Msc (Ag) soil & water Conservation
Engg 366

15P/289/2

Question Booklet No. ....

INSTRUCTIONS TO CANDIDATES

(Use only **blue/black ball-point pen** in the space above and on both sides of the Answer Sheet)

1. Within 10 minutes of the issue of the Question Booklet, check the Question Booklet to ensure that it contains all the pages in correct sequence and that no page/question is missing. In case of faulty Question Booklet bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.

2. Do not bring any loose paper, written or blank, inside the Examination Hall *except the Admit Card without its envelope.*

3. A separate Answer Sheet is given. *It should not be folded or mutilated. A second Answer Sheet shall not be provided. Only the Answer Sheet will be evaluated.*

4. Write your *Roll Number and Serial Number of the Answer Sheet by pen* in the space provided above.

5. *On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.*

6. No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and also Roll No. and OMR sheet No. on the Question Booklet.

7. Any changes in the aforesaid entries is to be verified by the invigilator, otherwise it will be taken as unfairmeans.

8. Each question in this Booklet is followed by four alternative answers. *For each question, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by ball-point pen as mentioned in the guidelines given on the first page of the Answer Sheet.*

9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.

10. *Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).*

11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.

12. Deposit *only the OMR Answer Sheet* at the end of the Test.

13. You are not permitted to leave the Examination Hall until the end of the Test.

14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

[उपर्युक्त निर्देश हिन्दी में अन्तिम आवरण-पृष्ठ पर दिये गये हैं।]

Total No. of Printed Pages : 14

No. of Questions : 120

Time : 2 Hours]   *[Full Marks : 360*

Note : (i) *Attempt as many questions as you can. Each question carries 3 (three) marks. One mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question.*

(ii) *If more than one alternative answers seem to be approximate to the correct answer, choose the closed one.*

1. Darcy's law is valid under the condition of :
   (1) Laminar flow with Reynold No. > 10
   (2) Reynold No. < 1.0
   (3) Reynold No. > 1000
   (4) Study uniform flow

2. Ratio of volume of water added or removed directly from the saturated aquifer to the resulting change in volume of aquifer below the water table is called :
   (1) apparent specific yield
   (2) specific yield
   (3) storage coefficient
   (4) specific storage

3. A saturated soil sample has 42.2 per cent water content and unit weight 2.69. The void ratio of the soil sample will be :
   (1) 0.784   (2) 0.478
   (3) 0.874   (4) 0.087

4. Soil texture refers to :
   (1) arrangement of soil particles
   (2) size of soil particles
   (3) colour of soil particles
   (4) none of the above

(1)   P.T.O.

5. Cohesion is :
   (1) attraction of similar molecules
   (2) attraction between two different molecules
   (3) both (1) & (2)
   (4) none of the above

6. Permeability of Clay soil as compared to sandy soil is :
   (1) equal   (2) more   (3) lesser   (4) difficult to say

7. If T is the return period, then the term (T -1)/T give the probability of :
   (1) occurrence of event
   (2) non-occurrence of event
   (3) both (1) and (2)

15. Adhesion is :
   (1) attraction of similar molecules
   (2) attraction between two different molecules
   (3) both (1) & (2)
   (4) none of the above

16. A centrifugal pump running 1450 RPM discharges 20 lps at 30 m total head. The specific speed of the pump will be :
   (1) 12   (2) 16   (3) 20   (4) 24

17. Matric potential in soil profile can be measured using :
   (1) Hygrograph   (2) Tensiometer
   (3) Potentiometer   (4) Luxmeter

18. Wheat supplied with similar quantity of water will cause greater uptake in :
   (1) saline soils   (2) alkali soil   (3) sodic soils   (4) normal soils

19. An instrument used for measurement of Saturated hydraulic conductivity of soils is :
   (1) Permeameter   (2) hydrometer   (3) conductivity meter (4) manometer

20. Rate of water loss from a short green grass which is never short of water is known as :
   (1) Consumptive use   (2) Evapotranspiration
   (3) Potential evapotranspiration   (4) Transpiration

21. USWB Class A pan evaporimeter has diameter of about :
   (1) 100 cm   (2) 120 cm
   (3) 150 cm   (4) 175 cm

22. The ratio of volume of voids to the total soil volume is called :
   (1) Void ratio   (2) Porosity
   (3) Dry bulk density   (4) Wet bulk density

23. Keeping other factors constant, doubling diameter of tube well will increase the discharge by :
   (1) 11%   (2) 20%
   (3) 50%   (4) 100%

24. The well in which the water level remains at the water table level are :
   (1) Non-artesian wells   (2) Flowing artesian well
   (3) Non-flowing artesian well   (4) Confined well

25. The relation between duty and delta is :
   (1) $\Delta = 864\,B/D$ (2) $\Delta = 860\,B/D$
   (3) $\Delta = 864\,D/B$ (4) none of the above

P.T.O.

