

53 Aquaculture 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:- Fishery Science 2_PHD

1) At a pH of about 4, most inorganic carbon in water is in the form of[Question ID = 5601][Question Description = 101_131_BFS_SEP22_Q01]

1. HCO_3^- [Option ID = 22401]
2. CO_3^{2-} [Option ID = 22402]
3. CO_2 [Option ID = 22403]
4. HCO_3^- and CO_3^{2-} [Option ID = 22404]

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

Assertion A: Fishes are considered one of the healthy food for human.

Reason R: Fishes are rich in highly unsaturated fatty acids.

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

[Question ID = 5602][Question Description = 102_131_BFS_SEP22_Q02]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 22405]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 22406]
3. A is correct but R is not correct [Option ID = 22407]
4. A is not correct but R is correct [Option ID = 22408]

3) Vitellogenin is synthesized in[Question ID = 5603][Question Description = 103_131_BFS_SEP22_Q03]

1. Kidney [Option ID = 22409]
2. Spleen [Option ID = 22410]
3. Liver [Option ID = 22411]
4. Gonads [Option ID = 22412]

4) Which of the following substances decreases the activity of dopamine?

[Question ID = 5604][Question Description = 104_131_BFS_SEP22_Q04]

1. GnRH
[Option ID = 22413]
2. MIS
[Option ID = 22414]
3. MPF
[Option ID = 22415]
4. Pimozide
[Option ID = 22416]

5) Egg incubation time for Indian major carps is[Question ID = 5605][Question Description = 105_131_BFS_SEP22_Q05]

1. 6-8 h [Option ID = 22417]
2. 12-15 h [Option ID = 22418]
3. 18-24 h [Option ID = 22419]
4. 26-30 h [Option ID = 22420]

6) Murrel eggs are[Question ID = 5606][Question Description = 106_131_BFS_SEP22_Q06]

1. Pelagic [Option ID = 22421]
2. Demersal [Option ID = 22422]

3. Semi-buoyant [Option ID = 22423]
4. Sticky [Option ID = 22424]

7) How many hours after hormone injection, magur females are stripped?[Question ID = 5607][Question Description = 107_131_BFS_SEP22_Q07]

1. 5-7 h [Option ID = 22425]
2. 8-10 h [Option ID = 22426]
3. 16-17 h [Option ID = 22427]
4. 20-24 h [Option ID = 22428]

8) Kuruma shrimp is[Question ID = 5608][Question Description = 108_131_BFS_SEP22_Q08]

1. *Paeneus monodon* [Option ID = 22429]
2. *P. semisulcatus* [Option ID = 22430]
3. *P. merguensis* [Option ID = 22431]
4. *P. japonicas* [Option ID = 22432]

9) The state fish of Bihar is?[Question ID = 5609][Question Description = 109_131_BFS_SEP22_Q09]

1. Murrel [Option ID = 22433]
2. Magur [Option ID = 22434]
3. Singi [Option ID = 22435]
4. Catla [Option ID = 22436]

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

Assertion A: Potassium permanganate reduces the biological oxygen demand of pond water when applied.

Reason R: Potassium permanganate is an oxidizing agent.

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

[Question ID = 5610][Question Description = 110_131_BFS_SEP22_Q10]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 22437]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 22438]
3. A is correct but R is not correct [Option ID = 22439]
4. A is not correct but R is correct [Option ID = 22440]

11) Select a herbivore fish from the following.

[Question ID = 5611][Question Description = 111_131_BFS_SEP22_Q11]

1. Sea bream [Option ID = 22441]
2. Milk fish [Option ID = 22442]
3. Murrel [Option ID = 22443]
4. Grouper [Option ID = 22444]

12) The ova diameter of a fully mature female of milkfish is

[Question ID = 5612][Question Description = 112_131_BFS_SEP22_Q12]

1. 250-500 μm [Option ID = 22445]
2. 650-850 μm [Option ID = 22446]
3. 1150-1350 μm [Option ID = 22447]
4. 1400-1700 μm [Option ID = 22448]

13) Molecular mass of water is[Question ID = 5613][Question Description = 113_131_BFS_SEP22_Q13]

1. 16 g/mol [Option ID = 22449]
2. 18 g/mol [Option ID = 22450]
3. 20 g/mol [Option ID = 22451]
4. 40 g/mol [Option ID = 22452]

14) Golden Mahseer males and females mature at[Question ID = 5614][Question Description = 114_131_BFS_SEP22_Q14]

