

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

Technical and Vocational Education Examinations



7465 WATER SUPPLY AND DRAINAGE NETWORKS PROCESSES 1

JUNE XXXX

ADVANCED LEVEL

Specialty(Specialty Code)	
Centre No.	
Centre Name	
Candidate No.	
Candidate Name	

Mobile phones are **NOT** allowed in the examination room

7465 WATER SUPPLY AND DRAINAGE NETWORKS PROCESSES 1: MULTIPLE CHOICE QUESTION PAPER

One and a half hours

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed **Advanced Level – 7465 WATER SUPPLY AND DRAINAGE PROCESSES 1**
4. Insert the information required in the spaces above.
5. Insert the information required in the spaces provided on the answer sheet using your HB pencil:
Candidate Name, Exam Session, Subject Code, Centre Number and Candidate Number. Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.
6. **Answer ALL questions**
7. Each question has FOUR suggested answers: **A, B, C** and **D**. Decide on which answer is correct. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.
For example, if **C** is your correct answer, mark **C** as shown below:
[A] [B] **C** [D]
8. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
9. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
10. Do all rough work in this booklet, using, where necessary, the blank spaces in the question booklet.
11. Texts, notes and pre-prepared materials of any kind are also **NOT** allowed in the examination room.
12. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet after. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT.**

Turn Over

1. The water cycle generates and renews:
 A Earth's rocks.
 B Earth's nitrogen.
 C Earth's water resources.
 D Earth's tectonic movements.
-
2. Surface water is:
 A Easily accessible.
 B Available and abundant.
 C Vulnerable to pollution.
 D All of the above.
-
3. Ground water resources are best because:
 A They are sane, needs no elaborate treatment and are not vulnerable to contamination.
 B They are readily accessible.
 C They provide adequate volume for exploitation.
 D They are cost effective in exploitation.
-
4. The rocky formation that holds ground water resources is :
 A The river beds.
 B The cleavage plane.
 C The fault lines.
 D The ground aquifers.
-
5. In the research of water resources for a rural village scheme the best information about the availability of springs resources is given by:
 A Civil servants of MINADER.
 B Hunters.
 C The funding and development agents.
 D The project engineer.
-
6. An outcropping spring will appear:
 A When the impermeable layer reaches the earth's surface.
 B When two layers of different compositions meet each other.
 C When the upper layers meets a rock.
 D All of the above
-
7. One is not the reason for protecting of spring catchment area :
 A To prevent the Pollution of its water resources.
 B To improve upon the flow rate.
 C To prevent farming/grazing activities.
 D To prevent deforestation.
-
8. The ideal time of measuring the flow rate of a spring is:
 A During the rainy season.
 B During the peak of the dry season (March-April).
 C During the dry season.
-
- D During the month of August.
-
9. Give an ideal location of a dam, in a stream catchment:
 A Perpendicular to the river bed.
 B Parallel to the river bed.
 C In areas of high sedimentation.
 D In areas of high bed rock porosity.
-
10. A well exploits water from:
 A The artesian tables.
 B The vadoose water.
 C The surface water table.
 D The infiltrated water.
-
11. The pressure that reigns at the water table is the:
 A Atmospheric pressure.
 B Gauge pressure.
 C Absolute pressure.
 D Artesian pressure.
-
12. It is not a component of an equipped well:
 A Precast culvert lining.
 B Hand operating piston pump.
 C Protective concrete cover.
 D Ventilation pipe.
-
13. Characteristics of hard water:
 A Ease foaming action with soap.
 B Ease the cooking of vegetable.
 C Prevent scaling in hot water reservoir.
 D None of the above.
-
14. Water treatment is to:
 A Ameliorate the discharge of water resources.
 B Improve on the quality of raw fresh so as to meet minimum standard of potable water.
 C Check the performances of catchment structures.
 D Enhance distribution pattern.
-
15. Pre-treatment phase involves:
 A Elimination of colloidal materials in solution.
 B Elimination of pathogenic micro-organisms.
 C Elimination of contaminants in suspension that will be harmful to ulterior future treatment stages.
 D Elimination of hardness and aggressivity of water.
-
16. Is not a pre-treatment technique:
 A Mechanical straining.
 B Sieving.

- C Chlorination.
- D Gravitational precipitation of solid particles in suspension (sand).

- B 4.78 l/s.
- C 6.28 l/s.
- D 1.78 l/s.

