



## MPPSC (AE) 2017 Test Series

# Test 01

Test ID: 745

Date: 07/06/2017

Time: 60 Minutes

Total Marks: 120

### Topics:

## **Transportation & QSC**

### 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 **Transportation & QSC** 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. A rising gradient of 1 in 50 meets a falling gradient of 1 in 30. Which one of the following is the length of vertical curve if the stopping sight distance is 120m?**

- (a) 174m (b) 158m (c) 140m (d) 120m

**Q.2. In 500 gm sample of coarse, there are 100 gm flaky particles and 80 gm elongated particles. What are the flakiness and elongation indices (total) as per IS?**

- (a) 40% (b) 36% (c) 18% (d) 4%

**Q.3. If design speed of a main road is 100 kmph, the sight distance at intersection should be at least:**

- (a) 150 m (b) 200 m (c) 180 m (d) 220 m

**Q.4 Maximum camber recommended by IRC is:**

- (a) 1.7 % (b) 2 % (c) 3 % (d) 4 %

**Q.5 In the Marshall method of mix design the coarse aggregate, fine aggregate, filler and bitumen, having respective gravities of 2.72, 2.70, and 1.02 are mixed in ratio of 55, 34.6, 4.8, and 5.6 percent, respectively. The theoretical specific gravity of the mix would be:**

- (a) 2.36 (b) 2.40 (c) 2.44 (d) 2.50

**Q.6. The minimum value of camber provided for thin bituminous surface hill roads, is**

- (a) 2.2% (b) 2.5% (c) 3% (d) 3.5%

**Q.7. The total length of a valley formed by two gradients - 3% and + 2% curve between the two tangent points to provide a rate of change of centrifugal acceleration  $0.6 \text{ m/sec}^2$ , for a design speed 100 km ph, is:**

- (a) 16.0m (b) 42.3m  
(c) 84.6m (d) non of these

**Q.8. If the ruling gradient on any highway is 3%, the gradient provided on the curve of 300 metre radius, is:**

- (a) 2.0% (b) 2.25% (c) 2.50% (d) 2.75%

**(Space for Rough Work)**

**Q.9. Floating gradients are generally provided:**

- (a) along maximum gradients  
(b) along minimum gradients  
(c) at summit curves  
(d) at valley curves

**Q.10. The minimum vertical clearance of overhanging cliffs or any other structure above the surface of a hill road, should be**

- (a) 3m (b) 4m (c) 5m (d) 6

**Q.11. The usual width of side drains along Highways in hilly region, is:**

- (a) 50 (b) 60 (c) 70 (d) 80

**Q.12. In water bound macadam roads, binding material, is:**

- (a) Sand (b) stone dust  
(c) cement (d) brick dust

**Q.13. The type of transition curves generally provided on hill roads, is:**

- (a) Circular (b) cubic parabola  
(c) Lemniscate (d) spiral

**Q. 14. If cross slope of a country is 10% to 25%, the terrain is classified as**

- (a) rolling (b) mountainous  
(c) steep (d) plain

**Q.15. Reinforcement in cement concrete slab of road pavements, is placed**

- (a) longitudinally  
(b) transversely  
(c) longitudinally and transversely  
(d) in the form of welded wire mesh

**Q. 16. If x% is the gradient of an alignment and y% is the gradient after proper super elevation along a curved portion of a highway, the differential grade along the curve, is:**

- (a)  $(x + y)\%$  (b)  $(x - y)\%$   
(c)  $(y - x)\%$  (d)  $(x \cdot y)\%$

**Q. 17. In scanty rainfall regions, the camber provided will be**

- (a) nil (b) flatter  
(c) steep (d) none of these

**Q.18.** If the rate of change of the super-elevation along a curved portion of a 7 metre wide road is 1 in 150 and the maximum super-elevation allowed is 1 in 15, the maximum length of the transition curve to be provided at either end, is:  
 (a) 65 m (b) 70m (c) 75m (d) 80m

**Q.19.** If the width of carriage way is 12.5 metres, outer edge 50 cm higher than the inner edge, the required super elevation is  
 (a) 1 in 25 (b) 1 in 400  
 (c) 1 in 40 (d) 1 in 24

**Q.20.** Interior thickness of concrete road slab for design wheel load 6300 kg and permissible flexural stress  $21 \text{ kg/cm}^2$ , is  
 (a) 25.5 cm (b) 35.5 cm  
 (c) 42.5 cm (d) 50.5 cm

**Q.21.** A portion of an embankment having a uniform up-gradient 1 in 500 is circular with radius 1000 m of the centre line. It subtends  $180^\circ$  at the centre. If the height of the bank is 1 m at the lower end, and side slopes 2:1, the earth work involved.  
 (a)  $26,000 \text{ m}^3$  (b)  $26,500 \text{ m}^3$   
 (c)  $27,000 \text{ m}^3$  (d)  $27,500 \text{ m}^3$

