

39 Farm Machinery and Power 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 sprayer 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⁻¹ 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 to 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 Cippoletti 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]

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1) The advantages of conservation tillage are:

- A. keeps soil temperature low
- B. reduces evapo-transpiration from soil surface
- C. more living organism
- D. reduces water infiltration rate

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

[Question ID = 4801][Question Description = 101_64_FMP_SEP22_Q01]

1. A, B and C only [Option ID = 19201]
2. A, B and D only [Option ID = 19202]
3. B, C and D only [Option ID = 19203]
4. A, C and D only [Option ID = 19204]

2) In case of horizontal tillage, the depth of operation throughout the field:

[Question ID = 4802][Question Description = 102_64_FMP_SEP22_Q02]

1. varies appreciably [Option ID = 19205]
2. remains same [Option ID = 19206]
3. has no relation with depth [Option ID = 19207]
4. more undulated surface [Option ID = 19208]

3) Given below few parameters about the vertical disc plough. Choose the correct combination.

- A. Number of disc varies from 2 to 35
- B. Discs are fitted on a common shaft
- C. Depth of cut is 20 to 25 cm
- D. Total weight per disc is 45-90 kg

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

[Question ID = 4803][Question Description = 103_64_FMP_SEP22_Q03]

1. A, B and C only [Option ID = 19209]
2. B, C and D only [Option ID = 19210]
3. A, C and D only [Option ID = 19211]
4. A, B and D only [Option ID = 19212]

4) Which of the factors given below affect the draft of a mould board plough?

- A. sharpness of share
- B. soil types and soil conditions
- C. speed of operation

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

[Question ID = 4804][Question Description = 104_64_FMP_SEP22_Q04]

1. B and C only [Option ID = 19213]
2. A, B and C [Option ID = 19214]
3. A and B only [Option ID = 19215]
4. A and C only [Option ID = 19216]

5) Choose the correct adjustments to be made for obtaining higher depth of operation of a disc harrow.

- A. by increasing gang angle
- B. by increasing the hitch point
- C. by adding dead weight to the frame of harrow
- D. by using notched disc in place of smooth edge disc

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

[Question ID = 4805][Question Description = 105_64_FMP_SEP22_Q05]

1. A, B and C only [Option ID = 19217]
2. B, C and D only [Option ID = 19218]
3. A, C and D only [Option ID = 19219]
4. A, B and D only [Option ID = 19220]

6) A horizontal plate seed planter has 54 cells on its peripheral length of 63 cm. The gear on plate drive shaft has 36 teeth and is rotated by feed shaft gear with 21 teeth. A 40 teeth sprocket on the main shaft drives 70 teeth sprocket on feed shaft. Find the seed to seed spacing in a row, if diameter of ground wheel is 63 cm.[Question ID = 4806][Question Description = 106_64_FMP_SEP22_Q06]

1. 10 cm [Option ID = 19221]
2. 11 cm [Option ID = 19222]
3. 20 cm [Option ID = 19223]
4. 21 cm [Option ID = 19224]

7) Interculture operation in sugarcane crop is required to be done having a total area of 13.8 ha. The weeding tool is having an overall width of 150 cm and is being operated at a forward speed of 5 km.h⁻¹. The time loss in turing and minor adjustment etc. is 8 per cent. Determine the total time required to cover the given area.[Question ID = 4807][Question Description = 107_64_FMP_SEP22_Q07]

1. 18.4 hours [Option ID = 19225]

2. 20 hours [Option ID = 19226]
3. 36.8 hours [Option ID = 19227]
4. 40 hours [Option ID = 19228]

8) Match List I with List II

List I	List II
Sprayer	Energy/ droplet
A. High volume sprayer	I. 100-150 μm size droplet
B. ULV sprayer	II. centrifugal energy
C. Knapsack sprayer-cum-duster	III. hydraulic energy
D. Thermal fogger	IV. gaseous energy
E. Low volume sprayer	V. <50 μm size droplet

Choose the correct answer from the options given below:

