

## 43 Irrigation and Drainage Engg ICAR SEPT 2022

Topic:- GEN KNOW COMMON PHD

1) Colour of the tag used on certified seed bags is[Question ID = 16958][Question Description = 101\_221\_GKD\_SEP22\_Q01]

1. Blue [Option ID = 37829]
2. Purple [Option ID = 37830]
3. White [Option ID = 37831]
4. Golden Yellow [Option ID = 37832]

2) Following are the statements regarding the Usar soil -

- A. It is reclaimed by adding lime.
- B. This soil has pH more than seven.
- C. Paddy crop can be grown in this soil.

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

[Question ID = 16959][Question Description = 102\_221\_GKD\_SEP22\_Q02]

1. A and B only [Option ID = 37833]
2. B and C only [Option ID = 37834]
3. C only [Option ID = 37835]
4. A only [Option ID = 37836]

3) When total utility of a commodity increases, marginal utility will be

[Question ID = 16960][Question Description = 103\_221\_GKD\_SEP22\_Q03]

1. Negative but increasing  
[Option ID = 37837]
2. Positive but decreasing  
[Option ID = 37838]
3. Constant  
[Option ID = 37839]
4. Either positive or negative  
[Option ID = 37840]

4) Where is the headquarter of International Fund for Agriculture Development located?

[Question ID = 16961][Question Description = 104\_221\_GKD\_SEP22\_Q04]

1. Vienna, Austria  
[Option ID = 37841]
2. Rome, Italy  
[Option ID = 37842]
3. New York, USA  
[Option ID = 37843]
4. Berlin, Germany  
[Option ID = 37844]

5) Mid-Oceanic Ridges are one of the important divisions of the ocean floor. In this respect, point out the incorrect statement regarding the 'Mid-Oceanic Ridges'. [Question ID = 16962][Question Description = 105\_221\_GKD\_SEP22\_Q05]

1. It is the largest mountain chain on the surface of the earth [Option ID = 37845]
2. It is a series of interconnected chain within the ocean. [Option ID = 37846]
3. It is characterised by a central rift system [Option ID = 37847]
4. The rift system at the crest is the zone of very low volcanic activity. [Option ID = 37848]

6) Consider the following facts about the union territory of India and point out the one which is incorrect in relation to union territory.[Question ID = 16963][Question Description = 106\_221\_GKD\_SEP22\_Q06]

1. These are the areas under the direct control of central government. [Option ID = 37849]
2. Also known as the 'centrally administered territories. [Option ID = 37850]

3. These territories constitute a conspicuous departure from the unitary feature of India. [Option ID = 37851]
4. There is no uniformity in their administrative systems. [Option ID = 37852]

**7) Variety of flora and fauna are found in the different types of forest in India. In this regard, species of trees like teak, *sal shisham*, *sandalwood*, etc. are found in which of the following type of forests in India?**[Question ID = 16964][Question Description = 107\_221\_GKD\_SEP22\_Q07]

1. Tropical evergreen forests [Option ID = 37853]
2. Tropical thorn forests [Option ID = 37854]
3. Tropical deciduous forests [Option ID = 37855]
4. Montane forests [Option ID = 37856]

**8) The Marginal Preference Theory of consumption behaviour was proposed by**

**[Question ID = 16965][Question Description = 108\_221\_GKD\_SEP22\_Q08]**

1. Armstrong  
[Option ID = 37857]
2. J.K.Hicks  
[Option ID = 37858]
3. Neumann  
[Option ID = 37859]
4. Edmund Cannon  
[Option ID = 37860]

**9) Point out the incorrect statements regarding the service sector in India.**[Question ID = 16966][Question Description = 109\_221\_GKD\_SEP22\_Q09]

1. It is the highest contributor to GDP [Option ID = 37861]
2. It requires skilled labour [Option ID = 37862]
3. It is the fastest growing sector [Option ID = 37863]
4. It is restricted to very few sectors. [Option ID = 37864]

**10) Consider the statements regarding the agriculture sector in India and point out the incorrect statement.**[Question ID = 16967][Question Description = 110\_221\_GKD\_SEP22\_Q10]

1. Agriculture sector is the largest employer of workforce [Option ID = 37865]
2. It has contributed to the Gross Value Added (GVA) [Option ID = 37866]
3. Growth in allied sectors is the major drivers of overall growth in the sector. [Option ID = 37867]
4. Minimum Support Price (MSP) policy is used as to promote crop uniformity. [Option ID = 37868]

**11) In case of related goods, the cross elasticity of demand is**[Question ID = 16968][Question Description = 111\_221\_GKD\_SEP22\_Q11]

1. Low [Option ID = 37869]
2. High [Option ID = 37870]
3. Zero [Option ID = 37871]
4. Unity [Option ID = 37872]

**12) With reference to organic farming in India, consider the following statements :**

- A. The National Programme for Organic Production' (NPOP) is operated under the guidelines and directions of the Union Ministry of Rural Development.
- B. The Agricultural and Processed Food Products Export Development Authority' (APEDA) functions as the Secretariat for the implementation of NPOP.
- C. Sikkim has become India's first fully organic state.

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

**[Question ID = 16969][Question Description = 112\_221\_GKD\_SEP22\_Q12]**

1. A and B only  
[Option ID = 37873]
2. B and C only  
[Option ID = 37874]
3. C only  
[Option ID = 37875]
4. A, B and C

[Option ID = 37876]

13) With reference to the circumstances in Indian agriculture, the concept of "Conservation Agriculture" assumes significance. Which of the following falls under the Conservation Agriculture ?

- A. Avoiding the monoculture practices.
- B. Adopting minimum tillage.
- C. Avoiding the cultivation of plantation crops.
- D. Using crop residues to cover soil surface.
- E. Adopting spatial and temporal crop sequencing/ crop rotations.

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

[Question ID = 16970][Question Description = 113\_221\_GKD\_SEP22\_Q13]

- 1. A, C and D only [Option ID = 37877]
- 2. B, C, D and E only [Option ID = 37878]
- 3. B, D and E only [Option ID = 37879]
- 4. A, B, C and E only [Option ID = 37880]

14) Consumers are likely to get a variety of goods in which kind of market competition[Question ID = 16971][Question Description = 114\_221\_GKD\_SEP22\_Q14]

- 1. Monopoly [Option ID = 37881]
- 2. Duopoly [Option ID = 37882]
- 3. Oligopoly [Option ID = 37883]
- 4. Monopolistic [Option ID = 37884]

15) What is the correct chronological order of the following laws enacted for the conservation and protection of environment ?

- A. Environment (Protection) Act.
- B. Water (Prevention & Control of Pollution) Act.
- C. Air (Prevention & Control of pollution) Act.
- D. National Green Tribunal Act.

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

[Question ID = 16972][Question Description = 115\_221\_GKD\_SEP22\_Q15]

- 1. B, C, A, D [Option ID = 37885]
- 2. A, B, C, D [Option ID = 37886]
- 3. C, B, A, D [Option ID = 37887]
- 4. D, C, B, A [Option ID = 37888]

16) The scientific study of soil is[Question ID = 16973][Question Description = 116\_221\_GKD\_SEP22\_Q16]

- 1. Earth Study [Option ID = 37889]
- 2. Soil Science [Option ID = 37890]
- 3. Pedology [Option ID = 37891]
- 4. Soil Chemistry [Option ID = 37892]

17) *Triticum aestivum*, the common bread wheat is -

[Question ID = 16974][Question Description = 117\_221\_GKD\_SEP22\_Q17]

- 1. Tetraploid  
[Option ID = 37893]
- 2. Hexaploid  
[Option ID = 37894]
- 3. Haploid  
[Option ID = 37895]
- 4. Diploid  
[Option ID = 37896]

18) Sectoral inflation refers to[Question ID = 16975][Question Description = 118\_221\_GKD\_SEP22\_Q18]

- 1. Running inflation [Option ID = 37897]

