

PREVIEW QUESTION BANK

Module Name : Renewable Energy Engineering-ENG
Exam Date : 09-Jul-2023 Batch : 14:30-16:30

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	2001	Which one of the following is not one of the features of parliamentary form of government? 1. Majority party rule 2. Collective Responsibility 3. Integrated and Independent Judiciary 4. Dissolution of the lower house A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
2	2002	Which of the following term implies that 'India is a neither a dependency nor a dominion of any other nation'? 1. Socialist 2. Sovereign 3. Secular 4. Democratic A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
3	2003	Which of the following form the maximum water composition on the earth's surface? 1. Oceans 2. Ice caps 3. Glaciers 4. Lakes A1 : 1 A2 : 2	4.0	1.00

		A3 : 3		
		A4 : 4		
Objective Question				
4	2004	Which one of the following does not fall under the category of 'biomes? 1. Forest 2. Sky 3. Desert 4. Grassland A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
5	2005	IUCN publishes information about which of the following species as Red List of threatened species? 1. Endangered Species 2. Vulnerable Species 3. Extinct Species 4. Rare Species A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
6	2006	Who was the first Indian to win an individual medal in Olympics? 1. Milkha Singh 2. Karnam Malleshwari 3. P. T. Usha 4. K. D. Jadhav A1 : 1 A2 : 2 A3 : 3	4.0	1.00

		A4 : 4		
Objective Question				
7	2007	Who among the following reformers founded "Arya Samaj"? 1. Raja Ram Mohan Roy 2. Swami Dayananda Saraswati 3. Atmaram Pandurang 4. Ishwarchandra Vidyasagar A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
8	2008	What does "Triratna" mean in Buddhism? 1. Tripitaka 2. Buddha, Dhamma (dharma), Sangha 3. Satya, Ahimsa, Karuna 4. Sheel, Samadhi, Sangha A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
9	2009	Who started the Indian Reforms Association? 1. Narayan Guru 2. Swami Vivekananda 3. Krishna swami Aiyar 4. Keshav Chandra Sen A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				

10	2010	Consider the following statements (A). UN General Assembly has declared 2023 as the international year of millets (B). Odisha govt. ropes in FICCI to promote millets globally (C). Odisha Millets Mission is a flagship programme of the Odisha government to revive millets in farms and on plates Choose the correct answer from the options given below: 1. (A) and (B) only. 2. (B) and (C) only. 3. (A) and (C) only. 4. (A), (B) and (C). A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

11	2011	Phomopsis blight occurs in which of the following crops? 1. Brinjal 2. Bajra 3. Sugarcane 4. Potato A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

12	2012	Endemic pests can be described as? 1. Pest occurs in a few specific area. 2. Pest occurs in same area, year after year. 3. Pest occurs frequently in current season in abundance. 4. Pest occurs in severe form. A1 : 1 A2 : 2 A3 : 3	4.0	1.00
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		A4 : 4		
Objective Question				
13	2013	Which country is the largest producer of raw silk? 1. Japan 2. India 3. China 4. South Korea A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
14	2014	Transfer of Ownership is the example of which utility..... 1. Time utility 2. Place utility 3. Possession utility 4. Form utility A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
15	2015	What happens to the total number of chromosomes during mitotic cell division? 1. gets doubled 2. gets halved 3. remains the same 4. divides into four A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

16	2016	What is the minimum forest cover to be maintained as per the National Forest Policy, 1988? 1. One-half 2. One-third 3. One-fourth 4. Two-third A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

17	2017	Who among the following is known as the "Father of Agronomy"? 1. Stephen Hales 2. Gregor Johann Mendel 3. Peter Decresenzi 4. D N Walia A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

18	2018	Which of the following plant hormones helps in shoot elongation? 1. Auxin 2. Gibberellic acid 3. Absciscic acid 4. Cytokinin A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

19	2019		4.0	1.00
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Select from the following the chemical property of soil.....

1. Colour
2. pH
3. Texture
4. Structure

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

20 2020

4.0 1.00

The process of separating quality grains from chaff is called as.....

1. Winnowing
2. Threshing
3. Harvesting
4. Tilling

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

21 101001

4.0 1.00

Given below are two statements:

Statement (I): The straight-line method is the most practical and most common for calculating depreciation

Statement (II): In the straight-line method, the amount of annual depreciation is equal to the new cost minus the trade-in value at the end of the assumed life, divided by the estimated life in years

In light of the above statements, choose the *most appropriate* answer from the options given below.

1. Both Statement (I) and Statement (II) are correct.
2. Both Statement (I) and Statement (II) are incorrect.
3. Statement (I) is correct but Statement (II) is incorrect.
4. Statement (I) is incorrect but Statement (II) is correct.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

22	101002	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : Oblique cutting of plant material reduces the peak cutting process Reason (R) : In oblique cutting oblique angle is not equal to zero In light of the above statements, choose the <i>correct</i> answer from the options given below. - Both (A) and (R) are true and (R) is the correct explanation of (A). - Both (A) and (R) are true but (R) is NOT the correct explanation of (A). (A) is true but (R) is false. (A) is false but (R) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

23	101003	The correct sequence of power transmission in agricultural tractor is: (A). Engine (B). Drive wheels (C). Clutch (D). Crank shaft (E). Differential (F). Flywheel (G). Final drives (A), (B), (C), (D), (E), (F), (G) (A), (D), (F), (C), (E), (G), (B) (B), (A), (G), (D), (E), (C), (F) (C), (E), (B), (D), (F), (A), (G) A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

24	101004		4.0	1.00
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Which type of mould board is preferred for more sticky soils where it is difficult for MB to scour well?