[Question ID = 4808][Question Description = 108_64_FMP_SEP22_Q08]

1. A - II, B - III, C - IV, D - V, E - I

[Option ID = 19229]

2. A - IV, B - V, C - I, D - II, E - III

[Option ID = 19230]

3. A - III, B - I, C - IV, D - V, E - II

[Option ID = 19231]

4. A - V, B - IV, C - II, D - I, E - III

[Option ID = 19232]

9) The reel peripheral speed in a combine harvester is kept:[Question ID = 4809][Question Description = 109_64_FMP_SEP22_Q09]

1. 10 per cent higher than its forward speed [Option ID = 19233]
2. 15-19 per cent higher than its forward speed [Option ID = 19234]
3. 20-24 per cent higher than its forward speed [Option ID = 19235]
4. 25-50 per cent higher than its forward speed [Option ID = 19236]

10) Determine the power requirement of a wheat thresher cleaning sieve with the given data:

Weight of sieve with materials: 36 kg

Speed of eccentric: 300 RPM

Horizontal displacement of sieve: 7 cm

[Question ID = 4810][Question Description = 110_64_FMP_SEP22_Q10]

1. 0.18 hp [Option ID = 19237]
2. 0.24 hp [Option ID = 19238]
3. 0.34 hp [Option ID = 19239]
4. 0.45 hp [Option ID = 19240]

11) The power sprayer is discharging 44 litres spray liquid per minute at the designed pressure. If the pressure is halved, what is the discharge rate of sprayer in litres per minute?[Question ID = 4811][Question Description = 111_64_FMP_SEP22_Q11]

1. 22 [Option ID = 19241]
2. 31 [Option ID = 19242]
3. 62 [Option ID = 19243]
4. 88 [Option ID = 19244]

12) Determine the power transmitted by a gear of a tractor gear box having size 12 cm, if it is rotating at 2000RPM and transmitting 21 kg-m torque.[Question ID = 4812][Question Description = 112_64_FMP_SEP22_Q12]

1. 47.54 hp [Option ID = 19245]
2. 54.36 hp [Option ID = 19246]
3. 58.67 hp [Option ID = 19247]
4. 62.85 hp [Option ID = 19248]

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

Assertion A : A soil is at its liquid limit if the consistency index of the soil is equal to zero

Reason R : The consistency index of a soil is defined as ratio of liquid limit minus the natural water content to plasticity

index of a soil

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

[Question ID = 4813][Question Description = 113_64_FMP_SEP22_Q13]

1. Both A and R are true and R is the correct explanation of A [Option ID = 19249]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 19250]
3. A is true but R is false [Option ID = 19251]
4. A is false but R is true [Option ID = 19252]

14) By which method water content of soil in the field can be determined rapidly?[Question ID = 4814][Question Description = 114_64_FMP_SEP22_Q14]

1. oven dry method [Option ID = 19253]
2. pycnometer method [Option ID = 19254]
3. sand bath method [Option ID = 19255]
4. calcium carbide method [Option ID = 19256]

15) Match List I with List II

List I	List II
A. Clay	I. Stoke's law
B. Sediment analysis	II. 0.05 - 0.10
C. Very fine sand	III. $I_p = 0$
D. Non plastic soil	IV. <0.002

Choose the correct answer from the options given below:

[Question ID = 4815][Question Description = 115_64_FMP_SEP22_Q15]

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

[Option ID = 19257]

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

[Option ID = 19258]

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

[Option ID = 19259]

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

[Option ID = 19260]

16) For seeding uniformity test of a seed drill in a sticky belt method, the belt length as per BIS code is:

[Question ID = 4816][Question Description = 116_64_FMP_SEP22_Q16]

1. 5 m [Option ID = 19261]
2. 8 m [Option ID = 19262]
3. 10 m [Option ID = 19263]
4. 15 m [Option ID = 19264]

17) The minimum area required for testing of animal drawn MB plough as per BIS code is:

[Question ID = 4817][Question Description = 117_64_FMP_SEP22_Q17]