1. 1⁺ year and 2⁺ years, respectively [Option ID = 22453]
2. 2⁺ year and 4⁺ years, respectively [Option ID = 22454]
3. 3⁺ year and 5⁺ years, respectively [Option ID = 22455]
4. 5⁺ year and 7⁺ years, respectively [Option ID = 22456]

15) Match List I with List II

List I	List II
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A. <i>Ranatra</i>	I. Water scorpion
B. <i>Gerris</i>	II. Water boatman
C. <i>Nepa</i>	III. Water cricket
D. <i>Velia</i>	IV. Pond skater
	V. Water stick insects

Choose the correct answer from the options given below:

[Question ID = 5615][Question Description = 115_131_BFS_SEP22_Q15]

1. A -I, B -II, C -III, D - V [Option ID = 22457]
2. A -V, B -IV, C -I, D -III [Option ID = 22458]
3. A -V, B -II, C -I, D - III [Option ID = 22459]
4. A -V, B -IV, C -I, D - II [Option ID = 22460]

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

Assertion A: *Pangasius pangasius* is the only species of the genus *Pangasius* found in India.

Reason R: *Pangasius pangasius* displays smigration from estuarine to upper stretch of river.

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

[Question ID = 5616][Question Description = 116_131_BFS_SEP22_Q16]

1. Both A and R are correct and R is the correct explanation of A
[Option ID = 22461]
2. Both A and R are correct but R is NOT the correct explanation of A
[Option ID = 22462]
3. A is correct but R is not correct
[Option ID = 22463]
4. A is not correct but R is correct
[Option ID = 22464]

17) *Horabagrus brachisoma* is commonly called as[Question ID = 5617][Question Description = 117_131_BFS_SEP22_Q17]

1. Yellow catfish [Option ID = 22465]
2. Butter catfish [Option ID = 22466]
3. Stinging catfish [Option ID = 22467]
4. Walking catfish [Option ID = 22468]

18) Dissolved oxygen concentration in pond water is generally not affected by[Question ID = 5618][Question Description = 118_131_BFS_SEP22_Q18]

1. Light [Option ID = 22469]
2. Fish biomass [Option ID = 22470]
3. Zooplankton biomass [Option ID = 22471]
4. Feeding frequency [Option ID = 22472]

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

Assertion A: Liming increases the pH of pond water.

Reason R: The H₂S toxicity increase with the increase in water pH.

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

[Question ID = 5619][Question Description = 119_131_BFS_SEP22_Q19]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 22473]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 22474]
3. A is correct but R is not correct [Option ID = 22475]
4. A is not correct but R is correct [Option ID = 22476]

20) Which of the following fishes excrete urea as the primary nitrogenous end product?[Question ID = 5620][Question Description = 120_131_BFS_SEP22_Q20]

1. Trouts [Option ID = 22477]
2. Salmon [Option ID = 22478]
3. Murrels [Option ID = 22479]
4. Sharks [Option ID = 22480]

21) Which is the first permanent cell line developed from fish?

[Question ID = 5621][Question Description = 121_131_BFS_SEP22_Q21]

1. FHM [Option ID = 22481]
2. GF1 [Option ID = 22482]
3. RTG2 [Option ID = 22483]
4. CHSE-214 [Option ID = 22484]

22) Which of the following is not differentiated from T-Cell?

[Question ID = 5622][Question Description = 122_131_BFS_SEP22_Q22]

1. T helper cell [Option ID = 22485]
2. T cytotoxic cell [Option ID = 22486]
3. T suppressor cell [Option ID = 22487]
4. T chemokine cell [Option ID = 22488]

23) The most commonly used anticoagulant for hematology is?

[Question ID = 5623][Question Description = 123_131_BFS_SEP22_Q23]

1. Potassium citrate
[Option ID = 22489]
2. Calcium citrate
[Option ID = 22490]
3. Ethylenediaminetetraacetic acid
[Option ID = 22491]
4. Tetrasodium salt
[Option ID = 22492]

24) Which of the following is a disease causing Gram-positive bacteria[Question ID = 5624][Question Description = 124_131_BFS_SEP22_Q24]

1. *Edwardsiella tarda* [Option ID = 22493]
2. *Renibacterium salmoninarum* [Option ID = 22494]
3. *Yersinia ruckeri* [Option ID = 22495]
4. *Flavobacterium columnare* [Option ID = 22496]

25) The headquarter of OIE is located in

[Question ID = 5625][Question Description = 125_131_BFS_SEP22_Q25]

1. Bangkok
[Option ID = 22497]
2. Geneva
[Option ID = 22498]
3. Paris
[Option ID = 22499]
4. New York
[Option ID = 22500]

26) Monogenean fish parasite, *Dactylogyrus* mainly affect[Question ID = 5626][Question Description = 126_131_BFS_SEP22_Q26]

1. Gills [Option ID = 22501]
2. Skin [Option ID = 22502]
3. Fins [Option ID = 22503]
4. Eyes [Option ID = 22504]

27) Which institute developed and commercialized ARGASURE to control Argulosis?