1. General purpose
2. Stubble
3. Sod
4. Slat

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

25	101005	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : To stop a tractor with implement at high speed, brakes are to be applied in addition to declutching Reason (R) : A device to declutch the tractor will not afford much protection to an implement when speed is high In light of the above statements, choose the <i>correct</i> answer from the options given below. 1. Both (A) and (R) are true and (R) is the correct explanation of (A). 2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A). 3. (A) is true but (R) is false. 4. (A) is false but (R) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

26	101006	Given below are two statements: Statement (I): Aerobic fermentation of organic matter produces CO₂ and NH₃ while anaerobic fermentation produces CO₂ and CH₄ Statement (II): When the main aim is to render the material hygienic and recover plant nutrients for reuse in fields, the better practice to follow is anaerobic fermentation In light of the above statements, choose the <i>most appropriate</i> answer from the options given below. 1. Both Statement (I) and Statement (II) are true. 2. Both Statement (I) and Statement (II) are false. 3. Statement (I) is true but Statement (II) is false. 4. Statement (I) is false but Statement (II) is true. A1 : 1	4.0	1.00
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A2 : 2

A3 : 3

A4 : 4

Objective Question

27 101007

4.0 1.00

Given below are two statements:

Statement (I): Traditional biogas plants based on cowdung as feedstock can not be used for water hyacinth

Statement (II): Water hyacinth has tendency to float or settle in the bottom of traditional biogas plants

In light of the above statements, choose the *most appropriate* answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false.
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

28 101008

4.0 1.00

Match **List-I** with **List-II**

List-I	List-II
Product	Conversion process
(A). Briquettes	(I). Thermo-chemical conversion
(B). Biodiesel	(II). Transesterification
(C). Biogas	(III). Physical conversion
(D). Producer gas	(IV). Bio-chemical conversion

Choose the **correct** answer from the options given below:

1. (A) - (IV), (B) - (I), (C) - (II), (D) - (III)
2. (A) - (III), (B) - (II), (C) - (IV), (D) - (I)
3. (A) - (II), (B) - (III), (C) - (I), (D) - (IV)
4. (A) - (I), (B) - (IV), (C) - (III), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

29	101009	Given below are two statements: Statement (I): Vegetable oils can be converted into biodiesel by a process of transesterification Statement (II): During biodiesel production glycerine remains on upper side and ester on lower side forming two distinct layers In light of the above statements,choose the <i>most appropriate</i> answer from the options given below. - Both Statement (I) and Statement (II) are true. - Both Statement (I) and Statement (II) are false. - Statement (I) is true but Statement (II) is false. - Statement (I) is false but Statement (II) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

30	101010	Gasohol contains: 90% ethanol 10% gasoline 50% ethanol 50% gasoline 75% ethanol 25% gasoline 10% ethanol 90% gasoline A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

31	101011	What will be the power generated from an arrangement having 244 solar cells connected in series (i.e. in a string) and 10 such solar strings connected in parallel? (Assume operating voltage of each photo-voltaic cell as 0.45 V and output current as 1.08 A) 10.8 kW 1.19 kW 5.4 kW 19.1 kW A1 : 1 A2 : 2 A3 : 3	4.0	1.00
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A4 : 4

Objective Question

32	101012	Contours of constant wind velocity are called: 1. Isodynes 2. Isohyets 3. Isobars 4. Isovents A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

33	101013	If the diameter (d) of horizontal axis rotor is doubled and wind speed (V) is halved, the available wind power (P_a) will: 1. remain same 2. increase by two times 3. reduce to half 4. increase by four times A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

34	101014	If the measured line voltages are 462, 463 and 455 volts in 3-phase system, the voltage unbalance measured in per cent is: 1. 1 2. 2 3. 3 4. 0 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

35	101015	Given below are two statements: Statement (I): Payback period does not take into consideration time value of money Statement (II): Net present value takes into consideration time value of money In light of the above statements, choose the <i>most appropriate</i> answer from the options given below. - Both Statement (I) and Statement (II) are correct. - Both Statement (I) and Statement (II) are incorrect. - Statement (I) is correct but Statement (II) is incorrect. - Statement (I) is incorrect but Statement (II) is correct. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

36	101016	For which type of wheel, pull is zero? - self-propelled wheel - towed wheel - gauge wheel - land wheel of SCFD A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

37	101017	Cast steel crankshaft surface is hardened by: - Nitriding - Normalising - Carburising - Induction heating A1 : 1 A2 : 2 A3 : 3	4.0	1.00
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		A4 : 4		
Objective Question				
38	101018	In drop forging, forging is done by dropping: 1. the work piece at high velocity 2. the hammer at high velocity 3. the die with hammer at high velocity 4. a weight on hammer to produce the requisite impact A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
39	101019	A 9-tine seed drill operating at 5 km.h^{-1} is used to sow seed in 10.8 ha of land. If the furrow openers are 20 cm apart and the seed drill is working with an efficiency of 80%, what is the time required in hours to complete the sowing operation? 1. 15 2. 20 3. 25 4. 30 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
40	101020	Pressure at the lubrication oil exit of tractor engine is 1. 100-200 kPa 2. 200-300 kPa 3. 300-400 kPa 4. 400-500 kPa A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