2. Comprehensive inflation [Option ID = 37898]
3. Sporadic inflation [Option ID = 37899]
4. Creeping inflation [Option ID = 37900]

**19) Keynes Liquidity trap refers to**[Question ID = 16976][Question Description = 119\_221\_GKD\_SEP22\_Q19]

1. Speculative demand for money [Option ID = 37901]
2. Transactions motive of money is inelastic [Option ID = 37902]
3. Precautionary motive of money is inelastic [Option ID = 37903]
4. Transactions motive of money is constant [Option ID = 37904]

**20) A business is solvent if**[Question ID = 16977][Question Description = 120\_221\_GKD\_SEP22\_Q20]

1. Total receipts exceed total expenditures [Option ID = 37905]
2. Total debt exceeds total equity [Option ID = 37906]
3. Total sales exceed total cash expense [Option ID = 37907]
4. Total assets exceed total liabilities [Option ID = 37908]

Topic:- Agricultural Engg and Tech\_PHD

**1) The major objectives of secondary tillage operations are:**

- A. to pulverize soil
- B. to reduce strength and compactness of soil
- C. to destroy grasses and weeds
- D. to make the field surface level

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

[Question ID = 4751][Question Description = 101\_63\_PBF\_SEP22\_Q01]

1. A, B and C only [Option ID = 19001]
2. B, C and D only [Option ID = 19002]
3. A, C and D only [Option ID = 19003]
4. A, B and D only [Option ID = 19004]

**2) The loamy soil with silt as the dominant particle is known as medium soil. The particle size of silt (mm) is:**

[Question ID = 4752][Question Description = 102\_63\_PBF\_SEP22\_Q02]

1. <0.002  
[Option ID = 19005]
2. 0.002-0.05  
[Option ID = 19006]
3. 0.05-0.1  
[Option ID = 19007]
4. 0.1-0.25  
[Option ID = 19008]

**3) Which of the following statements are true for precision planting?**

- A. Greater crop uniformity
- B. Better yield
- C. Higher income per unit area

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

[Question ID = 4753][Question Description = 103\_63\_PBF\_SEP22\_Q03]

1. A, B only [Option ID = 19009]
2. B, C only [Option ID = 19010]
3. A, C only [Option ID = 19011]
4. A, B, C [Option ID = 19012]

**4) In order to reduce the speed of seed in furrows, the seed tube is inclined rear ward from the vertical at:**[Question ID = 4754][Question Description = 104\_63\_PBF\_SEP22\_Q04]

1. 15° - 20° [Option ID = 19013]
2. 25° - 30° [Option ID = 19014]
3. 30° - 45° [Option ID = 19015]

4. 45° - 60° [Option ID = 19016]

5) The outer tip of sweep wing has ground clearance of:[Question ID = 4755][Question Description = 105\_63\_PBF\_SEP22\_Q05]

1. 3 - 7 mm [Option ID = 19017]
2. 10 - 15 mm [Option ID = 19018]
3. 15 - 20 mm [Option ID = 19019]
4. 20 - 25 mm [Option ID = 19020]

6) Given below are two statements

**Statement I:** The tractor operated mist sprayer applies the same quantity of chemical in one- tenth volume compared to a hydraulic sprayer.

**Statement II:** In electrostatic spayer the amount of spray material reaching the plant increases significantly due to air assistance only.

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

[Question ID = 4756][Question Description = 106\_63\_PBF\_SEP22\_Q06]

1. Both Statement I and Statement II are correct [Option ID = 19021]
2. Both Statement I and Statement II are incorrect [Option ID = 19022]
3. Statement I is correct but Statement II is incorrect [Option ID = 19023]
4. Statement I is incorrect but Statement II is correct [Option ID = 19024]

7) Following types of knife sections are used in a standard cutter bar

- A. Smooth edge type
- B. Top serrated type
- C. Under serrated type

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

[Question ID = 4757][Question Description = 107\_63\_PBF\_SEP22\_Q07]

1. A only [Option ID = 19025]
2. A and B only [Option ID = 19026]
3. A and C only [Option ID = 19027]
4. A, B and C only [Option ID = 19028]

8) Which is NOT a type of thresher?

[Question ID = 4758][Question Description = 108\_63\_PBF\_SEP22\_Q08]

1. Drum type [Option ID = 19029]
2. Syndicator type [Option ID = 19030]
3. Beater type [Option ID = 19031]
4. Flail type [Option ID = 19032]

9) Determine the percentage increase in linear speed of a mower, without change in crank wheel speed, having drive wheel diameter of 420 mm. The mower is being operated by a 35 hp tractor at a forward speed of 3.52 km.h<sup>-1</sup> and the crank wheel makes a rotation of 960 RPM. The change in speed ratio between the crank wheel and drive wheel is 24:1.

[Question ID = 4759][Question Description = 109\_63\_PBF\_SEP22\_Q09]

1. 10 [Option ID = 19033]
2. 12 [Option ID = 19034]
3. 14 [Option ID = 19035]
4. 15 [Option ID = 19036]

10) Length of chain conveyor in elevator type potato digger is normally kept in the range of:[Question ID = 4760][Question Description = 110\_63\_PBF\_SEP22\_Q10]

1. 1.50 - 1.80 mm [Option ID = 19037]
2. 1.20 - 1.50 mm [Option ID = 19038]
3. 1.00 - 1.20 mm [Option ID = 19039]
4. 0.80 - 1.00 mm [Option ID = 19040]

11) When the wheel steer angle decreased with increasing speed, the under steer coefficient is:[Question ID = 4761][Question Description = 111\_63\_PBF\_SEP22\_Q11]

1. Zero [Option ID = 19041]
2. Positive [Option ID = 19042]
3. Negative [Option ID = 19043]

4. Neutral [Option ID = 19044]

**12) Given below are two statements**

**Statement I:** OSHA standard permits exposure of 85dB(A) for a 16 hour work period

**Statement II:** As per NIOSH standard, for every 5dB increase in noise, the allowable exposure time is reduced to half

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

**[Question ID = 4762][Question Description = 112\_63\_PBF\_SEP22\_Q12]**

1. Both Statement I and Statement II are true [Option ID = 19045]
2. Both Statement I and Statement II are false [Option ID = 19046]
3. Statement I is true but Statement II is false [Option ID = 19047]
4. Statement I is false but Statement II is true [Option ID = 19048]

**13) Which type of mouldboard is preferred for more sticky soils, where it is difficult for other mouldboard to scour well?**[Question ID = 4763][Question Description = 113\_63\_PBF\_SEP22\_Q13]

1. General purpose [Option ID = 19049]
2. Stubble [Option ID = 19050]
3. Sod [Option ID = 19051]
4. Slat [Option ID = 19052]

**14) Operating with restrained links rather than free links provides greater tractor stability. What happens to the vertical load on the tractor rear wheels, while operating with restrained links?**

**[Question ID = 4764][Question Description = 114\_63\_PBF\_SEP22\_Q14]**

1. increases  
[Option ID = 19053]
2. decreases  
[Option ID = 19054]
3. remains same  
[Option ID = 19055]
4. no effect on vertical load  
[Option ID = 19056]

**15) Calculate the oxygen consumption for the agricultural worker in litres per minute, if he expires 180 litres of air having 16% of oxygen in 6 minutes duration.**[Question ID = 4765][Question Description = 115\_63\_PBF\_SEP22\_Q15]

1. 6.0 [Option ID = 19057]
2. 4.5 [Option ID = 19058]
3. 3.0 [Option ID = 19059]
4. 1.5 [Option ID = 19060]

**16) In which gasifier the products from the pyrolysis zone and drying zone pass through oxidation zone causing thermal cracking of volatiles.**[Question ID = 4766][Question Description = 116\_63\_PBF\_SEP22\_Q16]

1. up draft [Option ID = 19061]
2. down draft [Option ID = 19062]
3. cross draft [Option ID = 19063]
4. fluidized bed [Option ID = 19064]