[Question ID = 5627][Question Description = 127_131_BFS_SEP22_Q27]

1. ICAR-CIBA [Option ID = 22505]
2. ICAR-CIFE [Option ID = 22506]
3. ICAR-CIFA [Option ID = 22507]
4. ICAR-CIFRI [Option ID = 22508]

28) NSPAAD stands for[Question ID = 5628][Question Description = 128_131_BFS_SEP22_Q28]

1. National Sustainable Programme for Aquatic Animal Diseases [Option ID = 22509]
2. National Surveillance Programme for Aquatic Animal Diseases [Option ID = 22510]
3. National Surveillance Plan for Aquatic Animal Diseases [Option ID = 22511]

4. National Sustainable Plan for Aquatic Animal Diseases [Option ID = 22512]

29) Technique of DNA fingerprinting involves[Question ID = 5629][Question Description = 129_131_BFS_SEP22_Q29]

1. ELISA [Option ID = 22513]
2. Northern blotting [Option ID = 22514]
3. Southern blotting [Option ID = 22515]
4. SDS-PAGE [Option ID = 22516]

30) Specific humoral defense in fish is mediated by[Question ID = 5630][Question Description = 130_131_BFS_SEP22_Q30]

1. Macrophages [Option ID = 22517]
2. Antibody [Option ID = 22518]
3. T cells [Option ID = 22519]
4. Interferon [Option ID = 22520]

31) Which of the following is an eye parasite of fish?

[Question ID = 5631][Question Description = 131_131_BFS_SEP22_Q31]

1. *Diplostomum* sp. [Option ID = 22521]
2. *Trichodina* sp. [Option ID = 22522]
3. *Ergasilus* sp. [Option ID = 22523]
4. *Tetrahyena* sp. [Option ID = 22524]

32) An adaptive increase in the number of cells that can cause enlargement of tissues or organs is known as[Question ID = 5632][Question Description = 132_131_BFS_SEP22_Q32]

1. Hyperplasia [Option ID = 22525]
2. Hypertrophy [Option ID = 22526]
3. Atrophy [Option ID = 22527]
4. Autolysis [Option ID = 22528]

33) Name the country which introduces fish quarantine system for the first time in Asia-Pacific region?[Question ID = 5633]
[Question Description = 133_131_BFS_SEP22_Q33]

1. China [Option ID = 22529]
2. Thailand [Option ID = 22530]
3. Indonesia [Option ID = 22531]
4. Vietnam [Option ID = 22532]

34) Brown Blood Disease occurs in fish when water contains

[Question ID = 5634][Question Description = 134_131_BFS_SEP22_Q34]

1. High pH concentrations
[Option ID = 22533]
2. High nitrite concentrations
[Option ID = 22534]
3. High O₂ concentrations
[Option ID = 22535]
4. Heavy metal toxicity
[Option ID = 22536]

35) White tail disease is a disease of[Question ID = 5635][Question Description = 135_131_BFS_SEP22_Q35]

1. *Penaeus indicus* [Option ID = 22537]
2. *Litopenaeus vannamei* [Option ID = 22538]
3. *Penaeus monodon* [Option ID = 22539]
4. *Macrobrachium rosenbergii* [Option ID = 22540]

36) Haemoglutinins come under which group of anti-nutrients?

[Question ID = 5636][Question Description = 136_131_BFS_SEP22_Q36]

1. Glycosides
[Option ID = 22541]
2. Phenols
[Option ID = 22542]
3. Proteins
[Option ID = 22543]
4. Miscellaneous

[Option ID = 22544]

37) The ideal temperature (degree centigrade) adopted for manufacture of extruded feeds is[Question ID = 5637]
[Question Description = 137_131_BFS_SEP22_Q37]

1. 100- 125 [Option ID = 22545]
2. 125 - 150 [Option ID = 22546]
3. 85 - 100 [Option ID = 22547]
4. 150 - 175 [Option ID = 22548]

38)