41	101021	Given below are two statements: Statement (I): Basin lag is the time difference between the centroid of the input i.e. rainfall excess and the output i.e. surface runoff. Statement (II): Basin lag represents the time of travel of water particles from the mid place of the catchment to the outlet during a given storm. In light of the above statements, choose the <i>most appropriate</i> answer from the options given below. - Both Statement (I) and Statement (II) are true. - Both Statement (I) and Statement (II) are false. - Statement (I) is true but Statement (II) is false. - Statement (I) is false but Statement (II) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

42	101022	A graphical plot between rainfall intensity and time is called - Double mass curve - Hydrograph - Mass curve - Hyetograph A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

43	101023		4.0	1.00
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Match **List-I** with **List-II**

List-I	List-II
(A). Flood routing in storage reservoir	(I). Muskingum method
(B). Channel routing	(II). Sherman
(C). Unit hydrograph	(III). Snyder
(D). Synthetic unit hydrograph	(IV). Modified Pul's method

Choose the **correct** answer from the options given below:

1. (A) - (IV), (B) - (I), (C) - (II), (D) - (III)
2. (A) - (III), (B) - (II), (C) - (IV), (D) - (I)
3. (A) - (II), (B) - (III), (C) - (IV), (D) - (I)
4. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

44 101024

4.0 1.00

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A) :The Cipoletti weir is a popular contracted trapezoidal weir having notch slope of 1 horizontal to 4 vertical.

Reason (R) : The side slopes of 1 to 4 are just sufficient to correct for the end contraction of nappe and flow is proportional to the length of the weir crest.

In light of the above statements, choose the *correct* answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

45 101025

4.0 1.00

- (A). Hydraulic jump is used for reducing the energy of flow.
- (B). Hydraulic jump results in increasing the depth of flow.
- (C). When the flow of water changes from sub-critical to super critical, the hydraulic jump occurs.
- (D). When hydraulic jump occurs in a flowing channel, the velocity of flow increases.
- (E). Hydraulic jump is useful in aerating the city water supply.

Choose the **correct** answer from the options given below:

1. (A), (C) and (E) only.
2. (A), (B) and (E) only.
3. (A), (B), (D) and (E) only.
4. (A), (B), (C) and (E) only.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

46	101026	The recommended drainage periods for paddy and sugarcane is 1. 2 days 2. 3 days 3. 4 days 4. 7 days A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

47	101027	Given below are two statements: Statement (I): Drainage coefficient is used in the design of drainage systems for agricultural lands. Statement (II): Drainage coefficient is the depth of water in cm to be removed in 48 hours from the entire drainage area. In light of the above statements, choose the <i>most appropriate</i> answer from the options given below. 1. Both Statement (I) and Statement (II) are true. 2. Both Statement (I) and Statement (II) are false. 3. Statement (I) is true but Statement (II) is false. 4. Statement (I) is false but Statement (II) is true. A1 : 1	4.0	1.00
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A2 : 2

A3 : 3

A4 : 4

Objective Question

48 101028

4.0 1.00

Match **List-I** with **List-II**

List-I	List-II
(A). Evaporation	(I). Anemometer
(B). Infiltration	(II). Barometer
(C). Wind velocity	(III). Infiltrrometer
(D). Atmospheric pressure	(IV). Evaporimeter

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (II), (B) - (III), (C) - (I), (D) - (IV)
3. (A) - (III), (B) - (II), (C) - (IV), (D) - (I)
4. (A) - (IV), (B) - (III), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

49 101029

4.0 1.00

Which sequence of water erosion is correct?

- (A).Spalsh erosion
- (B).Rill erosion
- (C).Gully erosion
- (D).Sheet erosion
- (E).Ravine erosion

Choose the **correct** answer from the options given below:

1. (A), (C), (D), (E),(B).
2. (A), (B), (D), (C),(E).
3. (A),(D), (B), (C), (E).
4. (A),(E), (C), (D), (B).

A1 : 1

		A2 : 2		
		A3 : 3		
		A4 : 4		
Objective Question				
50	101030	Theoretically centrifugal pump can lift water from a maximum depth of 1. 4.33m 2. 6.33m 3. 8.33m 4. 10.33m A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
51	101031	(A). The level at which the water stands in a well before pumping starts is the static water level. (B). The pressure of water at static water level is atmospheric. (C). Pumping water level does not change with quantity of water being pumped. (D). Drawdown is the difference between the static water level and pumping water level. (E). Drawdown does not affect the yield of well. Choose the correct answer from the options given below: 1. (A), (C) and (D) only. 2. (A), (B) and (D) only. 3. (A), (B), (C) and (D) only. 4. (A), (C), (D) and (E) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
52	101032		4.0	1.00

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A) :In a rotating impeller two flows take place i.e. flow of fluid through the passage plus circulatory flow.

Reason (R) : When the impeller is rotated and water is pumped out, the water tends to rotate in a direction opposite to the direction of rotating impeller.