**17) In offset disc harrow as compared to rear gang the couple acting on front gang is:**[Question ID = 4767][Question Description = 117\_63\_PBF\_SEP22\_Q17]

1. larger [Option ID = 19065]
2. smaller [Option ID = 19066]
3. similar [Option ID = 19067]
4. considerably smaller [Option ID = 19068]

**18) The efficiency of diesel engine with high compression and early fuel cut-off is:**[Question ID = 4768][Question Description = 118\_63\_PBF\_SEP22\_Q18]

1. minimum [Option ID = 19069]
2. maximum [Option ID = 19070]
3. average [Option ID = 19071]
4. lower than average [Option ID = 19072]

**19) Front loading is provided on tractors for:**[Question ID = 4769][Question Description = 119\_63\_PBF\_SEP22\_Q19]

1. increase in pull [Option ID = 19073]
2. weight transfer [Option ID = 19074]
3. safety [Option ID = 19075]
4. lowering vibration [Option ID = 19076]

20) Which type of joint represents the shoulder joints and hip joints?[Question ID = 4770][Question Description = 120\_63\_PBF\_SEP22\_Q20]

1. gliding [Option ID = 19077]
2. hinge [Option ID = 19078]
3. saddle [Option ID = 19079]
4. ball & socket [Option ID = 19080]

21) The pupose of batter slope in bench terrace is

[Question ID = 4771][Question Description = 121\_63\_PBF\_SEP22\_Q21]

1. to provide stability to filled soil [Option ID = 19081]
2. protection against soil erosion [Option ID = 19082]
3. conserve moisture content [Option ID = 19083]
4. increase water retention [Option ID = 19084]

22) Match List I with List II

| List I             | List II                                            |
|--------------------|----------------------------------------------------|
| A. Metacentre      | I. Flow in river                                   |
| B. Piezometer tube | II. Application of transmission of liquid pressure |
| C. Hydraulic press | III. Stability of ship                             |
| D. Turbulent flow  | IV. Static pressure head                           |
|                    | V. Froude's number                                 |

Choose the correct answer from the options given below:

[Question ID = 4772][Question Description = 122\_63\_PBF\_SEP22\_Q22]

1. A - III, B - I, C - IV, D - V [Option ID = 19085]
2. A - II, B - V, C - IV, D - I [Option ID = 19086]
3. A - III, B - IV, C - II, D - V [Option ID = 19087]
4. A - III, B - IV, C - II, D - I [Option ID = 19088]

23) Given below are two statements

Statement I: Hydraulic jump is a local phenomenon.

Statement II: Hydraulic jump occurs, when the flow changes from super critical flow to sub-critical flow.

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

[Question ID = 4773][Question Description = 123\_63\_PBF\_SEP22\_Q23]

1. Both Statement I and Statement II are true [Option ID = 19089]
2. Both Statement I and Statement II are false [Option ID = 19090]
3. Statement I is true but Statement II is false [Option ID = 19091]
4. Statement I is false but Statement II is true [Option ID = 19092]

24) Which sequence of water erosion is classified ?

- A. Raindrop erosion
- B. Rill erosion
- C. Stream bank erosion
- D. Sheet erosion
- E. Gully erosion

Choose the *correct* answer from the options given below

[Question ID = 4774][Question Description = 124\_63\_PBF\_SEP22\_Q24]

1. A, C, B, E, D [Option ID = 19093]
2. A, D, B, E, C [Option ID = 19094]
3. A, B, E, D, C [Option ID = 19095]
4. A, D, B, C, E [Option ID = 19096]

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

**Assertion A :** A cross drainage work is generally a costly construction and must be avoided as far as possible.

**Reason R :** A cross drainage work is a structure which is constructed at the crossing of a canal and a natural drain, so as dispose of drainage water without interrupting the continuous canal supplies.

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

[Question ID = 4775][Question Description = 125\_63\_PBF\_SEP22\_Q25]

1. Both A and R are true and R is the correct explanation of A [Option ID = 19097]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 19098]
3. A is true but R is false [Option ID = 19099]
4. A is false but R is true [Option ID = 19100]

26) Match List I with List II

| List I                   | List II                                 |
|--------------------------|-----------------------------------------|
| A. Field channel         | I. Warabandi system                     |
| B. Base period           | II. On Farm Development work            |
| C. Rotational irrigation | III. Cross-drainage work                |
| D. Aqueduct              | IV. First irrigation to last irrigation |
|                          | V. Time from sowing to harvest of crop  |

Choose the correct answer from the options given below:

[Question ID = 4776][Question Description = 126\_63\_PBF\_SEP22\_Q26]

1. A - II , B - V , C - III, D - I [Option ID = 19101]
2. A - II, B - IV , C - I , D - III [Option ID = 19102]
3. A -II , B -V , C - IV, D - I [Option ID = 19103]
4. A - III, B -V , C -IV , D -II [Option ID = 19104]

27) Given below are two statements

**Statement I:** Gross command area of a major irrigation project is more than the culturable command area.

**Statement II:** Base period of a crop is more than crop period.

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

[Question ID = 4777][Question Description = 127\_63\_PBF\_SEP22\_Q27]

1. Both Statement I and Statement II are true [Option ID = 19105]
2. Both Statement I and Statement II are false [Option ID = 19106]
3. Statement I is true but Statement II is false [Option ID = 19107]
4. Statement I is false but Statement II is true [Option ID = 19108]

28) A. The zone of aeration consists of interstices occupied partially by water and partially by air.

B. Specific yield is the moisture content of soil in the zone of aeration.

C. In the zone of saturation all interstices are filled with water under hydrostatic pressure.

D. Capillary zone is a sub-zone of zone of saturation.

E. The thickness of the capillary zone will vary inversely with the pore size of the soil or rock.

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

[Question ID = 4778][Question Description = 128\_63\_PBF\_SEP22\_Q28]

1. A, B and D only [Option ID = 19109]
2. A, B, D and E only [Option ID = 19110]
3. A, C and E only [Option ID = 19111]
4. A, C, D and E only [Option ID = 19112]

29) Maximum water development can only be attained by combined use of surface and groundwater is known as[Question ID = 4779][Question Description = 129\_63\_PBF\_SEP22\_Q29]

1. Capillary use [Option ID = 19113]
2. Conjunctive use [Option ID = 19114]
3. Consumptive use [Option ID = 19115]
4. Safe yield [Option ID = 19116]

30) Contour trenching is NOT suitable on the slopes

[Question ID = 4780][Question Description = 130\_63\_PBF\_SEP22\_Q30]



1. less than 20 % [Option ID = 19117]
2. greater than 20 % [Option ID = 19118]
3. less than 10 % [Option ID = 19119]
4. less than 2 % [Option ID = 19120]

31) Given below are two statements

Statement I: Bunds are constructed with land slope 2 to 10 %.

Statement II: Contour bunds are recommended for the areas of low rainfall.

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

[Question ID = 4781][Question Description = 131\_63\_PBF\_SEP22\_Q31]

1. Both Statement I and Statement II are true [Option ID = 19121]
2. Both Statement I and Statement II are false [Option ID = 19122]
3. Statement I is true but Statement II is false [Option ID = 19123]
4. Statement I is false but Statement II is true [Option ID = 19124]

32) Match List I with List II

| List I                       | List II                  |
|------------------------------|--------------------------|
| A. Intensity of pressure     | I. Dupuit's formula      |
| B. Flow through porous media | II. Manning's formula    |
| C. Channel design            | III. Darcy's law         |
| D. Well hydraulics           | IV. Pascal's law         |
|                              | V. Archimedes' principle |

Choose the correct answer from the options given below:

[Question ID = 4782][Question Description = 132\_63\_PBF\_SEP22\_Q32]

1. A - IV, B - III, C - II, D - I [Option ID = 19125]
2. A - IV, B - III, C - II, D - V [Option ID = 19126]
3. A - V, B - II, C - III, D - IV [Option ID = 19127]
4. A - III, B - II, C - I, D - V [Option ID = 19128]

33) Given below are two statements

Statement I: Diversion drain has lesser grade and is laid along the slope.