26. If the Impellor speed of centrifugal pump is doubled, the power consumption will be :

    (1) the same   (2) 4 times   (3) 8 times   (4) 16 times

27. Modified Penman method for computing Potential Evapotranspiration includes :

    (1) energy terms

    (2) aerodynamic terms

    (3) both (1) & (2) above

    (4) none of the above

28. Water flow through a 1.2 m long cylindrical soil column having 650 cm² cross sectional area, is 800 litres per minute. If the hydraulic head is 1.5 m , the hydraulic conductivity of the soil will be :

37. Infiltration is measured by :
(1) cylindrical metal rings
(2) USWB class A pan
(3) lysimeter
(4) rain gauge

38. Evaporation from water surface is the process by which liquid on free surface is transformed into :
(1) a solid state
(2) clouds
(3) a gaseous state
(4) rainfall

39. Evaporation from a free water surface is measured by :
(1) lysimeter
(2) infiltrometer
(3) USWB class A Pan
(4) anemometer

40. Overall project irrigation efficiency in Govt. owned irrigation projects in India is about :
(1) 5%
(2) 30%
(3) 70%
(4) 80%

41. In normal condition water loss from surface irrigation varies from :
(1) 30 to 45%
(2) 25 to 30%
(3) 10 to 15%
(4) 15 to 20 %

42. Canal lining is essential to check the :
(1) seepage losses
(2) evaporation losses
(3) growth of weeds
(4) flow rate of canal

43. PIM refers to :
(1) programme of integrated management
(2) participatory irrigation management
(3) pressure irrigation management
(4) private irrigation management

44. Water meter is used for measuring the :
(1) stream current
(2) pipe flow
(3) runoff
(4) channel flow

45. Which of the following is not related to irrigation ?
(1) Check gate
(2) Water course
(3) Turnout
(4) Coshocton wheel

46. Which of the term is not related to drainage ?
(1) venturi meter
(2) mole
(3) 20-40 rule
(4) water logging

47. Drainable water is the :
(1) hygroscopic water
(2) capillary water
(3) gravitational water
(4) perched water

(5)

P.T.O.

58. The formation which contains sufficient water but has very small quantity to transfer the water is called :

(1) Aquifuse   (2) Acquiclude   (3) Aquitard   (4) Blind aquifer

59. Porosity of soil formation is the ratio of :
(1) Volume of formation to the volume of voids
(2) Volume of voids to the volume of formation
(3) Water volume to the soil volume
(4) Percent micro pores in the formation

60. Piezometer are installed for measuring pressure head in :
(1) perched aquifer   (2) confined aquifer

79. The limit of slope length at which soil erosion begins is called as :
    (1) optimum slope length
    (2) critical slope length
    (3) allowable slope length
    (4) none of the above

80. Transportation of soil particles under splash erosion will be greater on :
    (1) level land surface
    (2) uniform sloppy land surface
    (3) irregular surface
    (4) level land without cover

81. Soil detachment by raindrop is independent of :
    (1) land slope
    (2) soil colour
    (3) soil depth
    (4) soil texture

82. Rill erosion is also known as :
    (1) gully erosion
    (2) micro channel erosion
    (3) micro erosion
    (4) path erosion

83. Sheet flow is generated, when :
    (1) land slope is steep
    (2) land surface is rough
    (3) land surface is smooth with uniform slope
    (4) both (1) & (2)

84. Rill erosion usually begins in the :
    (1) lower part of land slope
    (2) upper part of land slope
    (3) middle of land slope
    (4) entire length of land slope

85. Sediment yield will be higher from the watershed dominated by :
    (1) splash or raindrop erosion
    (2) sheet erosion
    (3) rill erosion
    (4) both (1) & (2)

86. Soil detachment in raindrop erosion takes place due to :
    (1) K.E. of raindrop
    (2) running flow
    (3) P.E. of raindrop
    (4) land slope

87. Detachment of soil particle by flowing water varies as :
    (1) square of its velocity
    (2) square root of its velocity
    (3) power three of its velocity
    (4) power 1.5 of its velocity

88. Transportation ability of flowing water varies as :
    (1) fifth power of its velocity
    (2) square of its velocity
    (3) square root of its velocity
    (4) fourth power of its velocity

89. Organic erosion occurs in the form of :
    (1) phytogenic erosion
    (2) zoogenic erosion
    (3) attrition
    (4) both (1) & (2)

90. Erosion under shifting cultivation, deforestation cultivation on steep slopes without protective measures is associated to :
    (1) anthropogenic erosion
    (2) phytogenic erosion
    (3) zoogenic erosion
    (4) extraction

(9)

P.T.O.

101. Bed width of medium gully is :
   (1) more than 50 m
   (2) not less than 18 m
   (3) 20 m
   (4) 4 to 8 m

102. The flow velocity of run-off at which washing of soil particle takes place is called as :
   (1) maximum velocity
   (2) permissible velocity
   (3) critical velocity
   (4) design velocity

103. Design of diversion ditches is based on the return period of :
   (1) 5 to 10 years
   (2) 50 years
   (3) 25 years
   (4) 100 years

104. Location of permanent gully control structure is decided on the basis of :