In light of the above statements, choose the *correct* answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

53	101033	AMC II generally refers to 1. Normal condition of soil wetness 2. Dry soil condition 3. Wet soil condition 4. Stoney soil condition A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

54	101034	Given below are two statements: Statement (I):The field application efficiency is the ratio of the required depth to the average applied depth. Statement (II):In level basins, the average depth applied to the field equals the average infiltrated depth as there is no surface runoff. In light of the above statements,choose the <i>most appropriate</i> answer from the options given below. 1. Both Statement (I) and Statement (II) are true. 2. Both Statement (I) and Statement (II) are false. 3. Statement (I) is true but Statement (II) is false. 4. Statement (I) is false but Statement (II) is true. A1 : 1 A2 : 2	4.0	1.00
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A3 : 3

A4 : 4

Objective Question

55	101035	The rate of application of sprinkler system is limited by 1. Strcuture of the soil 2. Infiltration capacity of the soil 3. Erodibility of the soil 4. Presence of organic matter in the soil A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

56	101036	Given below are two statements: Statement (I):Permanent wilting percentage is the moisture content at which plants can no longer obtain enough moisture to meet transpiration requiremnet. Statement (II):The moisture tension of a soil at the permanent wilting point ranges from 1/10 to 1/3 atmosphere. In light of the above statements,choose the <i>most appropriate</i> answer from the options given below. 1. Both Statement (I) and Statement (II) are true. 2. Both Statement (I) and Statement (II) are false. 3. Statement (I) is true but Statement (II) is false. 4. Statement (I) is false but Statement (II) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

57	101037		4.0	1.00
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The steady state flow to a well completely penetrating confined aquifer is derived based on the assumption

- (A). Flow is two-dimensional
- (B). Aquifer is homogenous
- (C). The flow is not horizontal everywhere
- (D). Aquifer is isotropic

Choose the **correct** answer from the options given below:

- 1. (A), (B) and (C) only.
- 2. (B), (C) and (D) only.
- 3. (A), (B), (C) and (D).
- 4. (A), (B) and (D) only.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

58	101038	Given below are two statements: Statement (I): The design of drip irrigation system consists of the system layout and determination of number of laterals for irrigation. Statement (II): The friction loss for mains and sub-mains in the drip system can be computed by Kostiakov equation. In light of the above statements, choose the <i>most appropriate</i> answer from the options given below. 1. Both Statement (I) and Statement (II) are correct. 2. Both Statement (I) and Statement (II) are incorrect. 3. Statement (I) is correct but Statement (II) is incorrect. 4. Statement (I) is incorrect but Statement (II) is correct. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

59	101039		4.0	1.00
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Which of the followings are the sub-surface technique of artificial groundwater recharge?

- (A). Injection well
(B). Recharge pit
(C). Recharge basin
(D). Recharge shaft

Choose the **correct** answer from the options given below:

1. (A), (B) and (C) only.
2. (A), (C) and (D) only.
3. (A), (B) and (D) only.
4. (A), (B), (C) and (D).

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

60	101040
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4.0

1.00

Which type of greenhouse is used in hilly areas?

1. Lean to
2. Even-span
3. Uneven-span
4. Ridge and furrow

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

61	101041
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4.0

1.00

For cleaning of granular material, a vibratory air-screen cleaner utilizes which among the following properties of feed material?

(A) Physical

(B) Aerodynamic

(C) Textural

(D) Frictional

Choose the **correct** answer from the options given below:

1. (A) only.
2. (A) and (B) only.
3. (A), (B) and (C) only.
4. (A), (B) and (D) only.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

62 101042

4.0 1.00

Match **List-I** with **List-II**

List-I	List-II
(A) Freezing	(I) Heat exchanger
(B) LMTD	(II) D-value
(C) Decimal reduction time	(III) Water activity
(D) BET equation	(IV) Eutectic temperature

Choose the **correct** answer from the options given below:

1. (A) - (IV), (B) - (II), (C) - (I), (D) - (III)
2. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
3. (A) - (IV), (B) - (I), (C) - (II), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

63 101043

4.0 1.00

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).
Assertion (A) : If the temperature of air is increased without altering its humidity ratio, then the relative humidity of air reduces.

Reason (R) : Increase in dry-bulb temperature of air enhances water holding capacity of air.

In light of the above statements, choose the *correct* answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

64	101044	PUSA bin, developed by the ICAR-Indian Agricultural Research Institute, is categorised as - 1. Modern storage structure 2. Improved storage structure 3. Traditional storage structure 4. Bag storage structure A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

65	101045	Which among the following parameter(s) of a fruit can be determined by using the platform scale method? (A) Volume (B) Linear dimensions (C) Porosity (D) Specific gravity Choose the correct answer from the options given below: 1. (A) and (B) only. 2. (A), (C) and (D) only. 3. (A) only. 4. (A) and (D) only. A1 : 1	4.0	1.00
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		A2 : 2		
		A3 : 3		
		A4 : 4		
Objective Question				
66	101046	In calculating energy requirement for size reduction, 'work index' is related to - 1. Bond's and Kick's equation 2. Rittinger's equation 3. Bond's equation 4. Rittinger's and Kick's equation A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
67	101047	Process of drying in which all grains are fully exposed to the drying air under constant drying conditions is known as - 1. Deep bed drying 2. Bunker drying 3. Thin layer drying 4. Constant rate drying A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
68	101048		4.0	1.00

Which among the following method(s) are employed for dehusking of pulses?

- (A) Pressure soaking
- (B) Application of edible oil
- (C) Alternate wetting and drying
- (D) Application of red earth

Choose the **correct** answer from the options given below:

- 1. (B) and (C) only.
- 2. (B), (C) and (D) only.
- 3. (A), (B) and (D) only.
- 4. (C) and (D) only.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

69	101049	Crystallization is the process in which - (A) Mass is transferred from a liquid solution to a pure crystal (B) Mass is transferred from a solid medium to a pure crystal (C) Mass is transferred from a liquid solution to a crystal of two components (D) Mass is transferred from a solid medium to a crystal of two components Choose the correct answer from the options given below: 1. (A) only. 2. (A) and (C) only. 3. (B) and (D) only. 4. (C) and (D) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

70	101050		4.0	1.00
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Which of the following processes are regarded as mechanical separation operations?