Statement II: Grassed waterway is laid across the slope.

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

[Question ID = 4783][Question Description = 133\_63\_PBF\_SEP22\_Q33]

1. Both Statement I and Statement II are true [Option ID = 19129]
2. Both Statement I and Statement II are false [Option ID = 19130]
3. Statement I is true but Statement II is false [Option ID = 19131]
4. Statement I is false but Statement II is true [Option ID = 19132]

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

Assertion A: In arid region percussion drilling method of tubewell construction is adopted.

Reason R: In percussion drilling method of tubewell construction minimum water is required.

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

[Question ID = 4784][Question Description = 134\_63\_PBF\_SEP22\_Q34]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 19133]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 19134]
3. A is correct but R is not correct [Option ID = 19135]
4. A is not correct but R is correct [Option ID = 19136]

35) A hydrograph is a plot of [Question ID = 4785][Question Description = 135\_63\_PBF\_SEP22\_Q35]

1. Cumulative runoff against time [Option ID = 19137]
2. Cumulative rainfall against time [Option ID = 19138]
3. Rainfall intensity against time [Option ID = 19139]
4. Stream discharge against time [Option ID = 19140]

36) A Cipolletti weir is a trapezoidal weir having side slope of [Question ID = 4786][Question Description = 136\_63\_PBF\_SEP22\_Q36]

1. 1 vertical to 4 horizontal [Option ID = 19141]
2. 1 horizontal to 4 vertical [Option ID = 19142]
3. 1 vertical to 2 horizontal [Option ID = 19143]
4. 1 horizontal to 2 vertical [Option ID = 19144]

**37) The tube wells are compared with respect to their[Question ID = 4787][Question Description = 137\_63\_PBF\_SEP22\_Q37]**

1. Well yield [Option ID = 19145]
2. Well efficiency [Option ID = 19146]
3. Specific capacity [Option ID = 19147]
4. Specific yield [Option ID = 19148]

**38) Given below are two statements**

**Statement I: A canal outlet is a structure built at the head of the tertiary unit to deliver water from the canal to the field water courses.**

**Statement II: Water is taken from the field water courses for irrigating individual fields.**

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

**[Question ID = 4788][Question Description = 138\_63\_PBF\_SEP22\_Q38]**

1. Both Statement I and Statement II are true [Option ID = 19149]
2. Both Statement I and Statement II are false [Option ID = 19150]
3. Statement I is true but Statement II is false [Option ID = 19151]
4. Statement I is false but Statement II is true [Option ID = 19152]

**39) Given below are two statements**

**Statement I: In planning farm irrigation system, the alignment of field channels are generally done on ridges.**

**Statement II: Field channel is not a component of on-farm development work.**

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

**[Question ID = 4789][Question Description = 139\_63\_PBF\_SEP22\_Q39]**

1. Both Statement I and Statement II are true [Option ID = 19153]
2. Both Statement I and Statement II are false [Option ID = 19154]
3. Statement I is true but Statement II is false [Option ID = 19155]
4. Statement I is false but Statement II is true [Option ID = 19156]

**40) Given below are two statements**

**Statement I: The absolute pressure is equal to the sum of atmospheric pressure and vacuum pressure.**

**Statement II: The pressure measured with the help of a piezometer tube is gauge pressure.**

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

**[Question ID = 4790][Question Description = 140\_63\_PBF\_SEP22\_Q40]**

1. Both Statement I and Statement II are true [Option ID = 19157]
2. Both Statement I and Statement II are false [Option ID = 19158]
3. Statement I is true but Statement II is false [Option ID = 19159]
4. Statement I is false but Statement II is true [Option ID = 19160]

**41) Properties which deals with deformation and flow of the material under the action of applied force are -**

- A. Electrical properties
- B. Rheological properties
- C. Physical properties
- D. Frictional properties
- E. Optical properties

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

**[Question ID = 4791][Question Description = 141\_63\_PBF\_SEP22\_Q41]**

1. A only [Option ID = 19161]
2. B only [Option ID = 19162]
3. C and B only [Option ID = 19163]
4. D and E only [Option ID = 19164]

42) Match List I with List II

| List I             | List II             |
|--------------------|---------------------|
| A. Protein         | I. Pasteurization   |
| B. HTST            | II. Amino acid      |
| C. Multiple effect | III. Gelatinization |
| D. Starch          | IV. Evaporator      |

Choose the correct answer from the options given below:

[Question ID = 4792][Question Description = 142\_63\_PBF\_SEP22\_Q42]

1. A - II, B - I, C - III, D - IV [Option ID = 19165]
2. A - II, B - IV, C - I, D - III [Option ID = 19166]
3. A - II, B - I, C - IV, D - III [Option ID = 19167]
4. A - I, B - II, C - IV, D - III [Option ID = 19168]

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

Assertion A : Sensible cooling increases the relative humidity of air.

Reason R : Humidity ratio of air does not change during sensible cooling.

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

[Question ID = 4793][Question Description = 143\_63\_PBF\_SEP22\_Q43]

1. Both A and R are true and R is the correct explanation of A [Option ID = 19169]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 19170]
3. A is true but R is false [Option ID = 19171]
4. A is false but R is true [Option ID = 19172]

44) Cover and plinth is a method of [Question ID = 4794][Question Description = 144\_63\_PBF\_SEP22\_Q44]

1. Fruit storage [Option ID = 19173]
2. Grain storage [Option ID = 19174]
3. Vegetable storage [Option ID = 19175]
4. Packaging [Option ID = 19176]

45) Which among the following equipment is used to separate the material of same size and of different densities?

- A. Screen cleaner
- B. Destoner
- C. Roller sorter
- D. Diverging belt sorter
- E. Specific gravity separator

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

[Question ID = 4795][Question Description = 145\_63\_PBF\_SEP22\_Q45]

1. A, B and D only [Option ID = 19177]
2. E only [Option ID = 19178]
3. A, B and C only [Option ID = 19179]
4. B and E only [Option ID = 19180]

46) Energy requirement equation for size reduction is given by

[Question ID = 4796][Question Description = 146\_63\_PBF\_SEP22\_Q46]

1. Newton [Option ID = 19181]
2. Janssen [Option ID = 19182]
3. Rittinger [Option ID = 19183]
4. Airy [Option ID = 19184]

47) Moisture content at which rate of drying ceases to be constant is known as

[Question ID = 4797][Question Description = 147\_63\_PBF\_SEP22\_Q47]

1. Equilibrium moisture content [Option ID = 19185]
2. Stop moisture content [Option ID = 19186]
3. Critical moisture content [Option ID = 19187]
4. Constant rate moisture content [Option ID = 19188]

48) Process of parboiling includes which of the following unit operations?

- A. Soaking
- B. Steaming
- C. Drying
- D. Pearling
- E. Dehusking

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

[Question ID = 4798][Question Description = 148\_63\_PBF\_SEP22\_Q48]

1. B and C only [Option ID = 19189]
2. A, B and C only [Option ID = 19190]
3. A, B and D only [Option ID = 19191]
4. C and E only [Option ID = 19192]

49) Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R  
Assertion A : Under identical temperatures of hot and cold fluids, parallel flow heat exchangers are efficient than counter flow heat exchangers.

Reason R : Temperature gradient gradually reduces along the length of parallel flow heat exchangers.

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

[Question ID = 4799][Question Description = 149\_63\_PBF\_SEP22\_Q49]

1. Both A and R are true and R is the correct explanation of A [Option ID = 19193]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 19194]
3. A is true but R is false [Option ID = 19195]
4. A is false but R is true [Option ID = 19196]

50) Which of the following process destroys microbes including spores?