1. 0.15 ha [Option ID = 19265]
2. 0.25 ha [Option ID = 19266]
3. 0.50 ha [Option ID = 19267]
4. 0.75 ha [Option ID = 19268]

18) The hardness of edge portion of power tiller blade should be :

[Question ID = 4818][Question Description = 118_64_FMP_SEP22_Q18]

1. 40 ± 3 HRC

[Option ID = 19269]

2. 46 ± 3 HRC

[Option ID = 19270]

3. 56 ± 3 HRC

[Option ID = 19271]

4. 60 ± 3 HRC

[Option ID = 19272]

19) The life of a tractor operated seed drill as per BIS code is considered as:

[Question ID = 4819][Question Description = 119_64_FMP_SEP22_Q19]

1. 3 years [Option ID = 19273]
2. 5 years [Option ID = 19274]
3. 8 years [Option ID = 19275]
4. 10 years [Option ID = 19276]

20) For a tractor mounted spring loaded cultivator, the spring index should be:

[Question ID = 4820][Question Description = 120_64_FMP_SEP22_Q20]

1. 3 to 4
[Option ID = 19277]
2. 4 to 5
[Option ID = 19278]
3. 5 to 6
[Option ID = 19279]
4. 6 to 8
[Option ID = 19280]

21) Normalisation is a heat treatment process for steels to achieve:

[Question ID = 4821][Question Description = 121_64_FMP_SEP22_Q21]

1. Improvement in ductility by transforming austenite to martensite [Option ID = 19281]
2. Improvement in mechanical properties by transforming austenite to fine grain pearlite. [Option ID = 19282]
3. Increase in hardness by transforming austenite to martensite [Option ID = 19283]
4. Decrease in hardness by transforming martensite to pearlite [Option ID = 19284]

22) Tungsten as an alloying element in alloy steels is used principally to :

[Question ID = 4822][Question Description = 122_64_FMP_SEP22_Q22]

1. Improve hardenability
[Option ID = 19285]
2. Improve mechanical properties at elevated temperatures
[Option ID = 19286]
3. Improve the corrosion and oxidation resistance
[Option ID = 19287]
4. Increase the machinability
[Option ID = 19288]

23) The main difference between hot chamber die casting process and cold chamber die casting process is :

[Question ID = 4823][Question Description = 123_64_FMP_SEP22_Q23]

1. Cold chamber process utilizes low melting temperature alloys compared to hot chamber process
[Option ID = 19289]
2. Hot chamber process utilizes a ladle to inject molten metal into the die
[Option ID = 19290]
3. Hot chamber process utilizes an integral furnace with the machine
[Option ID = 19291]
4. Cold chamber process utilizes an integral furnace with the machine
[Option ID = 19292]

24) Hot working of metal in metal-forming processes is working

[Question ID = 4824][Question Description = 124_64_FMP_SEP22_Q24]

1. below the melting temperature [Option ID = 19293]
2. below the recrystallisation temperature [Option ID = 19294]
3. above the recrystallisation temperature [Option ID = 19295]
4. above the ambient temperature [Option ID = 19296]

25) Find the correct one from the statements given below :

[Question ID = 4825][Question Description = 125_64_FMP_SEP22_Q25]

- The clearance in a piercing die applied on the die while in a blanking die it is applied on the punch
[Option ID = 19297]
- The clearance in a piercing die applied on the punch while in a blanking die it is applied on the die.
[Option ID = 19298]
- The clearance in a piercing die applied on the die while in a blanking die it is applied on the die
[Option ID = 19299]
- The clearance in a piercing die applied on the punch while in a blanking die it is applied on the punch.
[Option ID = 19300]

26) The percentage of the incoming solar radiation reflected back to space by the Earth is :

[Question ID = 4826][Question Description = 126_64_FMP_SEP22_Q26]

- 10 %
[Option ID = 19301]
- 20 %
[Option ID = 19302]
- 30 %
[Option ID = 19303]
- 40 %
[Option ID = 19304]

27) The ratio of wet dung to water for preparing biogas slurry is :