List I	List II
A. Prebiotic	I. BHT
B. Binder	II. Oxytetracycline
C. Antioxidant	III. Starch
D. Antibiotic	IV. Nucleotide

[Question ID = 5638][Question Description = 138_131_BFS_SEP22_Q38]

1. A - II , B - III , C - IV, D - I [Option ID = 22549]
2. A - I, B - III, C - II, D - IV [Option ID = 22550]
3. A - III, B - IV, C - I, D - II [Option ID = 22551]
4. A - IV , B - III, C - I, D - II [Option ID = 22552]

39) Carotenoids are considered as what type of additives ?[Question ID = 5639][Question Description = 139_131_BFS_SEP22_Q39]

1. Nutritive [Option ID = 22553]
2. Adjuvant [Option ID = 22554]
3. Non-nutritive [Option ID = 22555]
4. Surfactants [Option ID = 22556]

40) The HUFAs, which are vital as cell membrane constituents are susceptible to which of the following ?[Question ID = 5640][Question Description = 140_131_BFS_SEP22_Q40]

1. Both oxygen and organic radical [Option ID = 22557]
2. Oxygen only [Option ID = 22558]
3. Organic radicals only [Option ID = 22559]
4. Alpha rays [Option ID = 22560]

41) Which one of the following is the best initial live diet for carp spawn after hatching[Question ID = 5641][Question Description = 141_131_BFS_SEP22_Q41]

1. Copepods [Option ID = 22561]
2. Rotifers [Option ID = 22562]
3. Cladocerans [Option ID = 22563]
4. Ostracods [Option ID = 22564]

42) The factors that are known to stimulate olfactory senses in fishes ?[Question ID = 5642][Question Description = 142_131_BFS_SEP22_Q42]

1. Prostaglandins only [Option ID = 22565]
2. Sterols only [Option ID = 22566]
3. Insulin only [Option ID = 22567]
4. Both Prostaglandins and Steroids [Option ID = 22568]

43) Secretion of enzymes from Acinar cells are found in which organ of fishes ?

[Question ID = 5643][Question Description = 143_131_BFS_SEP22_Q43]

1. Pancreas
[Option ID = 22569]
2. Spleen
[Option ID = 22570]
3. Liver
[Option ID = 22571]
4. Gizzard
[Option ID = 22572]

44) Calcium requirement in fishes is primarily correlated with intake of which of the following ?[Question ID = 5644]

[Question Description = 144_131_BFS_SEP22_Q44]

1. Nickel [Option ID = 22573]
2. Copper [Option ID = 22574]
3. Phosphorous [Option ID = 22575]
4. Iron [Option ID = 22576]

45) Haemorrhagic kidney is symptom of the deficiency of which of the following ?[Question ID = 5645][Question Description = 145_131_BFS_SEP22_Q45]

1. Calcium [Option ID = 22577]
2. Iron [Option ID = 22578]
3. Ascorbic acid [Option ID = 22579]
4. Choline [Option ID = 22580]

46) In the HUFA enrichment of live feeds, which statements are correct?

- A. Cladocerans can be efficiently enriched
- B. Ostracods can be effectively enriched
- C. Artemia is a good candidate species for enrichment
- D. Rotifers can be enriched

Choose the *correct* answer from the options given below

[Question ID = 5646][Question Description = 146_131_BFS_SEP22_Q46]

1. A, B, C and D [Option ID = 22581]
2. B, C and D only [Option ID = 22582]
3. C and D only [Option ID = 22583]
4. A, C and D only [Option ID = 22584]

47) Which one of the following forms a important food of whales ?[Question ID = 5647][Question Description = 147_131_BFS_SEP22_Q47]

1. Squillas [Option ID = 22585]
2. Antarctic krills [Option ID = 22586]
3. Pelagic fishes [Option ID = 22587]
4. Demersal fishes [Option ID = 22588]

48) Which of the following are correct?

- A. Fish meal is not an essential ingredient for preparation of feed of carps
- B. Cholesterol is added to shrimp diets
- C. Cholesterol is added to diets of murels
- D. Carotenoid is added as an antibiotic in fish feeds

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

[Question ID = 5648][Question Description = 148_131_BFS_SEP22_Q48]

1. A and B only [Option ID = 22589]
2. B and C only [Option ID = 22590]
3. A and D only [Option ID = 22591]
4. C and D only [Option ID = 22592]

49) Which of the following seaweed is a good source of Vitamin B₁ ?