- A. Parboiling
- B. Evaporation
- C. Drying
- D. Sterilization
- E. Pasteurization

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

[Question ID = 4800][Question Description = 150\_63\_PBF\_SEP22\_Q50]

1. B only [Option ID = 19197]
2. A and D only [Option ID = 19198]
3. D only [Option ID = 19199]
4. C and E only [Option ID = 19200]

Topic:- 43 Irrigation and Drainage Engineering\_PHD

1) Given below are two statements related to moisture constants.

Statement I: The field capacity and wilting point are generally considered as the lower most and upper most limits of available soil water respectively.

Statement II: The plant yield declines drastically when the available soil water falls below permanent wilting point. This point is referred to as "critical soil water level" for crop yield.

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

[Question ID = 5001][Question Description = 101\_68\_IWM\_SEP22\_Q01]

1. Both Statement I and Statement II are true [Option ID = 20001]
2. Both Statement I and Statement II are false [Option ID = 20002]
3. Statement I is true but Statement II is false [Option ID = 20003]
4. Statement I is false but Statement II is true [Option ID = 20004]

2) A weighing type lysimeter was installed in wheat field to measure the evapotranspiration by the wheat crop. The weight difference showed that, the lysimeter lost 5 kg weight during 24 h period on particular day. The lysimere had an area of 1

m<sup>2</sup>. Then, the average evapotranspiration on that day would be :

[Question ID = 5002][Question Description = 102\_68\_IWM\_SEP22\_Q02]

1. 3.0 mm [Option ID = 20005]
2. 4.0 mm [Option ID = 20006]
3. 5.0 mm [Option ID = 20007]
4. 6.0 mm [Option ID = 20008]

3) Match List I with List II

| List I                                       | List II                                                             |
|----------------------------------------------|---------------------------------------------------------------------|
| (Evapotranspiration use measurement methods) | (Procedure / Process / Requirement)                                 |
| A. Soil moisture studies                     | I. Closed tank with open top and weighing platform arrangement      |
| B. Lysimeter method                          | II. For annual consumptive use of large basin area                  |
| C. Experimental plot method                  | III. Large area divided into sub area under crops                   |
| D. Integration method                        | IV. Before and after irrigation - Oven drying method                |
| E. Inflow and outflow studies                | V. Small plot with measured small quantity of water to avoid runoff |

Choose the correct answer from the options given below:

[Question ID = 5003][Question Description = 103\_68\_IWM\_SEP22\_Q03]

1. A - III, B - I, C - V, D - IV, E - II  
[Option ID = 20009]
2. A - III, B - I, C - II, D - IV, E - V  
[Option ID = 20010]
3. A - IV, B - I, C - III, D - V, E - II  
[Option ID = 20011]
4. A - IV, B - I, C - V, D - III, E - II  
[Option ID = 20012]

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

Assertion A : The carbon dioxide content of soil air is 15 to 20 times more than atmospheric air.

Reason R : The larger content of carbon dioxide in soil air is mainly because of the respiration of plant roots and soil organisms.

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

[Question ID = 5004][Question Description = 104\_68\_IWM\_SEP22\_Q04]

1. Both A and R are true and R is the correct explanation of A [Option ID = 20013]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 20014]
3. A is true but R is false [Option ID = 20015]
4. A is false but R is true [Option ID = 20016]

5) Consider the statements related to use of tensiometer and choose the Correct Statement.

- A. In practice, the useful limit of most of tensiometers is at about 0.85 atmospheres.
- B. Tensiometers are best to determine moisture conditions in the dry range of soil.
- C. Tensiometers are best to use in sandy soils than fine-textured soils.
- D. Even if air enters tensiometer through any leaks, it will not affect measurement.
- E. In tensiometer, tension measurements are useful in deciding when to irrigate, but not how much to irrigate.

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

[Question ID = 5005][Question Description = 105\_68\_IWM\_SEP22\_Q05]

1. A, B and D only  
[Option ID = 20017]
2. A, C and D only  
[Option ID = 20018]
3. A, C and E only

[Option ID = 20019]

4. A and E only

[Option ID = 20020]

6) The range of water potential (bar) in atmosphere is :

[Question ID = 5006][Question Description = 106\_68\_IWM\_SEP22\_Q06]

1. -1 to -10

[Option ID = 20021]

2. -10 to -20

[Option ID = 20022]

3. -20 to -100

[Option ID = 20023]

4. -100 to -2000

[Option ID = 20024]

7) Given below are two statements related to flow of water in soils.

Statement I: In the "moist range", the unsaturated flow in soils of various textures is in the following order: Sand < loam < clay

Statement II: For saturated flow, generally the rate of flow in soils of various textures is in the following sequence: Sand > Loam > Clay

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

[Question ID = 5007][Question Description = 107\_68\_IWM\_SEP22\_Q07]

1. Both Statement I and Statement II are true [Option ID = 20025]

2. Both Statement I and Statement II are false [Option ID = 20026]

3. Statement I is true but Statement II is false [Option ID = 20027]

4. Statement I is false but Statement II is true [Option ID = 20028]

8) Given below are two statements related to vortex flow.

Statement I: When no external torque is required to rotate the fluid mass, that type of flow is called free vortex flow.

Statement II: For a forced vortex flow in an open tank, fall of liquid level at centre is not equal to rise of liquid level at the ends.

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

[Question ID = 5008][Question Description = 108\_68\_IWM\_SEP22\_Q08]

1. Both Statement I and Statement II are true [Option ID = 20029]

2. Both Statement I and Statement II are false [Option ID = 20030]

3. Statement I is true but Statement II is false [Option ID = 20031]

4. Statement I is false but Statement II is true [Option ID = 20032]

9) Which among the following structures are NOT related to structures at channel crossing?

[Question ID = 5009][Question Description = 109\_68\_IWM\_SEP22\_Q09]

1. Flumes [Option ID = 20033]

2. Check gates [Option ID = 20034]

3. Culverts [Option ID = 20035]

4. Inverted siphons [Option ID = 20036]

10) Consider the following dimensions of physical quantities and choose the Correct statements.

A. Discharge :  $M^0 L^2 T^{-1}$

B. Mass density :  $M^1 L^{-3} T^0$

C. Shear stress :  $M^1 L^{-1} T^{-2}$

D. Torque :  $M^1 L^1 T^{-1}$

E. Shear strain :  $M^1 L^1 T^{-1}$

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

[Question ID = 5010][Question Description = 110\_68\_IWM\_SEP22\_Q10]

1. A, B and D only  
[Option ID = 20037]
2. A, B and E only  
[Option ID = 20038]
3. B, D and E only  
[Option ID = 20039]
4. B and C only  
[Option ID = 20040]

11) Match List I with List II

| List I               | List II                                                                         |
|----------------------|---------------------------------------------------------------------------------|
| Dimesionless numbers | Definitions                                                                     |
| A. Reynold's number  | I. Ratio of inertia force to gravity force                                      |
| B. Froude number     | II. Square root of the ratio of the inertia force to the surface tension force  |
| C. Weber number      | III. Ratio of the velocity of the fluid to the velocity of sound in that medium |
| D. Cauchy number     | IV. Ratio of inertia force to the viscous force                                 |
| E. Mach number       | V. Ratio of inertia force to the elasticity force                               |

Choose the correct answer from the options given below:

[Question ID = 5011][Question Description = 111\_68\_IWM\_SEP22\_Q11]

1. A - IV, B - I, C - II, D - V, E - III [Option ID = 20041]
2. A - IV, B - I, C - V, D - II, E - III [Option ID = 20042]
3. A - IV, B - I, C - II, D - III, E - V [Option ID = 20043]
4. A - IV, B - I, C - V, D - III, E - II [Option ID = 20044]

12) Given below are two statements related to surface tension and capillary action.

Statement I: Surface tension is due to cohesion between particles at the free surface.

Statement II: Capillary action is due to both cohesion and adhesion.