[Question ID = 4827][Question Description = 127_64_FMP_SEP22_Q27]

- 1:4
[Option ID = 19305]
- 1:3
[Option ID = 19306]
- 1:2
[Option ID = 19307]
- 1:1
[Option ID = 19308]

28) Heating value of producer gas is [Question ID = 4828][Question Description = 128_64_FMP_SEP22_Q28]

- 4-8 MJ.m⁻³ [Option ID = 19309]
- 14-18 MJ.m⁻³ [Option ID = 19310]
- 24-28 MJ.m⁻³ [Option ID = 19311]
- 34-38 MJ.m⁻³ [Option ID = 19312]

29) Match List I with List II

List I	List II
Equipment etc.	Concept, application etc.
A. Solar Cell	I. Collection and storage
B. Scattering of solar radiation	II. Beam radiation
C. Pyrheliometer	III. Global radiation
D. Flat plate collector	IV. Diffused radiation
E. Solar pond	V. Photon energy of light

Choose the correct answer from the options given below:

[Question ID = 4829][Question Description = 129_64_FMP_SEP22_Q29]

- A - IV, B - V, C - III, D - II, E - I [Option ID = 19313]
- A - V, B - IV, C - II, D - III, E - I [Option ID = 19314]
- A - I, B - III, C - IV, D - V, E - II [Option ID = 19315]
- A - III, B - II, C - I, D - IV, E - V [Option ID = 19316]

30) If the speed of a wind stream remains unchanged while passing through the rotor :

[Question ID = 4830][Question Description = 130_64_FMP_SEP22_Q30]

- A large amount of power will be generated
[Option ID = 19317]

2. No power will be generated

[Option ID = 19318]

3. The flow will be stalled

[Option ID = 19319]

4. The speed of the rotor will be very high

[Option ID = 19320]

31) When incoming solar radiation passes through the atmosphere of the earth :

[Question ID = 4831][Question Description = 131_64_FMP_SEP22_Q31]

1. Radiation of all wavelength is absorbed uniformly by different types of molecules

[Option ID = 19321]

2. Different molecules selectively absorb the radiation of the different wavelength

[Option ID = 19322]

3. There is no absorption of radiation in the atmosphere

[Option ID = 19323]

4. There is total absorption of radiation

[Option ID = 19324]

32) If the working tool cannot rest on a surface and normally used with one hand, its weight should be limited to:[Question ID = 4832][Question Description = 132_64_FMP_SEP22_Q32]

1. 4.00 kg [Option ID = 19325]

2. 3.00 kg [Option ID = 19326]

3. 2.00 kg [Option ID = 19327]

4. 1.00 kg [Option ID = 19328]

33) Combinations of two tractor noise levels such as 75 dB and 75 dB reaching at drivers' ear level will be[Question ID = 4833][Question Description = 133_64_FMP_SEP22_Q33]

1. 75.0 dB [Option ID = 19329]

2. 78.0 dB [Option ID = 19330]

3. 80.0 dB [Option ID = 19331]

4. 86.0 dB [Option ID = 19332]

34) Location of controls in relation to seat in agricultural equipment should be :

[Question ID = 4834][Question Description = 134_64_FMP_SEP22_Q34]

1. Leg to thigh angle 90° - 100° and for pedal operation with foot to leg angle 45°

[Option ID = 19333]

2. Leg to thigh angle 110° - 120° and for pedal operation with foot to leg angle 90°

[Option ID = 19334]

3. Leg to thigh angle 80° - 100° and for pedal operation with foot to leg angle 120°

[Option ID = 19335]

4. Leg to thigh angle 120° - 150° and for pedal operation with foot to leg angle 150°

[Option ID = 19336]

35) Match List I with List II

List I	List II
Parameters	Relevant Units
A. Physical fatigue	I. RULA
B. Postural Stress	II. Heart rate
C. Maximum aerobic power	III. $m\ s^{-2}$
D. Light intensity	IV. $l\ min^{-1}$
E. Vibration	V. Lux

Choose the correct answer from the options given below:

