

MARATHON CLASS

(BMC-ESE-PYQ-ONE-LINER)

Q : 1)

- i) Strain is a fundamental behaviour of a material.
- ii) Strain does not have a unit.
- a) Both i and ii are true and ii is the correct explanation of i
- b) Both i and ii are true but ii is not the correct explanation of i
- c) i is true but ii is false
- d) ii is true but i is false

c) 1, 8, 16, 24 min

d) 24, 30, 34, 40, 46 min

Q : 2) Where is the necking region?

- a) The area between lower yield point and upper yield point
- b) The area between the plastic limit and elastic limit
- c) The area between the ultimate point and initial point
- d) The area between the ultimate point and rupture

Q : 7) The depth of the groove cut by casagrande tool for determining the liquid limit is _____

- a) 10 mm
- b) 11.0 mm
- c) 2 mm
- d) 8 mm

Q : 3) In calcium carbide method, the gas produced is _____

- a) methane
- b) carbon dioxide
- c) acetylene
- d) oxygen

Q : 8) The highway research Board was set up in which year?

- a) 1963
- b) 1973
- c) 1947
- d) 1953

Q : 4) In Indian Standard (IS : 460-11962) the sieve sizes are given by _____

- a) number of openings
- b) number of openings per inch
- c) size of aperture in mm
- d) size of aperture in cm

Q : 9) What is the temperature used in highway pavement in degrees centigrade?

- a) 175
- b) 115
- c) 130
- d) 120

Q : 5) Which of the following, cannot be used as a dispersing agent?

- a) Sodium oxalate
- b) Sodium polyphosphate
- c) Sodium silicate
- d) Sodium oxide

Q : 10) The cross drainage structure of a highway is considered in which aspect?

- a) Road user amenities
- b) Maintenance aspects
- c) Highway factors
- d) Highway traffic factors

Q : 6) The recommended time interval for the drainage in pipette analysis is _____

- a) 1/2, 1, 2, 4, 8, 15, and 30 min
- b) 2, 4, 6, 12, 20 and 30 min

Q : 11) Traffic symbols are classified into how many categories?

- a) One
- b) Two
- c) Three
- d) Four

Q : 12) An intersection that is provided for different levels of road is called _____

- a) Intersection at grade
- b) Grade separated intersections
- c) Channelized intersection
- d) Rotary intersection

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Q : 13) Which of the following doesn't describe the use of hydrographic surveying?

- a) Nautical charts for navigation
- b) Establishing mean sea level
- c) Laying an Alignment
- d) Making underground investigations

Q : 14) Which of the following is not a method of levelling?

- a) Spirit levelling
- b) Traverse levelling
- c) Barometric levelling
- d) Trigonometric levelling

Q : 15) How many methods of observing the bearings of lines by fast needle method?

- a) 2
- b) 3
- c) 4
- d) 5

Q : 16) Which of the following error comes under personal errors?

- a) The needle not being perfectly straight
- b) Pivot being bent
- c) Plane of sight not being vertical
- d) Inaccurate bisection of signals

Q : 17) Let e be the closing error in the bearing of the last line of a closed traverse having N sides. Then what is the correction for first line?

- a) e/N
- b) $2e/N$
- c) $3e/N$
- d) e

Q : 18) Which of the following is the correct formula for Gross irrigation requirement?

- a) $C_u - R_e$
- b) $CIR + \text{leaching losses}$
- c) NIR/N_a
- d) FIR/N_c

Q : 19) Which of the following combination is not correct?

- a) Feeder canal – no direct irrigation is carried out
- b) Protective canal – constructed as a relief work during the famine
- c) Lined canal – provided with a lining of

impervious material on its bed

d) Contour canal – provision of cross drainage works is not required

Q : 20) Which canal is not provided with any headworks for diversion of river water?

- a) Permanent canal
- b) Feeder canal
- c) Perennial canals
- d) Inundation canals

Q : 21) Loss of canal discharge occurs mainly due to?

- a) Seepage and Percolation
- b) Percolation and Absorption
- c) Seepage and Evaporation
- d) Seepage and Absorption

Q : 22) The quantity of water that can be diverted from the river into the main canal has no dependency on which of the following factor?

- a) The water available in the river
- b) The capacity of the main canal
- c) Water demand of the branch canals
- d) The capacity of the branch canal

Q : 23) Total Kjeldahl Nitrogen (TKN) concentration (mg/l as N) in domestic sewage is the sum of the concentrations of

- (a) organic and inorganic nitrogen in sewage
- (b) organic nitrogen and nitrate in sewage
- (c) organic nitrogen and ammonia in sewage
- (d) ammonia and nitrate in sewage

Q : 24) A sample of domestic sewage is digested with silver sulphate, sulphuric acid, potassium | dichromate and mercuric sulphate in chemical | oxygen demand (COD) test. The digested sample | is then titrated with standard ferrous ammonium 5 sulphate (FAS) to determine the un-reacted | amount of

- (a) Mercuric sulphate
- (b) Potassium dichromate |
- (c) Silver sulphate
- (d) Sulphuric acid

Q : 25) In a domestic wastewater sample, COD and BOD were measured. Generally which of the m / statement is true for their relative magnitude?

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- (a) COD = BOD
- (b) COD > BOD
- (c) COD < BOD
- (d) Nothing can be said

Q : 26) High COD to BOD ratio of an organic pollutant represents

- (a) high biodegradability of the pollutant
- (b) low biodegradability of the pollutant
- (c) presence of free oxygen for aerobic decomposition
- (d) presence of toxic material in the pollutant

Q : 27) The permissible stress in axial tension σ_{st} in steel member on the net effective area of the section shall not exceed (f_y is the yield stress)

- (a) $0.80 f_y$
- (b) $0.75 f_y$
- (c) $0.60 f_y$
- (d) $0.50 f_y$

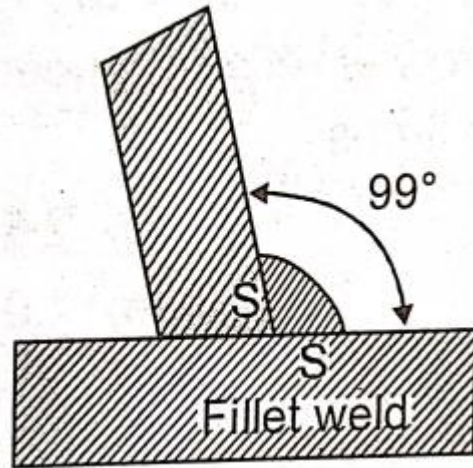
Q : 28) Generally the maximum deflection/span ratio of a steel member should not exceed

- (a) $\frac{1}{750}$
- (b) $\frac{1}{500}$
- (c) $\frac{1}{325}$
- (d) $\frac{1}{250}$

Q : 29) Prying Forces are :

- (a) Shearing forces on the bolts because of the joints.
- (b) Tensile forces due to the flexibility of connected parts.
- (c) Bending forces on the bolts because of the joints.
- (d) Forces due the friction between connected parts.

Q : 30) For the fillet weld of size shown in the adjoining figure, the effective throat thickness is



- (a) $0.61 s$
- (b) $0.65 s$
- (c) $0.70 s$
- (d) $0.75 s$