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

[Question ID = 5012][Question Description = 112\_68\_IWM\_SEP22\_Q12]

1. Both Statement I and Statement II are true [Option ID = 20045]
2. Both Statement I and Statement II are false [Option ID = 20046]
3. Statement I is true but Statement II is false [Option ID = 20047]
4. Statement I is false but Statement II is true [Option ID = 20048]

13) Consider the statements related to weirs and choose the Correct statements.

- A. For small discharges, rectangular weir is preferred.
- B. A cipoletti weir is a trapezoidal weir with side slope 1 horizontal to 4 vertical.
- C. In a submerged weir, the liquid surface on the downstream side is above the crest.
- D. Usually for a suppressed weir, there will be two end contractions.
- E. Centre line of weir should be parallel to direction of flow.

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

[Question ID = 5013][Question Description = 113\_68\_IWM\_SEP22\_Q13]

1. A, B and D only [Option ID = 20049]
2. A, C and E only [Option ID = 20050]
3. B, C and D only [Option ID = 20051]
4. B, C and E only [Option ID = 20052]

14) Given below are two statements related to spacing of wells to avoid well interference.

Statement I: Pumping wells should have large spacing (beyond radii of influence) of around 600-1000 m in hard rock areas compared to closer spacing (radii of influence) of 100-200 m in alluvial area.

Statement II: An open dug well should be located beyond the cone of depression of the tube well.

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

[Question ID = 5014][Question Description = 114\_68\_IWM\_SEP22\_Q14]

1. Both Statement I and Statement II are correct [Option ID = 20053]
2. Both Statement I and Statement II are incorrect [Option ID = 20054]
3. Statement I is correct but Statement II is incorrect [Option ID = 20055]
4. Statement I is incorrect but Statement II is correct [Option ID = 20056]

15) If area of aquifer, rise in water table and specific yield are  $1 \times 10^6 \text{ m}^2$ , 1.0 m and 0.2 respectively, then volume of recharge ( $\text{m}^3$ ) would be -

[Question ID = 5015][Question Description = 115\_68\_IWM\_SEP22\_Q15]

1. 5,00,000 [Option ID = 20057]
2. 50,00,000 [Option ID = 20058]
3. 2,00,000 [Option ID = 20059]
4. 20,00,000 [Option ID = 20060]

16) Match List I with List II

| List I                                                    | List II                           |
|-----------------------------------------------------------|-----------------------------------|
| Artificial recharge of groundwater - Techniques / Methods | Examples of recharge methods      |
| A. Surface spreading technique                            | I. Recharge pits                  |
| B. Sub surface technique                                  | II. Pumping wells                 |
| C. Induced recharge                                       | III. Fracture sealing cementation |
| D. Aquifer modification                                   | IV. Ditch and furrows             |
| E. Groundwater conservation structure                     | V. Core blasting                  |

Choose the correct answer from the options given below:

[Question ID = 5016][Question Description = 116\_68\_IWM\_SEP22\_Q16]

1. A - IV , B - II , C - V , D - I , E - III [Option ID = 20061]
2. A - IV , B - I , C - II , D - V , E - III [Option ID = 20062]
3. A - IV , B - V , C - II , D - I , E - III [Option ID = 20063]
4. A - IV , B - II , C - I , D - III , E - V [Option ID = 20064]

17) Consider the following statements related to pump performance and choose the Correct statements.

- A. The capacity varies directly with the speed.
- B. The brake horse power varies as the square of the speed.
- C. The brake horse power varies as the square of the diameter of the impeller.
- D. The head varies as the square of the speed.
- E. The capacity varies as the cube of the diameter of the impeller.

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

[Question ID = 5017][Question Description = 117\_68\_IWM\_SEP22\_Q17]

1. A, B and D only [Option ID = 20065]
2. A, C and D only [Option ID = 20066]
3. A, C and E only [Option ID = 20067]
4. A and D only [Option ID = 20068]

18) Match List I with List II

| List I                           | List II                              |
|----------------------------------|--------------------------------------|
| Trouble in centrifugal pumps     | Important Reason                     |
| A. No liquid delivered           | I. Low discharge head                |
| B. Not enough water delivered    | II. Lack of prime                    |
| C. Overloading of motor / engine | III. Misalignment and loose bearings |
| D. Overheating of stuffing box   | IV. Air leaks                        |
| E. Excessive vibrations          | V. Inadequate lubrication            |

Choose the correct answer from the options given below:

[Question ID = 5018][Question Description = 118\_68\_IWM\_SEP22\_Q18]

1. A - II, B - IV, C - I, D - V, E - III [Option ID = 20069]
2. A - II, B - III, C - I, D - V, E - IV [Option ID = 20070]
3. A - II, B - IV, C - V, D - III, E - I [Option ID = 20071]
4. A - II, B - I, C - IV, D - III, E - V [Option ID = 20072]

19) Given below are two statements pertaining to specific speed of pump.



Statement I: For a multi-stage pump, the specific speed is calculated on the basis of the head per stage.

Statement II: In case of a double suction pump, the specific speed is calculated on the basis of square the capacity.

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

[Question ID = 5019][Question Description = 119\_68\_IWM\_SEP22\_Q19]

1. Both Statement I and Statement II are true [Option ID = 20073]
2. Both Statement I and Statement II are false [Option ID = 20074]
3. Statement I is true but Statement II is false [Option ID = 20075]
4. Statement I is false but Statement II is true [Option ID = 20076]

20) The Sudarshan lake built during Chandragupta Maurya period at around 300 B.C. is located at which state of our country?

[Question ID = 5020][Question Description = 120\_68\_IWM\_SEP22\_Q20]

1. Tamil Nadu [Option ID = 20077]
2. Karnataka [Option ID = 20078]
3. Rajasthan [Option ID = 20079]
4. Gujarat [Option ID = 20080]

21) Match List I with List II

| List I                              | List II                      |
|-------------------------------------|------------------------------|
| Sprinkler - Basis of classification | Types                        |
| A. Water application                | I. Permanent system          |
| B. Portability                      | II. Turbo hammer sprinkler   |
| C. Principle of operation           | III. Medium volume sprinkler |
| D. Movement                         | IV. Rotating sprinkler       |
| E. Precipitation rate               | V. Side roll                 |

Choose the correct answer from the options given below:

[Question ID = 5021][Question Description = 121\_68\_IWM\_SEP22\_Q21]

1. A - V, B - I, C - III, D - IV, E - II [Option ID = 20081]
2. A - III, B - I, C - II, D - V, E - IV [Option ID = 20082]
3. A - IV, B - I, C - II, D - V, E - III [Option ID = 20083]
4. A - II, B - I, C - IV, D - V, E - III [Option ID = 20084]

22) The sprinkler having sprinkler nozzle diameter of 3.0 mm x 2.5 mm operating at a pressure of 2 kg / cm<sup>2</sup> will have radius of wetted area as -

[Question ID = 5022][Question Description = 122\_68\_IWM\_SEP22\_Q22]

1. 3.45 m [Option ID = 20085]
2. 5.45 m [Option ID = 20086]
3. 8.45 m [Option ID = 20087]
4. 10.45 m [Option ID = 20088]

23) Given below are two statements pertaining to border length and border slope in border method of irrigation.

Statement I: More border lengths are recommended in case of clay soils in comparison to sandy soils.

Statement II: More border slopes (% of slope) are recommended in clay soils compared to sandy soils.

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

[Question ID = 5023][Question Description = 123\_68\_IWM\_SEP22\_Q23]

1. Both Statement I and Statement II are correct [Option ID = 20089]
2. Both Statement I and Statement II are incorrect [Option ID = 20090]
3. Statement I is correct but Statement II is incorrect [Option ID = 20091]
4. Statement I is incorrect but Statement II is correct [Option ID = 20092]

24) Consider the statements pertaining to various structures of underground pipeline system and choose the Correct statements.

- A. Gravity inlets are used when water enters the pipeline from an open channel.
- B. Gate stands are provided to control the flow into laterals when pipelines branch off in different directions.
- C. Usually pump stand should be equal to the diameter of the underground pipeline.