- (A) Filtration
- (B) Centrifugal separation
- (C) Sedimentation
- (D) Sieving

Choose the **correct** answer from the options given below:

- 1. (A), (B) and (C) only.
- 2. (A) and (D) only.
- 3. (A), (B), (C) and (D).
- 4. (C) and (D) only.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

71	1002151	The rate of heat flow through a material by conduction can be predicted by 1. Joule's law 2. Fourier's law 3. 1st law of thermodynamics 4. 2nd law of thermodynamics A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

72	1002152	Fraction of energy reaching a particular surface compared to the total energy emitted from another surface is known as 1. Radiation view factor 2. Incidence ratio 3. Emissivity 4. Reflectivity A1 : 1 A2 : 2 A3 : 3	4.0	1.00
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A4 : 4

Objective Question

73	1002153	Radiation and convection represents mode of heat transfer by 1. electromagnetic waves in both cases. 2. movement of groups of molecules in a fluid in both the cases. 3. electromagnetic wave movement of groups of molecules in a fluid, respectively, 4. heat by movement in the air in both the cases. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

74	1002154	Heat transfer by convection is calculated by 1. Newton's law of cooling 2. 1st law of Thermodynamics 3. 2nd law of thermodynamics 4. Fourier's law A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

75	1002155		4.0	1.00
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Match **List-I** with **List-II**

List-I	List-II
(A). Radiation	(I). Fastest mode of heat transfer
(B). Irradiance	(II). Incident energy per unit area
(C). Direct Solar radiation	(III). Global radiation
(D). Total solar radiation	(IV). Beam radiation

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV)
3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

76 1002156

4.0 1.00

Match **List-I** with **List-II**

List-I	List-II
(A). Pyroheliometer	(I). Direct solar radiation
(B). Pyranometer	(II). Global solar radiation
(C). Solar radiation	(III). Short wave
(D). Terrestrial radiation	(IV). Long wave

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV)
3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

77

1002157

4.0

1.00

Match **List-I** with **List-II**

List-I	List-II
(A).Biogas	(I).2130 kCal/kg
(B).Charcoal	(II).10550 kCal/kg
(C).Cow dung cakes	(III).4500 kCal/m ³
(D).Diesel	(IV).7000 kcal/kg

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV)

3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)

4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

78

1002158

4.0

1.00

Match **List-I** with **List-II**

List-I	List-II
(A).Biogas thermal efficiency	(I).29%
(B).Charcoal thermal efficiency	(II).60%
(C).Firewood thermal efficiency	(III).20%
(D).Cow dung cake thermal efficiency	(IV).11%

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV)
3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

79	1002159	Which type of wind mill has a hollow circular cylinder sliced in half, the two halves being fixed to a vertical axis with a gap in between? 1. Darrieus type 2. Savonius type 3. Sail type 4. Propeller type A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

801002160

4.01.00

Match **List-I** with **List-II**

List-I	List-II
(A). Multiblade type rotor	(I). 12 to 20 blades
(B). Propeller type rotor	(II). 2 to 3 aerofoil blades
(C). Savonius Type rotor	(III). Less surface area
(D). Darrieus type rotor	(IV). Larger surface area

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV)

3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)

4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

81	1002161		4.0	1.00
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On June 10, the beam radiation flux falling on a tilted surface and horizontal surface is 0.9355 and 0.9338, respectively. What will be the tilt factor?

1. 1.002
2. 1.005
3. 1.000
4. 1.500

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

82	1002162	What is the beam radiation flux incident on aperture plane for hourly beam radiation of 495 W.m^{-2} at 10:30 h on June 10 and tilt factor of 1.5? 1. 742.5 W.m^{-2} 2. 750 W.m^{-2} 3. 740.5 W.m^{-2} 4. 741.5 W.m^{-2} A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

83	1002163	What will be energy available from a biogas digester, if combustion efficiency of burner, heat of combustion and volume of biogas is 60%, 20 MJ.m^{-3} and 5 m^3, respectively? 1. 60 MJ.m^{-3} 2. 60.25 MJ.m^{-3} 3. 60 MJ 4. 60.25 MJ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

84	1002164		4.0	1.00
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Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A) : Wood is a solid lignocellulosic material naturally produced in trees and some shrubs

Reason (R) : Biomass contains lignin, cellulose, hemicellulose, mineral matters and ash

In light of the above statements, choose the *correct* answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

85	1002165	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : Proximate parameters like moisture, volatile matters, fixed carbon and ash are important for developing thermochemical conversion processes for biomass Reason (R) : Proximate analysis reports the yields (%mass basis) of various products obtained upon heating the material under controlled conditions In light of the above statements, choose the <i>correct</i> answer from the options given below. 1. Both (A) and (R) are true and (R) is the correct explanation of (A). 2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A). 3. (A) is true but (R) is false. 4. (A) is false but (R) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