[Question ID = 5649][Question Description = 149_131_BFS_SEP22_Q49]

1. *Sargassum* [Option ID = 22593]
2. *Laminaria* [Option ID = 22594]
3. *Ulva* [Option ID = 22595]
4. *Prophyra* [Option ID = 22596]

50) The approach in which gene expression (mRNA) is analyzed in a biological sample at a given time under specific conditions is,[Question ID = 5650][Question Description = 150_131_BFS_SEP22_Q50]

1. Nutrigenetics [Option ID = 22597]
2. Lipogenetics [Option ID = 22598]
3. Transcriptomics [Option ID = 22599]
4. Metabolomics [Option ID = 22600]

1) Carp spermatozoa is activated when they come in contact with[Question ID = 5651][Question Description = 101_177_AQU_SEP22_Q01]

1. Hypertonic solution [Option ID = 22601]
2. Isotonic solution [Option ID = 22602]
3. Hypotonic solution [Option ID = 22603]
4. Hyper-osmotic solution [Option ID = 22604]

2) Which one of the following fish cannot be used as a biological agent for aquatic weed control?[Question ID = 5652][Question Description = 102_177_AQU_SEP22_Q02]

1. Grass carp [Option ID = 22605]
2. Common carp [Option ID = 22606]
3. Climbing perch [Option ID = 22607]
4. Silver barb [Option ID = 22608]

3) Which of the following is a predatory fish?[Question ID = 5653][Question Description = 103_177_AQU_SEP22_Q03]

1. *Amblypharyngodon mola* [Option ID = 22609]
2. *Osteobrama belangeri* [Option ID = 22610]
3. *Puntius kolus* [Option ID = 22611]
4. *Glossogobius spp.* [Option ID = 22612]

4) The desired N:P ratios in pond sediment for sustainable productivity of pond water is[Question ID = 5654][Question Description = 104_177_AQU_SEP22_Q04]

1. 10:1 to 15:1 [Option ID = 22613]
2. 2:1 to 4:1 [Option ID = 22614]
3. 15:1 to 20:1 [Option ID = 22615]
4. 20:1 to 25:1 [Option ID = 22616]

5) Maximum loss to carp spawn is done by[Question ID = 5655][Question Description = 105_177_AQU_SEP22_Q05]

1. Coleoptera [Option ID = 22617]
2. Odonata [Option ID = 22618]
3. Hemiptera [Option ID = 22619]
4. Hymenoptera [Option ID = 22620]

6) Clown fishes are[Question ID = 5656][Question Description = 106_177_AQU_SEP22_Q06]

1. Protandrous [Option ID = 22621]
2. Protogynous [Option ID = 22622]
3. Synchronous [Option ID = 22623]
4. Bidirectional sex change [Option ID = 22624]

7) An ideal range of water alkalinity for carp spawn rearing is[Question ID = 5657][Question Description = 107_177_AQU_SEP22_Q07]

1. 80-100 mg/L [Option ID = 22625]
2. 150-180 mg/L [Option ID = 22626]
3. 200-250 mg/L [Option ID = 22627]
4. 300-350 mg/L [Option ID = 22628]

8) Luteinizing hormone is also known as[Question ID = 5658][Question Description = 108_177_AQU_SEP22_Q08]

1. GtH-I [Option ID = 22629]
2. GtH-II [Option ID = 22630]
3. MIS [Option ID = 22631]
4. FSH [Option ID = 22632]

9) Snow trout, *Schizothorax richardsonii* attains maturity in[Question ID = 5659][Question Description = 109_177_AQU_SEP22_Q09]

1. 5 years [Option ID = 22633]
2. 1 years [Option ID = 22634]
3. 3 years [Option ID = 22635]
4. 7 years [Option ID = 22636]

10) The two major environmental factors that affect maturation and spawning in fishes are[Question ID = 5660][Question Description = 110_177_AQU_SEP22_Q10]

1. Temperature and rain [Option ID = 22637]

2. Rain and photoperiod [Option ID = 22638]
3. Alkalinity and photoperiod [Option ID = 22639]
4. Temperature and photoperiod [Option ID = 22640]

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

Assertion A: Cryopreservation of fish gamete is an important tool for artificial fertilization.

Reason R: The cryopreservation technique has been equally successful for sperm as well as ova.

