Celsius

Options :

1908899761. 1

1908899762. 2

1908899763. 3

1908899764. 4

Question Number : 67 Question Id : 1908892465 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Keeping the voltage of the charging source constant, what would be the percentage change in the energy stored in a parallel plate capacitor if the separation between the plates is decreased by 10% ?

- (1) 10% (2) 23.4%
(3) 90% (4) 110%

Options :

1908899765. 1

1908899766. 2

1908899767. 3

1908899768. 4

Question Number : 68 Question Id : 1908892466 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Certification of energy auditors and energy managers is done by

- (1) Bureau of Energy Efficiency
- (2) Petroleum conservation research Association
- (3) Ministry of New and Renewable energy
- (4) The energy Resources Institute

Options :

1908899769. 1

1908899770. 2

1908899771. 3

1908899772. 4

Question Number : 69 Question Id : 1908892467 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The radiative heat exchange between two surfaces depends upon their

- (1) Temperature only
- (2) Temperature and radiative properties only
- (3) Radiative properties and orientation
- (4) Temperature, radiative properties and orientation

Options :

1908899773. 1

1908899774. 2

1908899775. 3

1908899776. 4

Question Number : 70 Question Id : 1908892468 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Solar energy can effectively be used for

- (1) heating and drying application
- (2) lighting and signaling application
- (3) electric power generation
- (4) all of the above

Options :

1908899777. 1

1908899778. 2

1908899779. 3

1908899780. 4

Question Number : 71 Question Id : 1908892469 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

One of the following is not unit of power

- (1) Watt
- (2) kVA
- (3) eV
- (4) HP

Options :

1908899781. 1

1908899782. 2

1908899783. 3

1908899784. 4

Question Number : 72 Question Id : 1908892470 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Biomass gasifier produces a gas rich in carbon monoxide called

- | | |
|------------------|-----------------|
| (1) producer gas | (2) water gas |
| (3) biogas | (4) natural gas |

Options :

1908899785. 1

1908899786. 2

1908899787. 3

1908899788. 4

Question Number : 73 Question Id : 1908892471 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is not used for direct conversion to electrical energy?

- | | |
|-----------------------|---------------------|
| (1) Fuel Cell | (2) MHD generator |
| (3) Photovoltaic Cell | (4) Nuclear Reactor |

Options :

1908899789. 1

1908899790. 2

1908899791. 3

1908899792. 4

Question Number : 74 Question Id : 1908892472 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Temperature below 1000°C cannot be measured precisely using

- | | |
|---------------------------------------|------------------------------------|
| (1) thermocouple | (2) thermal expansion Thermometers |
| (3) electrical Resistance thermometer | (4) radiation pyrometer |

Options :

1908899793. 1

1908899794. 2

1908899795. 3

1908899796. 4

Question Number : 75 Question Id : 1908892473 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is the process involved in biogas generation?

(1) fermentation

(2) anaerobic digestion

(3) pyrolysis

(4) gasification

Options :

1908899797. 1

1908899798. 2

1908899799. 3

1908899800. 4

Question Number : 76 Question Id : 1908892474 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The simultaneous production of heat and electricity is called

(1) Rankine cycle

(2) Brayton cycle

(3) Carnot cycle

(4) Cogeneration

Options :

1908899801. 1

1908899802. 2

1908899803. 3

1908899804. 4

Question Number : 77 Question Id : 1908892475 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A device for transferring heat from one medium to another is called

- | | |
|--------------------|--------------------|
| (1) heat exchanger | (2) fuel cell |
| (3) thermal system | (4) energy storage |

Options :

1908899805. 1

1908899806. 2

1908899807. 3

1908899808. 4

Question Number : 78 Question Id : 1908892476 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The rate at which a substance reacts depends on its

- | | |
|----------------------|-----------------------|
| (1) Atomic weight | (2) Equivalent weight |
| (3) Molecular weight | (4) Active mass |

Options :

1908899809. 1

1908899810. 2

1908899811. 3

1908899812. 4

Question Number : 79 Question Id : 1908892477 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is not a petrocrop?

- | | |
|--------------|-------------------|
| (1) Jatropha | (2) Sweet sorghum |
| (3) Karanja | (4) Rice |

Options :

1908899813. 1

1908899814. 2

1908899815. 3

1908899816. 4

Question Number : 80 Question Id : 1908892478 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Hydrogen may be produced by dissociating water

- (1) at high temperature using thermal energy
- (2) at low temperature using catalyst
- (3) using electricity through electrolysis
- (4) All the three

Options :

1908899817. 1

1908899818. 2

1908899819. 3

1908899820. 4

Question Number : 81 Question Id : 1908892479 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A number of metals and alloys form solid hydrides with hydrogen. The hydrogen can be recovered by

- (1) dipping in water
- (2) heating
- (3) cooling
- (4) none of the above

Options :

1908899821. 1

1908899822. 2

1908899823. 3

1908899824. 4

Question Number : 82 Question Id : 1908892480 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following information is available on name plate of a motor?