86	1002166	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : Adequate and specific technologies are needed to convert biomass into efficient energy forms (biofuel) Reason (R) : Biofuels from biomass can not be produced by biochemical and thermochemical conversion processes In light of the above statements, choose the <i>correct</i> answer from the options given below. 1. Both (A) and (R) are true and (R) is the correct explanation of (A). 2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A). 3. (A) is true but (R) is false. 4. (A) is false but (R) is true.	4.0	1.00
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A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

87 1002167

4.0 1.00

Steps in the Brayton cycle are given below

(A). 1-2 isentropic compression (in a compressor)

(B). 2-3 Constant pressure heat addition

(C). 3-4 Isentropic expansion (in a turbine)

(D). 4-1 Costant pressure heat rejection

Choose the **correct** answer from the options given below:

1. (A), (B) and (C) only.
2. (A), (B) and (D) only.
3. (A), (B), (C) and (D).
4. (B), (C) and (D) only.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

88 1002168

4.0 1.00

Match **List-I** with **List-II**

List-I	List-II
(A). Brayton cycle	(I). Constant pressure heat rejection in a condensor
(B). Sterling cycle	(II). Process heat and elctric power
(C). Rankine cycle	(III). Isentropic expansion (in a turbine)
(D). Co-generation cycle	(IV). Constant temperature compression (heat rejection)

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV)
3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

89	1002169	Some statements about the thermochemical conversion process are given below: (A). Producer gas is produced (B). Syngas can be produced (C). Bioil is the one of the product (D). The process is thermochemical degradation Choose the correct answer from the options given below: 1. (A), (B) and (D) only. 2. (A), (B) and (D) only. SAME AS OPTION 1 3. (A), (B), (C) and (D). 4. (B), (C) and (D) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

90	1002170	In Biodiesel production process (A). H_2SO_4 is used as catalyst for esterification (B). Esterification is used to convert free fatty acid to esters (C). Transesterification method (D). Major by product obtained is ethanol Choose the correct answer from the options given below: 1. (A), (B) and (D) only. 2. (A), (B) and (C) only. 3. (A), (B), (C) and (D). 4. (B), (C) and (D) only. A1 : 1 A2 : 2 A3 : 3	4.0	1.00
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		A4 : 4		
Objective Question				
91	1002171	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A): Compared to wood, charcoal is a better fuel for residential use Reason (R): When burning, charcoal produce flame and smoke. In light of the above statements, choose the <i>correct</i> answer from the options given below. - Both (A) and (R) are true and (R) is the correct explanation of (A). - Both (A) and (R) are true but (R) is NOT the correct explanation of (A). (A) is true but (R) is false. (A) is false but (R) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
92	1002172	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A): Anerobic condition is suitable for biogas production from biomass Reason (R): Methane in a biogas plant is produced due to methanogenic bacteria In light of the above statements, choose the <i>correct</i> answer from the options given below. - Both (A) and (R) are true and (R) is the correct explanation of (A). - Both (A) and (R) are true but (R) is NOT the correct explanation of (A). (A) is true but (R) is false. (A) is false but (R) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
93	1002173		4.0	1.00

		The indirect energy sources in crop production are (A). Diesel (B). Fertilizer (C). Seed (D). Implement Choose the correct answer from the options given below: 1. (A), (B) and (D) only. 2. (A), (C) and (D) only. 3. (A), (B), (C) and (D). 4. (B), (C) and (D) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
94	1002174	What will be the hour angle at sunrise and sunset on June 21 for a surface inclined at an angle of 10° and facing due south ($\gamma = 0^\circ$). The surface is located in Mumbai ($19^\circ 07' N$, $72^\circ 51' E$). 1. $\pm 93.8^\circ$ 2. $\pm 92.0^\circ$ 3. $\pm 94.0^\circ$ 4. $\pm 85.5^\circ$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
95	1002175		4.0	1.00

Match **List-I** with **List-II**

List-I	List-II
(A). Carbonization	(I). It is destructive distillation of organic matter
(B). Pyrolysis	(II). Process whereby wood is heated with restricted airflow to form a high carbon product
(C). Gasification	(III). Thermal decomposition of biomass in the presence of controlled air
(D). Liquifaction	(IV). Rapid quenching is essential

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (II), (B) - (I), (C) - (III), (D) - (IV)
3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

96	1002176	Declination angle, δ in degree is xpressed as 1. $\delta = 23.45 \sin \frac{360(284+n)}{365}$ 2. $\delta = 23.5 \cos \frac{360(284+n)}{365}$ 3. $\delta = 21.45 \cos \frac{360(365+n)}{365}$ 4. $\delta = 23.45 \cos \frac{360(365+n)}{365}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

97	1002177	Which one of the following has two-reversible isotherms and two reversible isobars? 1. Rankine cycle 2. Brayton cycle 3. Erricsson cycle 4. Carnot cycle A1 : 1	4.0	1.00
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		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

98	1002178	Cellulosic biomass conversion into fuel uses which of the following paths 1. Gasification 2. Pyrolysis and gasification 3. Hydrothermal processing and pyrolysis 4. Gasification, pyrolysis and hydrothermal processing A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

99	1002179	Earth reflects about one third of the sunlight that falls on it and is represented by a term known as: 1. Spectrum 2. Reflectivity 3. Radiation 4. Albedo A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

100	1002180	What will be the Local Solar time at a location latitude 23°15' N. longitude 77° 30' E at 12.30 IST on June 19. Equation of time correction is given from standard table or chart = (1'01"). 1. 12h 10' 55" 2. 10h 8' 59" 3. 12h 8' 59" 4. 10h 10' 59" A1 : 1 A2 : 2	4.0	1.00
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A3 : 3

