MPPSC (AE) 2017 Test Series

Test 04

Test ID: 478 Date: 16/06/2017

Time: 60 Minutes Total Marks: 120

Topics:

Environmental Engineering & CPM

Instructions for Candidates

1. Do not open the Question Booklet until you are asked to do so by the invigilator.
2. This Question Booklet contains **04** pages. After you are permitted to open the booklet, please check all pages and report discrepancies, if any, to the invigilator.
3. There are a total of 40 **questions** carrying **120 marks**. All these questions are of objective type. Each Question has only **one** correct answer. Questions must be answered on the Back side of the **OMR** by darkening the appropriate bubble (marked A, B, C, D) using ONLY a **black/blue ink ball point pen** against the question number. **For each question darken the bubble of the correct answer**. More than one answer bubbled against a question will be treated as an incorrect response.
4. Since bubbles darkened by the black/blue ink ball point pen **cannot** be erased, candidates should darken the bubbles in the OMR very carefully.
5. Questions 01 – 40 belong to ***Environmental Engineering & CPM and*** carrying 03marks *each.*
6. Unattempted questions will result in zero mark and also **there is no negative marking** for wrong answers.
7. Calculator, charts, graph sheets or tables are **NOT** allowed in the examination hall.
8. Rough work can be done on the question paper itself. Rough Work on Answer sheet is strictly prohibited otherwise answer sheet will be rejected.
9. ***Use of mobile is strictly prohibited during exam.***
10. Before the start of the examination, write your name and registration number in the space provided below using a black ink ball point pen.

Name of Student
Batch (B1/B3)
Registration Number

Q.1. The population of a town in three consecutive decades are 50,000; 70,000; 84,000 respectively. The population of the town in 4th consecutive decade according to geometric increase method is
(a) 96,000 (b) 10,4000 (c) 1,09,200 (d) 1,14,200

Q.2. Suitable method for forecasting population of a large city, which has reached its saturation population is
(a) Arithmetic increase method
(b) Geometric increase method
(c) Incremental increase method
(d) Graphical method

Q.3. Consumption of water for cow and buffalo per day may be
(a) 20 litres (b) 20 – 40 litres
(c) 40 – 60 litres (d) 60 – 80 litres

Q.4 In Kuching's formula $Q = 3182(P)^{1/2}$ for estimating water demand for fire
(a) Q is in litres per day and P is population in lacs
(b) Q is in litres/minute and P is in population in thousands
(c) Q is in litres/minute and P is population in lacs
(d) Q is in litres/day and P is population in thousands

Q.5 In case of a well maintained and fully metered water distribution system, water system loss is approximately
(a) 5 % (b) 10 % (c) 15 % (d) 20 %

Q.6. Maximum monthly consumption of water varies _____ percentage of annual average daily rate of demand
(a) 125 (b) 140 (c) 160 (d) 180

Q.7. Sedimentation tanks and clean water reservoir are designed for the n times rate of consumption, where n is
(a) 1.0 (b) 1.2 (c) 1.25 (d) 1.4

Q.8. Which one of the following is not a dissolved impurity in water
(a) Bacteria (b) calcium carbonate
(c) Iron oxide (d) carbon dioxide

Q.9. Which one is not the effect of presence of iron oxide in water
(a) causes red color (b) increases corrosiveness
(c) increases hardness (d) causes toxic effect

Q.10. Which one of the following causes cumulative poisoning by water?
(a) Manganese (b) Iron (c) Barium (d) Lead

Q.11. Thermal stratification of impounded water is in the order
(a) epilimnion–mesolimnion–hypolimnion
(b) epilimnion–hypolimnion–mesolimnion
(c) hypolimnion–epilimnion–mesoilimnion
(d) mesolimnion–hypolimnion–epilimnion

Q.12. Temperature of water more than _____ is considered objectionable
(a) 10°C (b) 15°C (c) 20°C (d) 25°C

Q.13. Low turbidity of water can be determined by
(a) Turbidity rod
(b) Jackson's turbidometer
(c) Baylis turbidometer
(d) Hellipe turbidometer

Q. 14. Colorimetric method of testing water is to determine
(a) Turbidity (b) hardness
(c) Chlorides (d) pH value

Q.15. Which one of the following is not bacteria from sewage and animal excrement?
(a) cocci (b) coli-aerogenes group
(c) Clostridium welchii (d) faecal streptococci

Q. 16. Aeration is carried out to
(a) Remove gases from water
(b) Add oxygen to water
(c) Both to remove gas and add oxygen
(d) None of the above

Q. 17. Efficiency of sedimentation tank for a given discharge can be increased by
(a) Decreasing the depth of tank
(b) Increasing the depth of tank
(c) Increasing the surface area of the tank
(d) Decreasing the surface area of the tank

Q.18. Which one of the following is not a formula to find head loss due to friction in flow through pipes?
(a) Darcy-Weisback formula
(b) Hazen-William's formula
(c) Lea formula
(d) Manning's formula

Q.19. Suitable layout of water distribution system for a well planned city is
(a) Dead end system
(b) grid-iron system
(c) Ring system
(d) Radial system.