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

[Question ID = 5661][Question Description = 111_177_AQU_SEP22_Q11]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 22641]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 22642]
3. A is correct but R is not correct [Option ID = 22643]
4. A is not correct but R is correct [Option ID = 22644]

12) *Ceratophyllum* is an example of

[Question ID = 5662][Question Description = 112_177_AQU_SEP22_Q12]

1. Floating weed [Option ID = 22645]
2. Submerged weed [Option ID = 22646]
3. Emergent weed [Option ID = 22647]
4. Marginal weed [Option ID = 22648]

13) The effective concentration of CuSO_4 for algal control is [Question ID = 5663][Question Description = 113_177_AQU_SEP22_Q13]

1. 1-3 ppm [Option ID = 22649]
2. 5-10 ppm [Option ID = 22650]
3. 25-30 ppm [Option ID = 22651]
4. 15-20 ppm [Option ID = 22652]

14) The substrate or egg collector, made of fibers of *Arenga* spp., used in common carp spawning tanks in Indonesia is called as [Question ID = 5664][Question Description = 114_177_AQU_SEP22_Q14]

1. Kakabans [Option ID = 22653]
2. Mahabans [Option ID = 22654]
3. Spiegel [Option ID = 22655]
4. Sajadah [Option ID = 22656]

15) Resolving dose of pituitary gland extract for Indian major carp is [Question ID = 5665][Question Description = 115_177_AQU_SEP22_Q15]

1. 1-2 mg/kg [Option ID = 22657]
2. 3-4 mg/kg [Option ID = 22658]
3. 6-8 mg/kg [Option ID = 22659]
4. 12-15 mg/kg [Option ID = 22660]

16) The largest salmon species is [Question ID = 5666][Question Description = 116_177_AQU_SEP22_Q16]

1. *Oncorhynchus mykiss* [Option ID = 22661]
2. *O. tshawytscha* [Option ID = 22662]
3. *O. nerka* [Option ID = 22663]
4. *O. keta* [Option ID = 22664]

17) The salinity required for the larval rearing of *Machobranchium rosenbergii* is [Question ID = 5667][Question Description = 117_177_AQU_SEP22_Q17]

1. 3 ppt [Option ID = 22665]
2. 6 ppt [Option ID = 22666]
3. 12 ppt [Option ID = 22667]
4. 25 ppt [Option ID = 22668]

18) Which of the following one belongs to brown algae?

[Question ID = 5668][Question Description = 118_177_AQU_SEP22_Q18]

1. *Porphyra* spp. [Option ID = 22669]
2. *Gracillaria* spp. [Option ID = 22670]
3. *Laminaria* spp. [Option ID = 22671]
4. *Enteromorpha* spp. [Option ID = 22672]

19) Agar-agar is obtained from[Question ID = 5669][Question Description = 119_177_AQU_SEP22_Q19]

1. Eucheuma [Option ID = 22673]
2. Gelidium [Option ID = 22674]
3. Sargassum [Option ID = 22675]
4. Laminaria [Option ID = 22676]

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

Assertion A: Acidic water enhances ammonia excretion

Reason R: Proton present in acidic water combine with NH_3 and form NH_4^+ , therefore maintaining the gradient for NH_3

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

[Question ID = 5670][Question Description = 120_177_AQU_SEP22_Q20]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 22677]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 22678]
3. A is correct but R is not correct [Option ID = 22679]
4. A is not correct but R is correct [Option ID = 22680]

21) On an average, teleost fish excrete nitrogen waste as ammonia and urea in the proportion of

[Question ID = 5671][Question Description = 121_177_AQU_SEP22_Q21]

1. Ammonia (85%) and urea (15%) [Option ID = 22681]
2. Ammonia (70%) and urea (30%) [Option ID = 22682]
3. Ammonia (95%) and urea (05%) [Option ID = 22683]
4. Ammonia (60%) and urea (40%) [Option ID = 22684]

22) Colour change in the skin of teleosts is controlled by[Question ID = 5672][Question Description = 122_177_AQU_SEP22_Q22]

1. TSH [Option ID = 22685]
2. ACTH [Option ID = 22686]
3. SL [Option ID = 22687]
4. MSH [Option ID = 22688]

23) At a water temperature of 28-30°C, the time taken for the hatching of fertilized eggs of pearl spot is

[Question ID = 5673][Question Description = 123_177_AQU_SEP22_Q23]

1. 20-24 hours [Option ID = 22689]
2. 70-72 hours [Option ID = 22690]
3. 40-44 hours [Option ID = 22691]
4. 60-62 hours [Option ID = 22692]

24) Trout requires a minimum level of dissolved oxygen in water

[Question ID = 5674][Question Description = 124_177_AQU_SEP22_Q24]

1. 1 mg/L and above [Option ID = 22693]
2. 3 mg/L and above [Option ID = 22694]
3. 6 mg/L and above [Option ID = 22695]
4. 12 mg/L and above [Option ID = 22696]