[Question ID = 4835][Question Description = 135_64_FMP_SEP22_Q35]

1. A - II, B - I, C - IV, D - V, E - III

[Option ID = 19337]

2. A - I, B - II, C - IV, D - V, E - III

[Option ID = 19338]

3. A - III, B - II, C - IV, D - I, E - V

[Option ID = 19339]

4. A - IV, B - V, C - III, D - I, E - II

[Option ID = 19340]

36) The minimum angle between the backrest and seat in an agricultural tractor should be:

[Question ID = 4836][Question Description = 136_64_FMP_SEP22_Q36]

1. 90° [Option ID = 19341]

2. 95° [Option ID = 19342]

3. 100° [Option ID = 19343]

4. 120° [Option ID = 19344]

37) A diesel engine cooling system rejects approximately

[Question ID = 4837][Question Description = 137_64_FMP_SEP22_Q37]

1. 0.58 kW for each kilowatt of output. [Option ID = 19345]

2. 0.65 kW for each kilowatt of output. [Option ID = 19346]

3. 0.70 kW for each kilowatt of output. [Option ID = 19347]

4. 0.75 kW for each kilowatt of output. [Option ID = 19348]

38) Given below are two statements

Statement I: As the working speed of tractor increases specific energy consumption increases.

Statement II: As the working speed of tractor increases quality of farm operation/output decreases.

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

[Question ID = 4838][Question Description = 138_64_FMP_SEP22_Q38]

1. Both Statement I and Statement II are correct [Option ID = 19349]

2. Both Statement I and Statement II are incorrect [Option ID = 19350]

3. Statement I is correct but Statement II is incorrect [Option ID = 19351]

4. Statement I is incorrect but Statement II is correct [Option ID = 19352]

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

Assertion A : Drum brakes are preferred over disc brakes for emergency brakes but not for service brakes

Reason R : Drum brakes have higher values of inner amplification factor than disc brakes as well as drum brakes are very sensitive to variation of friction coefficients in comparison to disc brakes.

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

[Question ID = 4839][Question Description = 139_64_FMP_SEP22_Q39]

1. Both A and R are true and R is the correct explanation of A [Option ID = 19353]

2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 19354]

3. A is true but R is false [Option ID = 19355]

4. A is false but R is true [Option ID = 19356]

40) For maximum power at ambient temperature a diesel tractor engine cooling system is designed to get rid of about :

[Question ID = 4840][Question Description = 140_64_FMP_SEP22_Q40]

1. 10 % of fuel energy

[Option ID = 19357]

2. 20 % of fuel energy

[Option ID = 19358]

3. 30 % of fuel energy

[Option ID = 19359]

4. 40 % of fuel energy

[Option ID = 19360]

41) Load independent transmission losses in different types of gears are in the order of :

A. Spur gear < Helical gear < Bevel gear

B. Helical gear < Spur gear < Bevel gear

C. Bevel gear < Spur gear < Helical gear

D. Bevel gear < Helical gear < Spur gear

Choose the *correct* answer from the options given below

[Question ID = 4841][Question Description = 141_64_FMP_SEP22_Q41]

1. A only
[Option ID = 19361]
2. B only
[Option ID = 19362]
3. C and D only
[Option ID = 19363]
4. D and B only
[Option ID = 19364]

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

Assertion A : Lighter tractors can be used for rotary tillage operation

Reason R : In a rotavator, the tines push the tractor forward and generates negative draft.

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

[Question ID = 4842][Question Description = 142_64_FMP_SEP22_Q42]

1. Both A and R are true and R is the correct explanation of A [Option ID = 19365]
2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 19366]
3. A is true but R is false [Option ID = 19367]
4. A is false but R is true [Option ID = 19368]

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

Assertion A : The size of exhaust port is always larger than the size of inlet port.