D. Air vents are usually installed away from pump stand and at all lower elevation points in the pipeline system.

E. Hydrants are outlet structures in underground pipeline system.

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

[Question ID = 5024][Question Description = 124\_68\_IWM\_SEP22\_Q24]

1. A, B and D only

[Option ID = 20093]

2. A, B and E only

[Option ID = 20094]

3. A, D and E only

[Option ID = 20095]

4. B and D only

[Option ID = 20096]

25) Given below are two statements related to guidelines for using poor quality irrigation water.

Statement I: Leaving the field fallow during the rainy season is helpful when when SAR > 20 and water of higher salinity are used in lower rainfall areas.

Statement II: When  $Cl/SO_4$  ratio in water is > 20, the additional phosphorus fertilization is beneficial.

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

[Question ID = 5025][Question Description = 125\_68\_IWM\_SEP22\_Q25]

1. Both Statement I and Statement II are correct

[Option ID = 20097]

2. Both Statement I and Statement II are incorrect

[Option ID = 20098]

3. Statement I is correct but Statement II is incorrect

[Option ID = 20099]

4. Statement I is incorrect but Statement II is correct

[Option ID = 20100]

26) Which of the following is NOT a GIS software?

A. ENVI

B. QGIS

C. ILWIS

D. ERDAS IMAGINE

E. GRASS

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

[Question ID = 5026][Question Description = 126\_68\_IWM\_SEP22\_Q26]

1. A, D and E only [Option ID = 20101]

2. A and E only [Option ID = 20102]

3. A and D only [Option ID = 20103]

4. D and E only [Option ID = 20104]

27) Which of the following statements regarding AquaCrop model are correct?

A. It is water driven model

B. It simulates soil moisture

C. It derives irrigation schedule

D. It simulates crop growth and yield

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

[Question ID = 5027][Question Description = 127\_68\_IWM\_SEP22\_Q27]

1. A, B and D only

[Option ID = 20105]

2. A, B and C only

[Option ID = 20106]

3. B, C and D only

[Option ID = 20107]

4. A, B, C and D

[Option ID = 20108]

**28) Given below are two statements regarding ponding time in hydrology**

**Statement I:** The ponding time is the elapsed time between the time rainfall begins and the time water begins to pond on the soil surface.

**Statement II:** Ponding begins when the rainfall intensity exceeds the potential infiltration rate.

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

[Question ID = 5028][Question Description = 128\_68\_IWM\_SEP22\_Q28]

1. Both Statement I and Statement II are true [Option ID = 20109]
2. Both Statement I and Statement II are false [Option ID = 20110]
3. Statement I is true but Statement II is false [Option ID = 20111]
4. Statement I is false but Statement II is true [Option ID = 20112]

**29) Match List I with List II**

| List I         | List II                        |
|----------------|--------------------------------|
| Spectrum       | Wavelength                     |
| A. Radio       | I. 0.4 to 0.7 $\mu\text{m}$    |
| B. Microwave   | II. 0.30 to 0.38 $\mu\text{m}$ |
| C. Visible     | III. 0.7 to 100 $\mu\text{m}$  |
| D. Ultraviolet | IV. 1 mm to 1 m                |
|                | V. > 1 m                       |

Choose the correct answer from the options given below:

[Question ID = 5029][Question Description = 129\_68\_IWM\_SEP22\_Q29]

1. A - V, B - IV, C - I, D - III [Option ID = 20113]
2. A - V, B - IV, C - I, D - II [Option ID = 20114]
3. A - IV, B - V, C - I, D - II [Option ID = 20115]
4. A - I, B - V, C - II, D - III [Option ID = 20116]

**30) Which of the following statements regarding NDVI are correct?**

- A. Its values varies from -1 to +1
- B. Positive NDVI values near zero indicate bare soil
- C.  $\text{NDVI} = (\text{NIR} + \text{RED}) / (\text{NIR} - \text{RED})$
- D. NDVI value for dense green vegetation is 0.1 to 0.5

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

[Question ID = 5030][Question Description = 130\_68\_IWM\_SEP22\_Q30]

1. A, B and D only  
[Option ID = 20117]
2. A and D only  
[Option ID = 20118]
3. A and B only  
[Option ID = 20119]
4. C and D only  
[Option ID = 20120]

**31) The Working Group on Problem Identification in Irrigated Areas of Ministry of Water Resource, GOI ( 1991) adopted the following norms for identification of waterlogged areas**

- A. Waterlogged areas: water table within 2 m from the land surface
- B. Potential areas for water logging : water table between 2-3 m from the land surface

C. Safe area: water table below 5 m from the land surface.

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

[Question ID = 5031][Question Description = 131\_68\_IWM\_SEP22\_Q31]

1. A and B only [Option ID = 20121]
2. B and C only [Option ID = 20122]
3. A and C only [Option ID = 20123]
4. A only [Option ID = 20124]

32) Which of the following assumptions to use unit hydrograph model are correct ?

- A. The excess rainfall has a constant intensity within the effective duration
- B. The excess rainfall is uniformly distributed through the whole drainage area
- C. The base time of the DRH resulting from an excess rainfall of given duration is constant
- D. The ordinates of all DRH's of a common base time are inversely proportional to the total amount of direct runoff represented by each hydrograph
- E. For a given watershed, the hydrograph resulting from a given excess rainfall reflects the unchanging characteristics of the watershed

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

[Question ID = 5032][Question Description = 132\_68\_IWM\_SEP22\_Q32]

1. A, B and D only  
[Option ID = 20125]
2. A, B, C and E only  
[Option ID = 20126]
3. A, B and C only  
[Option ID = 20127]
4. A, B and E only  
[Option ID = 20128]

33) 8 gm of sodium chloride( $\text{NaCl}_2$ ) has been dissolved in 2 litres of water ( $\text{H}_2\text{O}$ ). Express the salt concentration in millimhos/cm

[Question ID = 5033][Question Description = 133\_68\_IWM\_SEP22\_Q33]

1. 6.25  
[Option ID = 20129]
2. 8  
[Option ID = 20130]
3. 4  
[Option ID = 20131]
4. 13.5  
[Option ID = 20132]

34) Given below are two statements regarding rating curve

Statement I: It is constructed by plotting successive measurements of the discharge and the gauge height on a graph.

Statement II: The rating curves are often used to convert records of flow rates into water level.

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

[Question ID = 5034][Question Description = 134\_68\_IWM\_SEP22\_Q34]

1. Both Statement I and Statement II are true [Option ID = 20133]
2. Both Statement I and Statement II are false [Option ID = 20134]
3. Statement I is true but Statement II is false [Option ID = 20135]
4. Statement I is false but Statement II is true [Option ID = 20136]

35) Match List I with List II

| List I                | List II                                                                    |
|-----------------------|----------------------------------------------------------------------------|
| Drainage Equation     | Condition                                                                  |
| A. Hooghoudt equation | I. Falling water table after its sudden rise due to instantaneous recharge |

|                            |                                                       |
|----------------------------|-------------------------------------------------------|
| B. Glover-Dumm equation    | II. Fluctuating water table                           |
| C. Dee Zuew Hellinga       | III. Unsteady flow to the drains with steady recharge |
| D. Kraijenhoff van de Leur | IV. Steady state condition                            |

Choose the correct answer from the options given below:

[Question ID = 5035][Question Description = 135\_68\_IWM\_SEP22\_Q35]

1. A - IV, B - II, C - I, D - III [Option ID = 20137]
2. A - IV, B - I, C - II, D - III [Option ID = 20138]
3. A - I, B - IV, C - III, D - II [Option ID = 20139]
4. A - IV, B - I, C - III, D - II [Option ID = 20140]

36) Storage capacity of farm pond depends upon ?