-
17. The physico-chemical involves the following techniques :
- A Coagulation.
 - B Flocculation.
 - C Sedimentation.
 - D All of the above.
-
18. After the physico-chemical phase, the next stage is :
- A Sterilization.
 - B Softening with slake lime.
 - C Filtration through rapid sand filters.
 - D Transportation to the storage reservoir.
-
19. One of the most popular chemical product used in chemical sterilization is :
- A Aluminium sulphate.
 - B Sodium sulphate.
 - C Calcium carbonate.
 - D Chlorine.
-
20. Sterilization:
- A Ensures the potability by the elimination of pathogenic micro-organisms.
 - B Promotes the proliferation of bacterial nests.
 - C Protects the treatment installations.
 - D Enhances flow and distribution conditions.
-
21. The factors involve in the design of a water supply scheme:
- A Population and its growth.
 - B Social infrastructures.
 - C The hydrological characteristics of the available water resources.
 - D All of the above.
-
22. A Village community in Cameroon with a growth rate of 3% will :
- A Quadruple its population in 25 years.
 - B Double its population in 25 years.
 - C Triple it population in 25 years.
 - D Remain the same in 25 years.
-
23. A community at the targeted design horizon has a population of 2400 inhabitants. Calculate the minimum water resource to be mobilized to satisfy this demand, if the per capital consumption is 100 l/s.
- A 2.78 l/s.
-
24. Choose the spring that will satisfy the water demand of an agglomeration of a targeted population of 10000 inhabitants and the social infrastructures to be constructed are evaluated at 25% of the total daily water demand. The daily consumption per inhabitant is 100 l/s.
- A Stream A: 12 l/s
 - B Stream B: 14 l/s
 - C Stream C: 16 l/s
 - D Stream D: 18 l/s
-
25. If the tank has as main function storage:
- A It improves flow condition.
 - B It acts as an interruption tank.
 - C It prevents the occurrence of water hammer.
 - D It collects water during low period and restitutes during peak periods.
-
26. Water hammer in the distribution pipeline is catered for by :
- A Installation of hammer arrestors.
 - B Installation of vacuum breakers.
 - C Installation of pressure regulators.
 - D Installation of air relief valves.
-
27. Is not a protective device for pumps in a pumping station:
- A Air vessels.
 - B Check valves.
 - C Pressure manometers.
 - D Flexible pipe connectors.
-
28. A storey building GF+4 has two apartments per floor level. Each apartment has two bathrooms and a kitchen. Ten (10) fixtures are installed in each apartment. Find the number of fixtures in the building.
- A 100.
 - B 110.
 - C 90.
 - D 10.
-
29. Calculate the coefficient of simultaneity of question 28 above.
- A 1.
 - B 0.10.
 - C 0.001.
 - D 10.
-

value in l/s is:

- A 1 l/s.
- B 100 l/s.
- C 10 l/s.
- D 0.1 l/s.

30. A residential building has two bathrooms and a kitchen; there are installed four fixtures in the bathroom with a total gross flow rate of 0.90 l/s. The kitchen sink has a base flow rate of 0.20 l/s. Find the nominal diameter of the service pipe, if the flow speed is 1.2 m/s.

- A PE 50.
- B PE 25.
- C PE 40.
- D PE 32.

31. Boosting is used when:

- A The pressure in the main is sufficient.
- B When head creates an irregular flow pattern.
- C When the supply from the catchment is adequate.
- D None of the above.

32. Zoning is:

- A Using the umbrella pattern of distribution.
- B The division of the distribution pattern into standard pressure zones.
- C Using risers.
- D Using the indirect system of distribution.

33. Calculate the branch intervals in a GF+7 apartment storey building.

- A 8.
- B 6.
- C 7.
- D 1.

34. The drainage network in a GF+4 apartments building is evacuated by 4 stacks, each draining an apartment. The apartments on the ground floor are evacuated directly to the building drain; the hydraulic load of each apartment is 50 d.u. Calculate the hydraulic load of a stack.

- A 50 d.u.
- B 100 d.u.
- C 200 d.u.
- D 250 d.u.

35. Deduce (*Cf question 34 above*) the total hydraulic load of the building drain.

- A 1000 d.u.
- B 800 d.u.
- C 80 d.u.
- D 50 d.u.

36. The total hydraulic load of a building 3200, its

37. A rodding eye:

- A Permits access to the drainage network.
- B Permits access for testing.
- C Permits access for maintenance work.
- D All of the above.

38. An Inspection chamber:

- A Centralizes various drain circuits at one point.
- B Prevents access to the network.
- C Blocks access for maintenance work.
- D Prevent access for testing.

39. The altitude of the upstream inspection chamber is at +250 and the downstream inspection chamber is at +250.50. The horizontal distance between the two chambers is 100m. The gradient of the sewer between the two chambers is:

- A 1/20
- B 1/2000
- C 1/200
- D 1/2

40. The public sewer:

- A Collects and transports sewage to the treatment station.
- B Treats sewage.
- C Dispose sewage to natural drainage basin.
- D Lift sewage in the pumping stations.

41. The public sewer is constructed as:

- A Separated.
- B Combined.
- C Mix.
- D All of the above.

42. One is not a used in the treatment of sewage:

- A Activated sludge.
- B Lagoons.
- C Slow sand filtration.
- D Stabilization ponds.

43. Components of the septic installation:

- A Overhead storage tanks.
- B Sewage pumping stations.
- C Yard gully.
- D None of the above.

44. A primary vent pipe:

- A Exhausts air from the drainage network.
- B Extension of the drainage stack above the roof level to keep the drainage network at atmospheric pressure.

- C It prevents the unsealing of traps.
 - D Promotes positive and negative pressures build up in the drainage network.
-

45. The secondary vent that serves simultaneously as a drain and vent pipe is;

- A Circuit vent.
 - B Loop vent.
 - C Unit vent.
 - D Wet vent.
-

46. The design of a vent stack is in function of:

- A Hydraulic load and numbers of fixtures.
 - B Hydraulic loads and flow speed.
 - C Hydraulic load and the developed length.
 - D Developed length and drainage slope.
-

47. Dripping spouts of a faucet is caused by:

- A Defective handle or stem.
 - B Deteriorated or broken washer.
 - C Worn washer sits.
 - D All of the above.
-

48. Leakage in supply pipeline is caused by:

- A Correct tightening of pipes fittings.
 - B Broken and punctured pipes.
 - C Excellent alignment of pipeline.
 - D Perfect positioning of pipe clips
-

49. No hot water:

- A Blown heating elements.
 - B Adequate electric supply.
 - C Fuse control panel on the "on" position.
 - D Heater plugged into electric supply.
-

50. Back flow of waste water into the lavatory's basin when flushing mechanism is acted upon is caused by:

- A Siphonage.
 - B Flow from the faucet.
 - C Unsealing of the trap.
 - D Blocked trap.
-

NOW GO BACK AND CHECK YOUR WORK