A4 : 4

Objective Question

101	1002181	What will be the filling factor and maximum power respectively of a solar cell with the following parameters: $V_{oc} = 0.24V$, $I_{sc} = -10 \text{ mA}$, $V_m = 0.14$, $I_m = -6.5 \text{ mA}$, Intensity = 100 W/m^2, Area = 4 cm^2 1. $0.379, 0.95 \times 10^{-3} \text{ W}$ 2. $0.379, 0.91 \times 10^{-3} \text{ W}$ 3. $0.375, 0.95 \times 10^{-3} \text{ W}$ 4. $0.375, 0.91 \times 10^{-3} \text{ W}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

102	1002182	An evacuated tube collector is working under the following conditions. The intensity of solar radiation on the collector surface = 760 W/m^2; The collector fluid inlet temperature = 43°C; The ambient air temperature = 26°C; Effective optical efficiency $F(\tau\alpha)_e = 0.77$; Effective heat loss coefficient = $F_R U_c = 1.65 \text{ W/m}^2\text{K}$; Mass flow rate of water = $0.017 \text{ kg.s}^{-1}.\text{m}^{-2}$; Isobaric specific heat of water $C_p = 4187 \text{ J/kg K}$. The useful heat output will be 1. 575.55 W/m^2 2. 555.15 W/m^2 3. 557.15 W/m^2 4. 755.15 W/m^2 A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

103	1002183	A propeller type, horizontal shaft wind turbine is having following wind characteristics: Speed of wind 10 m/s at 1 atm and 15°C; The turbine has diameter of 120 m and its operating speed is 40 rpm. What will be the respective total power density in the wind stream and the maximum obtainable power density? Assuming maximum efficiency $\eta = 40\%$ 1. 613 W/m^2 and 245.2 W/m^2 2. 316 W/m^2 and 452.2 W/m^2 3. 613 W/m^2 and 425.2 W/m^2 4. 163 W/m^2 and 245.2 W/m^2	4.0	1.00
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		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		
Objective Question				
104	1002184	What will be the overall efficiency of an ocean thermal energy conversion plant if the temperature of warm water in the surface layer is 30°C and temperature of cold water in the depth of the tropical ocean is 8°C. It can be assumed that the relative efficiency factor of the power plant is 0.5. 1. 5.69% 2. 6.33% 3. 6.66% 4. 3.63% A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
105	1002185	A tidal power plant of single basin type, has a basin area of $25 \times 10^6 \text{ m}^2$. The tide has a range of 10 m. The turbine however, stops operating when the head on it falls below 2 m. What will be the energy generated in one filling process, in kWh if the turbine generator efficiency is 75%. (Density of sea water = 10^{25} kg/m^3) 1. $2123.6 \times 10^6 \text{ kWh}$ 2. $2321.6 \times 10^6 \text{ kWh}$ 3. $2123.6 \times 10^5 \text{ kWh}$ 4. $3213.6 \times 10^5 \text{ kWh}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
106	1002186		4.0	1.00

Match **List-I** with **List-II**

List-I	List-II
Fuels for fuel cell	Voltage at 25°C
(A). Ammonia NH_3	(I). 1.09 V
(B). Hydrogen H_2	(II). 1.17 V
(C). Methanol	(III). 1.23 V
(D). Propane	(IV). 1.61 V
	(V). 1.21 V

Choose the **correct** answer from the options given below:

- (A) - (I), (B) - (II), (C) - (V), (D) - (IV)
- (A) - (II), (B) - (III), (C) - (V), (D) - (I)
- (A) - (V), (B) - (II), (C) - (III), (D) - (IV)
- (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

107 1002187

4.0 1.00

Match **List-I** with **List-II**

List-I	List-II
(A). Fuel cell	(I). Heat engine
(B). Magneto hydrodynamic system	(II). Nuclear fusion energy
(C). Thermionic conversion	(III). Chemical energy
(D). Plasma	(IV). Geothermal reservoirs
	(V). Open and closed cycle

Choose the **correct** answer from the options given below:

- (A) - (I), (B) - (III), (C) - (IV), (D) - (V)
- (A) - (V), (B) - (IV), (C) - (II), (D) - (I)
- (A) - (III), (B) - (V), (C) - (I), (D) - (II)
- (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

108 1002188

4.0 1.00

Match **List-I** with **List-II**

List-I	List-II
(A).C4 sugar	(I).Lactic acid
(B).C5 sugar	(II).Levulinic acid, furfural, sugar, alcohol, formic acid and 5-hydroxy methyl furfural
(C).C6 sugar	(III).Gallic acid
(D).Aromatics	(IV).Butanol
	(v).Levulinic acid and furfural

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (II), (B) - (V), (C) - (III), (D) - (I)
3. (A) - (IV), (B) - (V), (C) - (II), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

109 1002189

4.0 1.00

Match **List-I** with **List-II**

List-I	List-II
(A).Drying zone	(I). $\text{CH}_4 + \text{H}_2\text{O} \rightleftharpoons 3\text{H}_2 + \text{CO}$
(B).Pyrolysis zone	(II).Wet biomass+ heat $\rightarrow \text{CH}_w\text{O}_x\text{N}_y\text{S}_z + \text{H}_2\text{O}$
(C).Combustion zone	(III). $\text{C} + \text{H}_2\text{O} \rightleftharpoons \text{CO} + \text{H}_2$
(D).Reduction zone	(IV). $\text{CO} + \text{H}_2\text{O} \rightleftharpoons \text{CO}_2 + \text{H}_2$
	(V). $\text{CH}_w\text{O}_x\text{N}_y\text{S}_z + \text{H}_2\text{O} \rightarrow \text{Char} + \text{tar/oil} + a\text{N}_2 + c\text{H}_2\text{S} + d\text{H}_2\text{O} + e\text{H}_2 + f\text{CH}_4$