25) Which of the following ornamental fish is an egg scatterer?[Question ID = 5675][Question Description = 125_177_AQU_SEP22_Q25]

1. *Colisa lalia* [Option ID = 22697]
2. *Betta splendens* [Option ID = 22698]
3. *Xiphophorus helleri* [Option ID = 22699]
4. *Zebra danio* [Option ID = 22700]

26) Which of the following city is the hub of ornamental fish export?[Question ID = 5676][Question Description = 126_177_AQU_SEP22_Q26]

1. Mumbai [Option ID = 22701]
2. New Delhi [Option ID = 22702]
3. Hyderabad [Option ID = 22703]
4. Kolkata [Option ID = 22704]

27) Phosphorus is considered a major limiting nutrient in

[Question ID = 5677][Question Description = 127_177_AQU_SEP22_Q27]

1. Freshwater [Option ID = 22705]
2. Brackishwater [Option ID = 22706]
3. Sea water [Option ID = 22707]
4. Estuarine water [Option ID = 22708]

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

Assertion A: The majority of fish are stenohaline.

Reason R: Most fishes have the capacity to tolerate a wide range of salinities.

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

[Question ID = 5678][Question Description = 128_177_AQU_SEP22_Q28]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 22709]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 22710]
3. A is correct but R is not correct [Option ID = 22711]
4. A is not correct but R is correct [Option ID = 22712]

29) Most of the fishes are [Question ID = 5679][Question Description = 129_177_AQU_SEP22_Q29]

1. Ureotelic [Option ID = 22713]
2. Ammonotelic [Option ID = 22714]
3. Uricotelic [Option ID = 22715]
4. Ammonouricotelic [Option ID = 22716]

30) The alkalinity of freshwater is mainly due to [Question ID = 5680][Question Description = 130_177_AQU_SEP22_Q30]

1. CO_3^{2-} [Option ID = 22717]
2. HCO_3^- [Option ID = 22718]
3. CO_3^{2-} and HCO_3^- [Option ID = 22719]
4. SO_4^{2-} [Option ID = 22720]

31) Acidic soil lacks in

[Question ID = 5681][Question Description = 131_177_AQU_SEP22_Q31]

1. Pyrites [Option ID = 22721]
2. Sulphate [Option ID = 22722]
3. Al^{+3} [Option ID = 22723]
4. Ca^{+2} [Option ID = 22724]

32) The second polar body forms in oocytes during

[Question ID = 5682][Question Description = 132_177_AQU_SEP22_Q32]

1. Ovulation [Option ID = 22725]
2. Meiosis I [Option ID = 22726]
3. Fertilization [Option ID = 22727]
4. Germinal vesicle breakdown [Option ID = 22728]

33) Seabass seed is abundantly available for natural collection in [Question ID = 5683][Question Description = 133_177_AQU_SEP22_Q33]

1. Sundarban delta [Option ID = 22729]
2. Gujrat coast [Option ID = 22730]
3. Chilka [Option ID = 22731]
4. Odisha coast [Option ID = 22732]

34) Which state has the highest potential area available for brackishwater aquaculture? [Question ID = 5684][Question Description = 134_177_AQU_SEP22_Q34]

1. Andhra Pradesh [Option ID = 22733]
2. Kerala [Option ID = 22734]
3. Tamil Nadu [Option ID = 22735]
4. West Bengal [Option ID = 22736]

35) The short food cycle exists in

[Question ID = 5685][Question Description = 135_177_AQU_SEP22_Q35]

1. Intensive aquaculture System [Option ID = 22737]
2. Extensive aquaculture System [Option ID = 22738]
3. Polyculture System [Option ID = 22739]

4. Semi-intensive aquaculture System [Option ID = 22740]

**36) The main criteria of a fish to be identified as a commercially viable species for aquaculture is[Question ID = 5686]
[Question Description = 136_177_AQU_SEP22_Q36]**

1. Profitability [Option ID = 22741]
2. Cost of production [Option ID = 22742]
3. Table size of the fish [Option ID = 22743]
4. Market price of the fish [Option ID = 22744]

37) In a fish pond, the pH will be lower during[Question ID = 5687][Question Description = 137_177_AQU_SEP22_Q37]

1. 4.00 pm [Option ID = 22745]
2. 11.00 pm [Option ID = 22746]
3. 6.00 am [Option ID = 22747]
4. 11.00 am [Option ID = 22748]

38) The number of zoeal stages present in *Scylla serrata* is[Question ID = 5688][Question Description = 138_177_AQU_SEP22_Q38]

1. 3 [Option ID = 22749]
2. 5 [Option ID = 22750]
3. 7 [Option ID = 22751]
4. 9 [Option ID = 22752]

39) The number of phyllosoma stages present in sand lobster, *Thenus unimaculatus* is[Question ID = 5689][Question Description = 139_177_AQU_SEP22_Q39]

1. 3 [Option ID = 22753]
2. 4 [Option ID = 22754]
3. 5 [Option ID = 22755]
4. 6 [Option ID = 22756]

40) The pen culture was originated in which country?