- (1) HP rating
- (2) RPM
- (3) Frame model
- (4) All the above

Options :

1908899825. 1

1908899826. 2

1908899827. 3

1908899828. 4

Question Number : 83 Question Id : 1908892481 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Derivative of solar energy is/are

- | | |
|----------------------|----------------------|
| (1) wind energy only | (2) wave energy only |
| (3) bio-energy only | (4) all the three |

Options :

1908899829. 1

1908899830. 2

1908899831. 3

1908899832. 4

Question Number : 84 Question Id : 1908892482 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The following fuel may not be used as transport fuel directly

- | | |
|-------------------------------|----------------------------------|
| (1) Bio-diesel | (2) Bio-ethanol |
| (3) Bio-diesel + diesel blend | (4) Bio-ethanol + gasoline blend |

Options :

1908899833. 1

1908899834. 2

1908899835. 3

1908899836. 4

Question Number : 85 Question Id : 1908892483 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The lowest energy contribution is from the following solar radiation component

- | | |
|-------------|---------------|
| (1) Visible | (2) UV |
| (3) IR | (4) Microwave |

Options :

1908899837. 1

1908899838. 2

1908899839. 3

1908899840. 4

Question Number : 86 Question Id : 1908892484 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Energy an object possesses due to its position is called

- | | |
|----------------------|-----------------------|
| (1) Kinetic energy | (2) Mechanical energy |
| (3) Potential energy | (4) Chemical energy |

Options :

1908899841. 1

1908899842. 2

1908899843. 3

1908899844. 4

Question Number : 87 Question Id : 1908892485 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If there is no transfer of energy between two objects then their temperature is

- | | |
|----------|---------------|
| (1) Same | (2) Different |
| (3) Zero | (4) Infinite |

Options :

1908899845. 1

1908899846. 2

1908899847. 3

1908899848. 4

Question Number : 88 Question Id : 1908892486 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

As per the second law of thermodynamics the highest achievable temperature using solar radiation is

- | | |
|------------|------------|
| (1) 1000 K | (2) 3000 K |
| (3) 6000 K | (4) 8000 K |

Options :

1908899849. 1

1908899850. 2

1908899851. 3

1908899852. 4

Question Number : 89 Question Id : 1908892487 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

When two helical springs of equal lengths are arranged to form a cluster spring, then

- (1) Shear stress in each spring will be equal
- (2) Load taken by each spring will be half the total load
- (3) Only (1) is correct
- (4) Both (1) and (2) is correct

Options :

1908899853. 1

1908899854. 2

1908899855. 3

1908899856. 4

Question Number : 90 Question Id : 1908892488 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Ductility of a material can be defined as

- (1) ability to undergo large permanent deformations in compression
- (2) ability to recover its original form
- (3) ability to undergo large permanent deformations in tension
- (4) all of the above

Options :

1908899857. 1

1908899858. 2

1908899859. 3

1908899860. 4

Question Number : 91 Question Id : 1908892489 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The aluminium alloy made by melting aluminium with 2 to 10% magnesium and 1.75% copper is called

- (1) Duralumin
- (2) Y-alloy
- (3) Magnalium
- (4) Hindalium

Options :

1908899861. 1

1908899862. 2

1908899863. 3

1908899864. 4

Question Number : 92 Question Id : 1908892490 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Heat capacity of air can be approximately expressed as, $C_p = 26.693 + 7.365 \times 10^{-3} T$, where, C_p is in J/moleK and T is in K. The heat given off by 1 mole of air when cooled at atmospheric pressure from 500°C to -100°C is

- (1) 10.73 kJ (2) 16.15 kJ
(3) 18.11 kJ (4) 18.33 kJ

Options :

1908899865. 1

1908899866. 2

1908899867. 3

1908899868. 4

Question Number : 93 Question Id : 1908892491 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Hydrogen is an example of a _____ material.

- (1) Paramagnetic (2) Diamagnetic
(3) Ferromagnetic (4) Non-magnetic

Options :

1908899869. 1

1908899870. 2

1908899871. 3

1908899872. 4

Question Number : 94 Question Id : 1908892492 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Gases which have particles that are charged are known as

- (1) Conductors (2) Insulators
(3) Gaseous conductors (4) Plasma

Options :

1908899873. 1

1908899874. 2

1908899875. 3

1908899876. 4

Question Number : 95 Question Id : 1908892493 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which principle states that each electron in an atom must have a different set of quantum numbers ?

- | | |
|-------------------------|-------------------------|
| (1) Inclusion Principle | (2) Exclusion principle |
| (3) Quantum principle | (4) Electron principle |

Options :

1908899877. 1

1908899878. 2

1908899879. 3

1908899880. 4

Question Number : 96 Question Id : 1908892494 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The magnetic energy stored in an inductor is _____ current.

- (1) directly proportional to
- (2) inversely proportional to
- (3) directly proportional to the square of
- (4) inversely proportional to the square of

Options :

1908899881. 1

1908899882. 2

1908899883. 3

1908899884. 4

Question Number : 97 Question Id : 1908892495 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The core of a transformer heats up when primary is fed to an ac source because of

- | | |
|------------------------|---------------------|
| (1) permeability | (2) ferromagnetism |
| (3) reluctance of core | (4) hysteresis loss |

Options :

1908899885. 1

1908899886. 2

1908899887. 3

1908899888. 4

Question Number : 98 Question Id : 1908892496 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the number of valence electrons of an atom is more than 4 then the substance will behave like

- | | |
|---------------------|----------------------|
| (1) a semiconductor | (2) a conductor |
| (3) an insulator | (4) a semi-insulator |

Options :

1908899889. 1

1908899890. 2

1908899891. 3

1908899892. 4

Question Number : 99 Question Id : 1908892497 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In an LCR circuit series resonance occurs when

- | | |
|-----------------|----------------------|
| (1) $X_L = X_C$ | (2) $X_L = R$ |
| (3) $Z = R$ | (4) Both (1) and (3) |

Options :

1908899893. 1

1908899894. 2

1908899895. 3

1908899896. 4

Question Number : 100 Question Id : 1908892498 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a chemical cell current is the movement of

- | | |
|--------------------------------|------------------------|
| (1) positive and negative ions | (2) positive charges |
| (3) positive ions only | (4) negative ions only |

Options :

1908899897. 1

1908899898. 2

1908899899. 3

1908899900. 4