**Q.22.** Pick up the item of work not included in the plinth area estimate  
 (a) Wall thickness (b) Room area  
 (c) Veranda area (d) Courtyard area

**Q.23.** The height of the sink of wash basin above floor level is kept  
 (a) 55 cm to 60 cm (b) 65 cm to 70 cm  
 (c) 75 cm to 80 cm (d) 85 cm to 90 cm

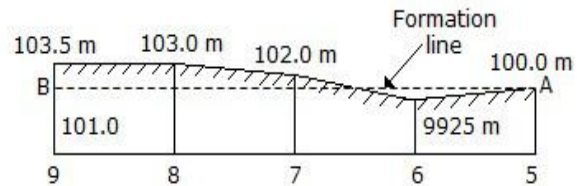
**Q.24.** For 12 mm thick cement plastering 1 : 6 on 100 sq.m new brick work, the quantity of cement required, is:  
 (a)  $0.200 \text{ m}^3$  (b)  $0.247 \text{ m}^3$   
 (c)  $0.274 \text{ m}^3$  (d)  $0.295 \text{ m}^3$

**Q.25.** The item of the brick structure measured in sq.m, is:  
 (a) Reinforced brick work  
 (b) Broken glass coping  
 (c) Brick edging  
 (d) Brick work in arches

**Q.26.** The expected out turn of 12 mm plastering with cement mortar is:  
 (a) 2.5 sq m (b) 4.0 sq m  
 (c) 6.0 sq m (d) 8.0 sq m

(Space for Rough Work)

**Q.27.** The reduced levels of points, 30 metres apart along the longitudinal section of a road portion between chainages 5 and 9 are shown in the given figure. If there is a uniform up-gradient of the road 120 in 1, the chainage of the point with no filling or cutting is



(a) (6 + 15) chains (b) (6 + 12) chains  
 (c) (6 + 18) chains (d) none of these

**Q.28.** The excavation exceeds 1.5 m in width and 10 sq.m in plan area with a depth not exceeding 30 cm, is termed as:  
 (a) Excavation (b) Surface dressing  
 (c) Surface dressing (d) Surface excavation

**Q.29.** If tensile stress of a steel rod of diameter  $D$  is  $1400 \text{ kg/cm}^2$  and bond stress is  $6 \text{ kg/cm}^2$ , the required bond length of the rod is:  
 (a)  $59 D$  (b)  $53 D$  (c)  $50 D$  (d)  $40 D$

**Q.30.** The measurement is not made in square metres in case of:  
 (a) D.P.C. (Damp proof course)  
 (b) Form works  
 (c) Concrete Jeffries  
 (d) R.C. Chhajja

**Q.31.** For 100 sq. m cement concrete (1 : 2 : 4) 4 cm thick floor, the quantity of cement required, is:  
 (a)  $0.90 \text{ m}^3$  (b)  $0.94 \text{ m}^3$  (c)  $0.98 \text{ m}^3$  (d)  $1.0 \text{ m}^3$

**Q.32.** Minimum depth of ballast prescribed of B.G. trunk lines of Indian Railways is:  
 (a) 15 cm (b) 20 cm (c) 25 cm (d) 30 cm

**Q.33.** For holding a rail in position, no chairs are used for:  
 (a) Flat footed rails (b) bull headed rails  
 (c) Double headed rails (d) both (a) and (b)

**Q.34.** In India the rails are manufactured by:  
 (a) Open hearth process  
 (b) Duplex process  
 (c) Both (a) and (b)  
 (d) Neither (a) nor (b)

**Q.35.To prevent percolation of water into formation, moorum is used as a blanket for:**

- (a) Black cotton soil      (b) sandy soil  
(c) Clayey soil              (d) all the above

**Q.36.The runway orientation is made so that landing and takeoff are:**

- (a) against the wind direction  
(b) along the wind direction  
(c) perpendicular to wind direction  
(d) none of these

**Q.37. Airport elevation is the reduced level above M.S.L. of;**

- (a) control tower  
(b) highest point of the landing area  
(c) lowest point of the landing area  
(d) none of these

**Q.38. For night landing, the thresholds are lighted:**

- (a) green    (b) red    (c) white    (d) yellow

**Q.39. The maximum value of the angle of turning of the nose gear large jet aircrafts, is limited to:**

- (a) 20°      (b) 30°      (c) 45°      (d) 60°

**Q.40.The length of a runway under standard atmospheric conditions is 1800 m. If the actual reduced level of the site is 1200 m, the design length of the runway is:**

- (a) 2360 m    (b) 2460 m    (c) 2560 m    (d) 2660 m

**THE END**

**(Space for Rough Work)**