[Question ID = 5690][Question Description = 140_177_AQU_SEP22_Q40]

1. India [Option ID = 22757]
2. Indonesia [Option ID = 22758]
3. China [Option ID = 22759]
4. Japan [Option ID = 22760]

41) The ideal site for installing a pen is the marginal area of wetlands with a water depth of[Question ID = 5691][Question Description = 141_177_AQU_SEP22_Q41]

1. 0.5-1.0 m [Option ID = 22761]
2. 1.5-2.5 m [Option ID = 22762]
3. 3.0-4.0 m [Option ID = 22763]
4. 4.0-5.0 m [Option ID = 22764]

42) Out of the total water resources in the world, India possesses about[Question ID = 5692][Question Description = 142_177_AQU_SEP22_Q42]

1. 1.5% [Option ID = 22765]
2. 2.5% [Option ID = 22766]
3. 4.0% [Option ID = 22767]
4. 5.0% [Option ID = 22768]

43) Which of the following is called as water scorpion?[Question ID = 5693][Question Description = 143_177_AQU_SEP22_Q43]

1. Nepa [Option ID = 22769]
2. Corixa [Option ID = 22770]
3. Ranatra [Option ID = 22771]
4. Cybister [Option ID = 22772]

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

Assertion A: Quick lime is preferred for soil treatment during pond preparation.

Reason R: CaO has quick and caustic action.

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

[Question ID = 5694][Question Description = 144_177_AQU_SEP22_Q44]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 22773]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 22774]
3. A is correct but R is not correct [Option ID = 22775]
4. A is not correct but R is correct [Option ID = 22776]

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

Assertion A: *Channa striata* is a predatory fish.

Reason R: Striped murrel monoculture is not possible.

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

[Question ID = 5695][Question Description = 145_177_AQU_SEP22_Q45]

1. Both A and R are correct and R is the correct explanation of A [Option ID = 22777]
2. Both A and R are correct but R is NOT the correct explanation of A [Option ID = 22778]
3. A is correct but R is not correct [Option ID = 22779]
4. A is not correct but R is correct [Option ID = 22780]

46) The colour of freshly spawned egg of *Macrobrachium rosenbergii* is[Question ID = 5696][Question Description = 146_177_AQU_SEP22_Q46]

1. Light yellow [Option ID = 22781]
2. Bright orange [Option ID = 22782]
3. Brownish [Option ID = 22783]
4. Grey [Option ID = 22784]

47) During younger age, duck prefer[Question ID = 5697][Question Description = 147_177_AQU_SEP22_Q47]

1. Azolla [Option ID = 22785]
2. Spirodela [Option ID = 22786]
3. Lemna [Option ID = 22787]
4. Wolffia [Option ID = 22788]

48) In *Lates calcarifer*, the females with what ova size are selected for induced spawning?

[Question ID = 5698][Question Description = 148_177_AQU_SEP22_Q48]

1. >0.250 mm [Option ID = 22789]
2. >0.450 mm [Option ID = 22790]
3. >0.650 mm [Option ID = 22791]
4. >0.850 mm [Option ID = 22792]

49) The perfect composition of fishes to utilize pond niche are[Question ID = 5699][Question Description = 149_177_AQU_SEP22_Q49]

1. Silver carp: Catla: Rohu: Mrigal [Option ID = 22793]
2. Silver carp: Rohu: Common carp: Mrigal [Option ID = 22794]
3. Silver carp: Grass carp: Anabas: Common carp [Option ID = 22795]
4. Silver carp: Grass carp: Anabas: Murrels [Option ID = 22796]

50) The total moles of a solute contained in a kilogram of solvent is called as

[Question ID = 5700][Question Description = 150_177_AQU_SEP22_Q50]

1. Normality [Option ID = 22797]
2. Molarity [Option ID = 22798]
3. Molality [Option ID = 22799]
4. Molar solution [Option ID = 22800]