Reason R : The velocity, pressure and temperature of exhaust gases at exhaust port are very high than at inlet port

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

[Question ID = 4843][Question Description = 143_64_FMP_SEP22_Q43]

1. Both A and R are true and R is the correct explanation of A
[Option ID = 19369]
2. Both A and R are true but R is NOT the correct explanation of A
[Option ID = 19370]
3. A is true but R is false
[Option ID = 19371]
4. A is false but R is true
[Option ID = 19372]

44) An inverse transducer converts :

[Question ID = 4844][Question Description = 144_64_FMP_SEP22_Q44]

1. Electrical energy into any form of energy
[Option ID = 19373]
2. Electrical energy into light energy
[Option ID = 19374]
3. Mechanical displacement into electrical signal
[Option ID = 19375]
4. Electrical energy into mechanical energy
[Option ID = 19376]

45) In wire wound strain gauges, the change in resistance on application of strain is mainly due to :

[Question ID = 4845][Question Description = 145_64_FMP_SEP22_Q45]

1. Change in length of wire
[Option ID = 19377]
2. Change in diameter of wire
[Option ID = 19378]

3. Change in both length and diameter of wire

[Option ID = 19379]

4. Change in resistivity

[Option ID = 19380]

46) A linear displacement transducer (digital) normally uses :

[Question ID = 4846][Question Description = 146_64_FMP_SEP22_Q46]

1. Straight binary code

[Option ID = 19381]

2. BCD (Binary Coded Decimal)

[Option ID = 19382]

3. Gray Code

[Option ID = 19383]

4. Hexadecimal code

[Option ID = 19384]

47) Given below are two statements

Statement I: For Ackerman Steering system, effective outside turning radius is larger by about half of the front tyre width and all four wheels have a common static pole of motion.

Statement II: For Ackerman steering system the following relation holds good

$\cot \alpha + \cot \beta = l/b$ where, α = Outer turning angle

β = Inner turning angle, l = wheel base, b = track width

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

[Question ID = 4847][Question Description = 147_64_FMP_SEP22_Q47]

1. Both Statement I and Statement II are correct [Option ID = 19385]

2. Both Statement I and Statement II are incorrect [Option ID = 19386]

3. Statement I is correct but Statement II is incorrect [Option ID = 19387]

4. Statement I is incorrect but Statement II is correct [Option ID = 19388]

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

Assertion A : Power requirement of a rotary mower is higher than that of a sickle bar mower of same width.

Reason R : In rotary mower the forage is not only cut, but also accelerated by the knives during impact.

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

[Question ID = 4848][Question Description = 148_64_FMP_SEP22_Q48]

1. Both A and R are true and R is the correct explanation of A [Option ID = 19389]

2. Both A and R are true but R is NOT the correct explanation of A [Option ID = 19390]

3. A is true but R is false [Option ID = 19391]

4. A is false but R is true [Option ID = 19392]

49) Variable rate seeding machines are used for :

[Question ID = 4849][Question Description = 149_64_FMP_SEP22_Q49]

1. seeding with increased intensity at places of high yield and with low intensity at places of low yield in same field.

[Option ID = 19393]

2. seeding with uniform intensity throughout the field but the rate can be varied.

[Option ID = 19394]

3. Rate of seeding is fixed before the seeding operation.

[Option ID = 19395]

4. Variable rate seeders are used to seed different crops at different rates simultaneously.

[Option ID = 19396]

50) Coefficient of rolling resistance (ρ) for radial tires as per Zoz and Grisso traction model is:

(where, B_n = Mobility number, i = slip)

[Question ID = 4850][Question Description = 150_64_FMP_SEP22_Q50]

1. $\rho = \frac{1.2}{B_n} + \frac{0.5i}{\sqrt{B_n}} + 0.03$

[Option ID = 19397]

2. $\rho = \frac{1.2}{B_n} + \frac{0.5i}{\sqrt{B_n}} - 0.03$

[Option ID = 19398]

3. $\rho = \frac{1.2}{B_n} + \frac{0.5i}{\sqrt{B_n}} + 0.04$

[Option ID = 19399]

4. $\rho = \frac{1.2}{B_n} + \frac{0.5i}{\sqrt{B_n}} - 0.04$

[Option ID = 19400]

