

**UNIVERSITY OF PETROLEUM  
AND ENERGY STUDIES**



**End Semester Examination, May 2017**

**Program/course: MBA (AVM/PSM/IB)**

**Subject: Business Research Methods**

**Code MBCQ732**

**No. of page/s:**

**Semester – II**

**Max. Marks : 100**

**Duration : 3 Hrs.**

---

**Section A- Objective type questions-(2 marks each)**

1. Which of the following is a method of selecting samples from a population?
  - a) Judgement sampling
  - b) Random sampling
  - c) Probability sampling
  - d) All of these
  - e) (a) and (b) but not (c)
  
2. The finite population multiplier does not have to be used when the sampling fraction is
  - a) Greater than 0.05
  - b) Greater than 0.50
  - c) Less than 0.50
  - d) Greater than 0.90
  - e) None of these
  
3. Which of the following is a necessary condition for using a t-distribution table ?
  - a) n is small
  - b) s is known but  $\sigma$  is not
  - c) The population is infinite
  - d) All of these
  - e) (a) and (b) but not (c)
  
4. If we say that  $\alpha = 0.10$  for a particular hypotheses test, we are saying that-
  - a) Ten percent is our minimum standard for acceptable probability
  - b) Ten percent is the risk we take of rejecting a hypothesis that is true
  - c) Ten percent is the risk we take of accepting a hypothesis that is false
  - d) (a) and (b) only
  - e) (a) and (c) only
  
5. Airline A and Airline B boast successful baggage routing rates of 95 percent and 99 percent, respectively. From this information we can determine:

- a) Airline A has better baggage service
- b) Airline B has better baggage service
- c) The baggage services are equally accurate
- d) Nothing: we need more information

6. If we want to test whether the proportions of more than two populations are equal, we use:

- a) ANOVA
- b) Estimation
- c) The variance
- d) Interval estimates
- e) None of these

7. Which of these distributions has a pair of degrees of freedom

- a) Poisson
- b) Normal
- c) Chi-square
- d) Binomial
- e) All of these
- f) None of these

8. The F ratio contains

- a) Two estimates of the population variance
- b) Two estimates of the population mean
- c) One estimate of the population mean and one estimate of the population variance
- d) Both (a) and (b)
- e) None of the above

9. A major automobile manufacturer has had to recall several models from the its 1993 line due to quality control problems that were not discovered with its random final inspection procedures. This is the example of:

- a) Type I error
- b) Type II error
- c) Both Type I and Type II error
- d) Neither type of error

10. With a lower significance level, the probability of rejecting a null hypothesis that is actually true -

- a) Decreases
- b) Remains the same
- c) Increases
- d) All of these

### Section B-Short answer questions-(5 marks each)

1. List the advantages of sampling over complete enumeration or census.
2. Describe, in brief, the layout of a research report, covering all relevant points.
3. Big Cinema knows that a certain hit movie ran an average of 84 days in each city, and the corresponding standard deviation was 10 days. The chief manager of the Uttarakhand state was interested in comparing the movie's popularity in his region with that in all of India's other theaters. He randomly chooses 75 theaters in his region and found that they ran the movie an average of 81.5 days.
  - a) State appropriate hypotheses for testing whether there was a significant difference in the length of the picture's run between theaters in the Uttarakhand state and all of India's other theaters.
  - b) At a 1 percent significance level, test these hypotheses. (Z value at 1 percent significance level is **2.58**)
4. A brand manager is concerned that her brand's share may be unevenly distributed throughout the country. In a survey in which the country was divided into four geographic regions, a random sampling of 100 consumers in each region was surveyed, with the following results:

	REGION				Total
	NE	NW	SE	SW	
<b>Purchase the brand</b>	40	55	45	50	<b>190</b>
<b>Do not purchase</b>	60	45	55	50	<b>210</b>
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>400</b>

Calculate the sample  $\chi^2$  value at  $\alpha = 0.05$ , test whether brand share is the same across the four regions. ( $\chi^2$  tabulated value at  $\alpha = 0.05$  and 3 degree of freedom is **7.815**)

### Section C-Descriptive type questions- (10 marks each)

1. Explain the meaning of the following sampling fundamentals with suitable examples-
  - a) Sampling error
  - b) Central limit theorem
  - c) Sampling frame
  - d) Sampling design
2. Give your understanding of a good research design. Is single research design suitable in all research studies? If not why?
3. Mukesh Kumar, the Dean of Students at Midstate College, is wondering about the grade distributions at the school. He has heard grumblings that the GPAs in the Business School are

about 0.25 lower than those in the college of Arts and Sciences. A quick random sampling produced the following GPAs.

Business	2.86	2.77	3.18	2.80	3.14	2.87	3.19	3.24	2.91	3.00	2.83		
Arts & Sciences	3.35	3.32	3.36	3.63	3.41	3.37	3.45	3.43	3.44	3.17	3.26	3.18	3.41

Do these data indicate that there is a factual basis for the grumblings? State and test appropriate hypotheses at  $\alpha = 0.02$ . (t Tabulated value at 0.02 level with 22 dof is **2.508**)

### Section D-Analytical / Case Study-(15 marks each)

- Describe the hypothesis-testing process? Under what conditions is it appropriate to use a one-tailed test? A two-tailed test?
- A study compared the effects of four 1-month point-of-purchase promotions on sales. The unit sales for five stores using all four promotions in different months follow.

<b>Free samples</b>	78	87	81	89	85
<b>One-pack gift</b>	94	91	87	90	88
<b>Rupees off</b>	73	78	69	83	76
<b>Refund by mail</b>	79	83	78	69	81

- Compute the mean unit sales for each promotion and then determine the grand mean.
- Estimate the population variance using the between-column variance.
- Estimate the population variance using the within-column variance computed from the variance within the samples.
- Calculate the F-ratio. At the 0.01 level of significance, do the promotions produce different effects on the sales? What will be your advice to the management related to promotions effects. (F Tabulated value at 0.01 level with 3 dof in the numerator and 16 dof in the denominator is **5.29**)