Choose the **correct** answer from the options given below:

1. (A) - (III), (B) - (IV), (C) - (II), (D) - (I)
2. (A) - (II), (B) - (V), (C) - (I), (D) - (III)
3. (A) - (I), (B) - (II), (C) - (IV), (D) - (III)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

110 1002190

4.0

1.00

Match **List-I** with **List-II**

List-I	List-II
(A).Human	(I).48.12 MJ/kg
(B).Electric motor	(II).56.31 MJ/kg
(C).Farm machinery	(III).62.7 MJ/kg
(D).Diesel	(IV).64.8MJ/kg
	(V).1.96 MJ/man-h

Choose the **correct** answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (V), (B) - (II), (C) - (I), (D) - (III)
3. (A) - (V), (B) - (IV), (C) - (III), (D) - (II)
4. (A) - (IV), (B) - (III), (C) - (I), (D) - (II)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

111 1002191

4.0

1.00

The correlation for Nusselt numbers can be expressed by

(A). $N_u = 0.0158 R_g^{0.8}$

(B). $N_u = \frac{0.01344 R_g^{0.75}}{1 - 1.586 R_g^{0.125}}$

(C). $N_u = R_g^{0.8}$

(D). $N_u = \frac{0.01344 R_g}{1 - 1.586 R_g^{0.125}}$

Choose the **correct** answer from the options given below:

1. (A) and (B) only.
2. (A), (B) and (C) only.
3. (A), (B), (C) and (D).
4. (A), (B) and (D) only.

A1 : 1

A2 : 2

		A3 : 3		
		A4 : 4		
Objective Question				
112	1002192	Different types of vertical axis wind turbines are (A). Darrieus rotor (B). Musgrove rotor (C). Savonius rotor (D). Macney rotor Choose the correct answer from the options given below: 1. (A), (C) and (D) only. 2. (A), (B) and (C) only. 3. (A) and (C) only. 4. (B) and (C) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
113	1002193	Geothermal energy is used in India in the form of (A).Power generation (B).Space heating (C).Extraction and refining of borax and sulphur (D).Refrigeration (E). Geomethanation Choose the correct answer from the options given below: 1. (A), (B) and (D) only. 2. (A), (B), (C) and (D) only. 3. (B), (C),(D) and (E) only. 4. (A), (C), (D) and (E) only. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question				
114	1002194	Wind energy is very sensitive to the wind velocity because wind power is directly proportional to the 1. Wind velocity 2. Square of the wind velocity 3. Square root of the wind velocity 4. Cube of the wind velocity A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
115	1002195	The temperature range achieved in enclosed box type solar cooker with reflector is 1. About 15 to 20°C higher than simple box type collector 2. About 20 to 25°C higher than simple box type collector 3. About 10 to 20°C higher than simple box type collector 4. About 5 to 10°C higher than simple box type collector A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
Objective Question				
116	1002196	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : Fill factor of the solar cell ranges between 0 to 1 Reason (R) : The ratio of $I_m V_m$ to $I_{sc} V_{oc}$, determines the fill factor, which is an important feature of solar cells. In light of the above statements, choose the <i>correct</i> answer from the options given below. 1. Both (A) and (R) are true and (R) is the correct explanation of (A). 2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A). 3. (A) is true but (R) is false. 4. (A) is false but (R) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00

Objective Question

117	1002197	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : In comparison to emissions from gasoline-powered vehicles, those produced by diesel-powered automobiles pose a lower risk to human health. Reason (R) : Diesel engines produce extremely high pollution in the form of hydrocarbons and carbon monoxide because of their design. In light of the above statements, choose the <i>correct</i> answer from the options given below. - Both (A) and (R) are true and (R) is the correct explanation of (A). - Both (A) and (R) are true but (R) is NOT the correct explanation of (A). (A) is true but (R) is false. (A) is false but (R) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

118	1002198	Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R). Assertion (A) : Relative to the electricity produced, fairly large structures are needed to utilize renewable energy. Reason (R) : When compared to fossil fuels, the power flux densities of renewable energy sources are noticeably lower. In light of the above statements, choose the <i>correct</i> answer from the options given below. - Both (A) and (R) are true and (R) is the correct explanation of (A). - Both (A) and (R) are true but (R) is NOT the correct explanation of (A). (A) is true but (R) is false. (A) is false but (R) is true. A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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Objective Question

119	1002199		4.0	1.00
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Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A) : The numerous solar cells in a module are soldered together using silver.

Reason (R) : Silver is a metal that shines.

In light of the above statements, choose the *correct* answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

120	1002200	What is the radiative heat transfer coefficient between a wall's surface at 25 °C and the temperature of the ambient air, $T_a = 24$ °C? 1. 6.9 W/m² °C 2. 6 W/m² °C 3. 6.5 W/m² °C 4. 6.3 W/m² °C A1 : 1 A2 : 2 A3 : 3 A4 : 4	4.0	1.00
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