Q.20. The sewer which obtains its discharge from two or more sewers is known as
(a) depressed sewer (b) trunk sewer
(c) outfall sewer (d) common sewer

Q.21. Which one of the following is a wrong statement about mechanical flocculators over horizontal flow rectangular baffle wall tanks?
(a) Requirement of chemical is reduced.
(b) Less capacity of tank is required.
(c) Very small loss in head of sewage.
(d) There are no dead spaces in corners.

Q.22. In an office building one water closet should be provided for every _____ number of male personnel.
(a) 5 (d) 10 (c) 15 (d) 25

Q.23. Which one of the following is the wrong statement about land treatment of sewage disposal?
(a) The disposal of sewage is done without natural courses.
(b) The land is irrigated and receives high value fertilizing substance.
(c) Less area of land is required.
(d) The method is cheap.

Q.24. Which soil can take maximum dose of sewage?
(a) Loam soil (b) Clayey soil
(c) Sandy loam soil (d) Sandy soil

Q.25. Deaerators are provided at the _____ of stack to avoid excessive back pressure
(a) foot
(b) top
(c) every floor level
(d) every alternate floor level

Q.26. If 2% solution of a sewage sample is incubated for 5 days at 20°C and depletion of oxygen was found to be 5 ppm, B.O.D. of the sewage is
(a) 200 ppm (b)250 ppm
(c)300 ppm (d)400 ppm

Q.27. The dimensions of a rectangular settling tank are : length 24 m, width 6 m and depth 3 m. If 2 hour detention period for tanks is recommended, the rate of flow of sewage per hour, is
(a) 204 cu m (b) 216 cu m
(c) 785 cu m (d) 404 cu m

Q.28. Bio-chemical oxygen demand (BOD) for the first 20 days in generally referred to
(a) Initial demand
(b) first stage demand
(c) Carbonaceous demand
(d) all of these.

Q.29. The drainage area of a town is 12 hectares. Its 40% area is hard pavement (K = 0.85), the 40% area is unpaved streets (K = 0.20) and the remaining is wooded areas (K = 0.15). Assuming the time of concentration for the areas as 30 minutes and using the formula P_S=900/(t+60) the maximum run off is
(a) 0.25 cumec (b) 0.70 cumec
(c) 0.80 cumec (d) 0.15 cumec

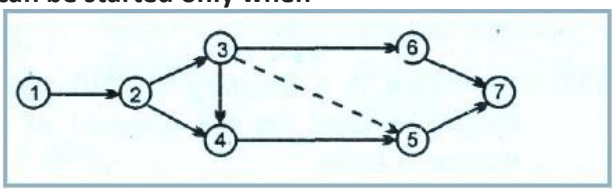
Q.30. The density of population over 40 hectares is 250/hectare. If water supply demand per day is 200 litres and sewage discharge is 80% of water supply, the sewage flow in sewers of separate system, is
(a) 0.05552 cumecs (b) 0.05656 cumecs
(c) 0.05560 cumecs (d) 0.05745 cumecs

Q.31. PERT technique of network analysis is mainly useful for
a) Small projects
b) Large and complex projects
c) Research and development projects
d) Deterministic activities

Q.32. Select the correct statement.
(a) Activity arrows in a CPM network are drawn to scale
(b) The tail of an arrow represents the finish of an activity
(c) Arrow bead represents the start of an activity
(d) none of the above

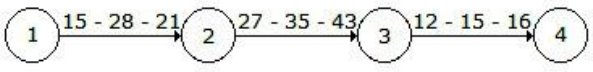
Q.33. Which of the following is a weakness of bar chart ?
(a) interdependencies of activities
(b) project progress
(c) uncertainties
(d) all of the above

Q.34. In the network shown in Fig. activity 4-5 can be started only when



a) activity 3-4 is completed
b) activity 2-4 is completed
c) activity 2-3 is completed
d) activity 2-4 and 2>-A both are completed

Q.35. Optimistic time, most likely time and pessimistic times for the activities of a network in the given figure are written above their arrows. If the contractual obligation time for the project is 75, the latest occurrence time for the event 2, is



(a) 20 (b) 25 (c) 35 (d) 15

Q.36. The performance of a specific task in CPM, is known
(a) Dummy (b) Event (c) Activity (d) Contract

Q.37. The time which results in the leasi, possible construction cost of an activity, is known
(a) normal time (b) slow time
(c) crash time (d) standard time.

Q.38. In a project logic 4 activities M, N, O and P are required to be completed before starting activity Q. If finish time of M, N, O and P are 12, 14, 15 and 17 days respectively, the earliest event occurrence time for the activity is
(a) 12 Days (b) 14 Days (c) 15 Days (d) 17 Days

Q.39. If t is the duration of an activity, t_1 is the latest finish possible moment of its preceding activity and t_2 is the earliest start possible moment, the independent float of the activity is
(a) $(t_1 - t_2) - t$ (b) $t - (t_1 - t_2)$
(c) $(t_1 + t_2) - t$ (d) $t + (t_1 - t_2)$

Q.40. Pick up the incorrect statement from the following:
(a) The difference between the earliest start time and latest finish time of any activity, is the maximum time available for the activity
(b) The difference between the maximum time available for the job and actual time it consumes, is called total float
(c) The difference between the latest start time and earliest start time of an activity, is called total float
(d) None of these.

THE END