- A. Evaporation from the water surface
- B. Storage allowed for the sedimentation
- C. Water needs
- D. Rainfall
- E. Seepage into the soil

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

[Question ID = 5036][Question Description = 136\_68\_IWM\_SEP22\_Q36]

1. A, B and C only [Option ID = 20141]
2. A, B and D only [Option ID = 20142]
3. A, B, C and E only [Option ID = 20143]
4. A, C and E only [Option ID = 20144]

37) A direct runoff hydrograph due to a storm was found to be triangular in shape with a peak of  $150 \text{ m}^3 \text{ s}^{-1}$ , time from start of effective storm to peak of 24 h and total time base of 72 h. The duration of the storm in this case was[Question ID = 5037][Question Description = 137\_68\_IWM\_SEP22\_Q37]

1. >72 h [Option ID = 20145]
2. Between 24 to 72 h [Option ID = 20146]
3. 72 h [Option ID = 20147]
4. <24 h> [Option ID = 20148]

38) Match List I with List II

| List I                 | List II                                                                      |
|------------------------|------------------------------------------------------------------------------|
| Curve                  | Characteristic                                                               |
| A. Double mass curve   | I. Discharge vs Time                                                         |
| B. Hyetograph          | II. Rainfall intensity vs time                                               |
| C. Hydrograph          | III. Also known as discharge-frequency curve                                 |
| D. Flow duration curve | IV. Cumulative discharge volume against time plotted in chronological manner |

Choose the correct answer from the options given below:

[Question ID = 5038][Question Description = 138\_68\_IWM\_SEP22\_Q38]

1. A - IV, B - II, C - I, D - III [Option ID = 20149]
2. A - IV, B - I, C - II, D - III [Option ID = 20150]
3. A - II, B - IV, C - I, D - III [Option ID = 20151]
4. A - IV, B - I, C - III, D - II [Option ID = 20152]

39) Consider the following statement/s regarding precision farming :

Statement I: It refers to the application of precise and correct amounts of inputs like water, fertilizers, pesticides etc. at the correct time to the crop for increasing its productivity and maximizing its yield

Statement II: . Instead of managing whole fields as a single unit, management is customized for small areas within fields

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

[Question ID = 5039][Question Description = 139\_68\_IWM\_SEP22\_Q39]

1. Both Statement I and Statement II are correct [Option ID = 20153]
2. Both Statement I and Statement II are incorrect [Option ID = 20154]
3. Statement I is correct but Statement II is incorrect [Option ID = 20155]
4. Statement I is incorrect but Statement II is correct [Option ID = 20156]

40) Hyperspectral sensing typically collects how many bands of data ?

[Question ID = 5040][Question Description = 140\_68\_IWM\_SEP22\_Q40]

1. More than 2 [Option ID = 20157]
2. 10 [Option ID = 20158]
3. 100 or more [Option ID = 20159]
4. 200 or more [Option ID = 20160]

41) Which of the following statements regarding soil less cultivation are correct?

- A. It requires more labour per unit of production than soil system
- B. No issue of soil borne diseases
- C. A hydroponic system uses a fraction of the water that a soil system does as there is no deep infiltration and use of water by weeds
- D. Precise control of plant requirements like temperature, RH, nutrients light is possible which results into enhanced yield levels

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

[Question ID = 5041][Question Description = 141\_68\_IWM\_SEP22\_Q41]

1. A, B and D only [Option ID = 20161]
2. B, C and D only [Option ID = 20162]
3. A, B and C only [Option ID = 20163]
4. A, B, C and D [Option ID = 20164]

42) Match List I with List II

| List I          | List II                                                            |
|-----------------|--------------------------------------------------------------------|
| Greenhouse part | Feature                                                            |
| A. Sill         | I. Runs perpendicular to the length of greenhouse                  |
| B. Eave         | II. Where the roofs come together at the top of the greenhouse     |
| C. Purlin       | III. It is top of the curtain wall                                 |
| D. Truss        | IV. where side of the greenhouse join the roof of the greenhouse   |
|                 | V. Structural component that supports the weight of the greenhouse |

Choose the correct answer from the options given below:

[Question ID = 5042][Question Description = 142\_68\_IWM\_SEP22\_Q42]

1. A - V, B - IV, C - I, D - III [Option ID = 20165]
2. A - III, B - I, C - IV, D - V [Option ID = 20166]
3. A - III, B - IV, C - I, D - V [Option ID = 20167]
4. A - V, B - II, C - I, D - III [Option ID = 20168]

43) In fan and pads cooling system of greenhouses, which side will be the coolest ?

[Question ID = 5043][Question Description = 143\_68\_IWM\_SEP22\_Q43]

1. Fan side [Option ID = 20169]
2. Pad side [Option ID = 20170]
3. At centre of Fan and Pad [Option ID = 20171]
4. Entire length of greenhouse will be uniformly cool [Option ID = 20172]

44) Express 1170 ppm sodium chloride salt concentration in meq l<sup>-1</sup> [Question ID = 5044][Question Description = 144\_68\_IWM\_SEP22\_Q44]

1. 20 meq l<sup>-1</sup> [Option ID = 20173]
2. 10 meq l<sup>-1</sup> [Option ID = 20174]
3. 58.5 meq l<sup>-1</sup> [Option ID = 20175]
4. 29.75 meq l<sup>-1</sup> [Option ID = 20176]

45) Given below are two statements regarding subirrigation

Statement I: Evaporation losses from soil surface can be minimized.

Statement II: Water with high salt content can be used.

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

[Question ID = 5045][Question Description = 145\_68\_IWM\_SEP22\_Q45]

1. Both Statement I and Statement II are correct [Option ID = 20177]
2. Both Statement I and Statement II are incorrect [Option ID = 20178]

3. Statement I is correct but Statement II is incorrect [Option ID = 20179]
4. Statement I is incorrect but Statement II is correct [Option ID = 20180]

**46) What is the basic assumption of steady state condition in subsurface drainage?**

**[Question ID = 5046][Question Description = 146\_68\_IWM\_SEP22\_Q46]**

1. The drain discharge is less than the recharge to the groundwater [Option ID = 20181]
2. The drain discharge is greater than recharge to the groundwater [Option ID = 20182]
3. The drain discharge equals to the recharge to the groundwater [Option ID = 20183]
4. Rate of drainage outflow is constant [Option ID = 20184]

**47) Ideal material of greenhouse covering should transmit which type of solar radiation ?[Question ID = 5047][Question Description = 147\_68\_IWM\_SEP22\_Q47]**

1. Infrared light [Option ID = 20185]
2. Visible light [Option ID = 20186]
3. UV radiation [Option ID = 20187]
4. All bands of solar radiation [Option ID = 20188]

**48) Uses of Theodolite are :**

**A. Measurement of Horizontal and vertical angles.**

**B. Setting out lines and angles**

**C. Optical distance measurement**

**D. Plumbing tall building**

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

**[Question ID = 5048][Question Description = 148\_68\_IWM\_SEP22\_Q48]**

1. A, B, C and D  
[Option ID = 20189]
2. A and B only  
[Option ID = 20190]
3. A and C only  
[Option ID = 20191]
4. B and D only  
[Option ID = 20192]

**49) What is called as the heart of the automation of the micro irrigation system ?[Question ID = 5049][Question Description = 149\_68\_IWM\_SEP22\_Q49]**

1. Controller [Option ID = 20193]
2. Control valves [Option ID = 20194]
3. Sensors [Option ID = 20195]
4. Master relay [Option ID = 20196]

**50) Which of the following forest species and fruit trees are most suitable for alkali soils?**

**A. *Prosopis juliflora* (Kikar)**

**B. *Casurina equisetifolia* (Arjuna)**

**C. *Emblica officinalis* (Anoala)**

**D. *Carissa carandas* (Karonda)**

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

**[Question ID = 5050][Question Description = 150\_68\_IWM\_SEP22\_Q50]**

1. A, B and C only  
[Option ID = 20197]
2. A and B only  
[Option ID = 20198]
3. A, B, C and D  
[Option ID = 20199]
4. B, C and D only  
[Option ID = 20200]

